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Towards ecological governance in EU energy law

Giljam, Renske Anne

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Annex III

English summary

English summary

The central theme of this dissertation is how a full life-cycle approach might be implemented in European energy law, in order to facilitate and expedite the energy transition. The idea behind this is that by considering the full life cycle of a(n) (energy) product and its corresponding environmental effects in the regulation of that product, a 'hierarchy' can be established regarding the desirability or acceptability of these products and their production processes. This general theme was broken down into eight sub-questions, which were subsequently analysed, and my findings were published as four separate articles in different journals. Hence, the body of this dissertation (Chapters Two to Five) is formed by these four articles.

In this dissertation, the energy sector was chosen as the focal point, because sufficient energy is crucial for societal functioning, while simultaneously energy production and consumption are the main cause of global anthropogenic GHG-emissions. Thus, any climate change mitigation strategy should have the regulation of energy production and consumption at its core. As 'the energy sector' is rather broad, further demarcation was applied by largely centring the research around the legislation on the use of biomass for energy purposes and the legal framework on biofuels. For the latter, sustainability criteria have been imposed that (should) cover the entire production chain. In first instance, I have therefore investigated whether the current legislative framework can be considered sufficient for implementing such a life-cycle approach for biomass used for energy purposes (Chapter Two). This analysis showed that this is not the case, because the sustainability criteria apply only to a limited amount of applications for biomass, so that for the sustainability of biomass there is no consistent legal framework, but rather a patchy framework has evolved. Due to this, at European level, there are no similar, holistic and/or binding sustainability requirements for, for instance, solid biomass, such as pellets. The sustainability of biomass in its broadest sense, and of biofuels in particular, is further undermined, because the indirect effects of using these materials are not considered under the current rules. Especially indirect land-use changes (the so called ILUC-effects) may cause biofuels to emit more greenhouse gases throughout their life cycle than their fossil fuel counterparts. Currently, it is attempted to resolve this hiatus under the revised Renewable Energy Directive (see also Annex I: Policy Update). What is not addressed in this new Directive is the risk of a 'carbon debt' that arises from the time lapse between the use of the biomass -which usually involves a form of combustion- and the moment at which the emissions are reabsorbed by (regrown) biomass. This temporary increase in atmospheric carbon can thusly further undermine the CO2-neutrality of biomass.

The next step in this dissertation was to analyse how, from a holistic perspective, the current legislation can/could be improved (Chapter Three). The theoretical lens that was used for this was the perspective of 'ecological governance' as developed by Woolley. I have thus investigated

what implications such an ecological approach would have for the design of (energy) legislation and how we could implement the concept in practice. The basis of the ecological approach is that policies should be aimed at a reduction of the (cumulative) stresses that human activities put on ecosystems. Its aim is therefore to contribute to, or at least not to retract from, the (improved) functioning of ecosystems by enhancing their resilience. To this aim the guiding principles distilled by Wooley are: (i) a reduction of consumption and (if necessary) material development in a broad sense; (ii) the replacement of damaging processes and activities by activities and processes that have less of a negative impact; and (iii) halting the most damaging practises and activities. In order to be able to properly assess what this means *in concreto*, under ecological governance, the development of knowledge plays a prominent role, and, on top, it is combined with an adaptive policy, so that continuous revision on the basis of the latest insights is made possible.

Since these guiding principles have a strong resemblance with the concept of 'best available techniques' (BAT), I have next analysed to what extent ecological governance can be implemented via this instrument. In this, I have not so much looked at biomass, but at energy production in a broader sense. Currently, the use of the BAT is only central in the regulation of industrial emissions and not in other parts of the production chain. I have come to the conclusion that much can be gained coupling a by revised interpretation of the instrument itself ('internal changes') with a broader application thereof ('external changes'). In principle, a mandatory and broad application of the BAT to new (legislative) areas seems well possible.

After that, I have looked into whether such a broad application would be in line with (international) trade law, and in particular with the obligations arising under the World Trade Organization (WTO) (Chapter Four). Under the WTO, the rules from the General Agreement on Tariffs and Trade (GATT) are of particular importance. In regard to a broad application (and enforcement) of BAT, the controversy primarily revolves around the question whether products that are manufactured via environmentally friendlier production processes are fundamentally different (i.e. 'unlike') from products of which the production process has a higher ecological impact. Fundamental under the WTO is that (policy) measures taken by its members must be non-discriminatory, proportionate, and reciprocal, so that they are as least trade disruptive as possible. In the case that stringent BAT-requirements are upheld the EU, and are also enforced at its outer borders, according to my analysis, the following applies. At first glance, this situation appears to amount to an import restriction prohibited by the GATT. However, the respective provision only prohibits 'external measures', i.e. measures and requirements that do not apply to 'domestic' products. Since EU-widely applied BAT-requirements in fact impose identical requirements on production processes that take place within the EU and those that take place outside the EU, it is only required (under the GATT) that these requirements do not discriminate between national and foreign products that are 'like'.

The crux is in the word 'like', which forms the core of the debate. The WTO Treaties do not define this term, and the assessment whether two products are, or are not, like occurs case-by-case, on the basis of jurisprudentially developed criteria. The use of environmental criteria, or ecological standards, as a distinctive criterion is controversial, because such standards often do not impact the physical or chemical composition of a product. This physical composition is one of the criteria in the determination of likeness, and so is an appraisal of how the final product is used. As such, it can be reasoned that products that are mutually replaceable, or substitutable in the eyes of the consumer, are like. On the other hand, the perception and preferences of consumers have equal weight in the assessment whether products are like. Specifically in the case of energy, there is a strong perception that renewable energy is significantly different from fossil fuel energy, and as an expression thereof the EU has even partially created a legal differentiation between the two. Moreover, it can be argued that the rigid distinction between a 'product' and a 'production process' is unsatisfactory in the case of energy. This holds particularly true for electricity: a product for which it can be argued that even the distinction between a 'good' and a 'service' is inaccurate. In short, while my conclusion may be controversial, in the light of the above, in principle there appear to be no categorical, legal barriers to externally upholding stringent BBT-requirements, as long as this stringent legislation is applied transparently and non-discriminatory to imports and exports, as well as internally.

In the final phase of this PhD-research, I have analysed to what extent the use of 'technology neutral' legal instruments (such as the BAT-concept) is desirable and/or possible in implementing ecological governance (Chapter Five). Technology neutrality is generally hailed for its potential to make the legal framework 'inclusive' (i.e. widely applicable) and futureproof. This is important in the energy transition, because this transition is largely dependent on technological developments. By designing the legal framework in such a way that these (hitherto unknown) technologies are covered upfront, policies can be geared more towards functionalities and effects, rather than (technological) means. The idea is that, thus, fewer barriers arise in the development of innovations, and that these innovations can, on top, be absorbed in the existing legal framework. The downside of technology neutral legislation is that (too) open or broad formulations could lead to reduced legal certainty and reduced steering power. The latter is confirmed by literature, from which the picture emerges that, for the radical technological progress that is currently necessary in the energy sector more is required than mere 'neutral' formulations. Instead, ambitious goals must be set, with corresponding (production) requirements that cannot be met by current means and technologies. In short, in terms of the required policies, there is an essential difference between simply absorbing innovations and actually incentivising them.

An analysis of the most relevant legislation for the energy sector revealed that within the current legal framework the level of technology neutrality varies, dependent on the primary goal of that specific piece of legislation. The documents that are more of an 'organising' nature -such

as the rules on the internal market- are overall more technology neutral that documents that have more of a 'steering' function -such as the ones aimed at greening the energy sector. None of the current documents, however, impose the kind of stringent requirements that are deemed necessary by literature. Additionally, other factors than technology neutrality are of overriding importance to implementing ecological governance. In particular, it seems more worthwhile to design the legal system is such a way that it can adequately deal with uncertainties and that it can be adapted on the basis of progressive insights and developments, rather than holding on to the idea that today's legislation must suffice for tomorrow's technologies.

During the research conducted for this dissertation, on the basis of progressive insights, it became apparent to me that an ecological approach cannot be implemented in (European) energy law, as long as certain fundamental assumptions underlying the current system are not simultaneously addressed (Chapter Six). In particular, (i) the envisaged (legal) system change must be accompanied by a more respectful attitude towards our (living) environment, upon which we are fully dependent; (ii) we need to be more humble when it comes to our capacity to accurately assess and predict the impact that our activities have on ecosystems, how these ecosystems function, as well as the complex interactions between them; and (iii) we have to challenge the paradigm of permanent growth (which is at the core of our current economic system), in order to avoid that the ecological progress made is annulled by a 'refill'. Thusly, I come to the conclusion that full ecological governance can only be implemented in European energy law, if amendments in the legal framework are accompanied by such paradigm changes. In the policy and/or legal frameworks it is furthermore crucial that favourable conditions are created for gathering data and knowledge and that, on the basis of the latest insights, corresponding policy and/or legal amendments are implemented.