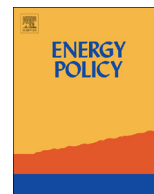




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# Too difficult to govern? An assessment of the governability of transport biofuels in the EU



Lorenzo Di Lucia\*

*Environmental and Energy Systems Studies, Lund Faculty of Technology, P.O. Box 118, SE-22100 Lund, Sweden*

## HIGHLIGHTS

- Biofuels in the EU are significantly more difficult to govern today than in 2003.
- This is due to the qualities of the system to be governed and the governing system.
- Sustainable biofuel systems are inherently difficult to govern.

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## ABSTRACT

Transport biofuels are currently the subject of heated debate in the EU. In the past decade the deployment of these technologies has been justified by claims of attractive environmental, geopolitical and rural development benefits. However, expectations have rapidly turned into deep criticism regarding the sustainability of these technologies and the desirability of pursuing the biofuel path. This situation has generated an on-going controversy and policy deadlock at EU level. This study explores these issues from a governance perspective. Employing the concept of system governability, derived from interactive governance theory, it attempts to shed some light on the problems facing the governance of biofuels and on how the quality of the governance system could be improved. The analysis showed that the governability of the system decreased substantially in the period 2003–2012 due to increasing governing needs and decreasing governing capacity. The quality of the governance system can be improved by (i) improving governing capacity by reducing conflicts among governing actors, advancing consistency among institutions and creating capacity at international and global level; and (ii) promoting advanced technologies and adjusting societal ambitions and expectations regarding biofuels.

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## 1. Introduction

Transport biofuels have been generously promoted in the past decade in the European Union (EU) as a means to reduce the emissions of Greenhouse Gases (GHG) and improve the security of energy supply in the transport sector, while promoting economic development and employment in rural areas throughout the EU. However, transport biofuels have given rise to heated debate in the EU. Many perceive these technologies as being too risky, or even worse than the problem(s) they were meant to address, while others defend them as the only commercial alternative to soon depleted and polluting fossil fuels. Critics do not spare governments and their pro-biofuel programmes. Since 2009, the European Commission (EC) and several member states have developed and introduced policies to address the risks that an

expansion of biofuel production could generate for the natural environment<sup>1</sup>. At the same time, private and private–public certification initiatives have blossomed around Europe in attempts to limit the negative impacts on the environment and, to various degrees, also on human well-being<sup>2</sup>. In spite of these efforts, biofuels continue to be questioned and their benefits remain largely disputed. The issue of indirect Land Use Changes (iLUC) is a critical concern.

iLUC occur when the production of biomass feedstock for biofuel production displaces land-intensive activities to other areas, where they cause changes in the use of land with impacts on conditions such as carbon stocks, biodiversity and food production. Indirect impacts of biofuels have proven difficult to assess and mitigate, since they act between substituting and

<sup>1</sup> See Directive 2009/28/EC and national systems introduced, e.g. in the Netherlands, Germany, the UK, France, Italy and Sweden.

<sup>2</sup> See, e.g., voluntary certification systems such as the Roundtable of Sustainable Biofuels EU RED, the Round Table on Responsible Soy EU RED, Bonsucro EU, etc. (EC 2012b).

\* Tel.: +46 46 222 9840; fax: +46 46 222 86 44.  
E-mail address: [lorenzo.di\\_lucia@miljo.lth.se](mailto:lorenzo.di_lucia@miljo.lth.se)

non-substituting crops, across national borders, are largely outside the control of the biomass producer and consumer and are not observable, but can only be measured and illustrated through modelling (Ecofys 2009; Gawel and Ludwig, 2011). It is now largely recognised that these impacts could be significant and should not be neglected when promoting biofuel technologies (e.g. EC, 2012a). However, owing to the practical and methodological difficulties of estimating with precision the severity of iLUC of biofuels and to the dire consequences for the EU biofuel industry of strict regulation, the issue has created a policy deadlock at EU level where policymakers are being asked to take (unpopular) decisions in a context of high scientific uncertainty (Di Lucia, 2012)<sup>3</sup>.

Only a few years ago the debate on transport biofuels in the EU was very different. Attracted by benefits such as climate change mitigation, improved security of energy supply and rural development, in 2003 the EU embarked on large-scale deployment of biofuel technologies (Directive 2003/30/EC). As a result, EU production and consumption levels increased substantially in the period 2003–2006 (EC, 2007; Euroserv'ER, 2007). In this initial phase, biofuels were perceived as a key energy and transport technology in the Union (EC, 2006b) or, as described by an official of the EC, as the opportunity to kill *three* birds with *one* stone, namely to reduce GHG emissions of transport, improve energy security and generate employment and income in rural areas.

When observed in this light, the EU experience with transport biofuels in this short period of time is truly astonishing. Great expectations rapidly turned into deep criticisms, which are fuelling an on-going debate on the sustainability of these technologies and on the desirability of pursuing the biofuel path. This situation and the resulting policy deadlock at EU level are having cascade consequences on national regulatory systems and on the biofuel industry at large. But how has this happened and, more importantly, how should we interpret this experience? Are biofuels inherently difficult to govern?

This study explores these issues from a governance perspective. Employing an analytical framework grounded on interactive governance theory (Kooiman, 2003), the aim was to examine the evolution of the governance of transport biofuels in the EU in order to identify opportunities and challenges for improving the quality of the governance system. The starting point for the work was the assumption that we can foster a more realistic and constructive deliberation on the outcomes and quality of biofuels governance by improving our understanding of the real limitations, uncertainties and knowledge gaps. In other words, the present study argues that it is more important to recognise and assess the limits of governance of the system before expecting it to perform beyond what it can actually and potentially do.

Biofuels governance was examined here by conducting a systematic assessment of the system governability, interpreted as *the overall capacity for governance of any societal entity or system* (Kooiman et al., 2008). The governability assessment was carried out for two specific time periods, 2003–2006 and 2010–2012, representing the system in its initial configuration and in its latest phase. A comparative approach was selected because it allowed the study of the evolution of the governance system over time and, furthermore, it provided a way to qualify the governability of the system in relative terms avoiding the difficulties of using absolute values, e.g. low, medium, high, employed in most of the governability literature. The analysis, based on qualitative methods and relying primarily on scientific literature, official reports, personal

communications and observations<sup>4</sup>, sought to identify what contributes to the desired governance performance and what hinders it. This knowledge was used to explore ways for improving the quality of biofuels governance<sup>5</sup>.

Section 2 of this paper introduces the biofuel system and the two cases included in the study. Section 3 presents the theoretical foundations on which the study is built, interactive governance and system governability. The analytical framework used to assess the governability of transport biofuels in the EU is described in Section 4, while the results of the assessment are presented in Section 5. The results are used to identify and discuss two ways forward for improving the quality of biofuels governance in the EU (Section 6). Some concluding remarks are presented in Section 7.

## 2. The biofuel system

There are many potentially suitable points of departure when defining a biofuel system, e.g. a specific ecosystem, type of biofuel, type of feedstock, range of influence of an important governing actor, and so on. This study opted for a definition which departs from the biofuel chain. The term 'chain' suggests connectedness where one element links to, and influences, the next in sequence, as it is itself affected by the preceding element. Thus the biofuels chain is here perceived as following a resource from field to tank, through cultivation, industrial transformation and distribution, and including all natural and socio-economic elements along the chain. The biofuels chain is affected by, and affects, the surrounding environment.

The two empirical cases analysed in this study concerned the EU biofuel system in its initial configuration (period 2003–2006) and in its most recent phase (period 2010–2012).

In the period 2003–2006, transport biofuels were (re)discovered and placed at the forefront of transport and energy policy discussions in the EU. While until 2003 biofuels were promoted only in a handful of member states and accounted for a negligible share of transport fuel consumption (Euroserv'ER, 2002), with adoption of Directive 2003/30/EC large-scale deployment of these technologies started in the EU region. Motivated by long-term goals such as improving energy security, climate change mitigation and rural development, the EU Directive established region-wide indicative targets for biofuel consumption (2% by 2005 and 5.75% by 2010). National implementation of these targets was not a simple task for the many member states where the biofuel chain had to be created from scratch (Di Lucia and Nilsson, 2007; Kondili and Kaldellis, 2007)<sup>6</sup>. Although slower than planned in the Directive, the EU biofuel sector expanded from a level close to zero in 2003 to 225 (PJ), or 1.8% of road transport fuels, in 2006 (Euroserv'ER, 2004, 2007) (Fig. 1). At the same time, biofuel producers, fuel distributors and the car industry successfully agreed on quality standards for biodiesel and bioethanol and on ways to improve the compatibility of vehicles and distribution systems with the qualities of these new fuels (Wiesenthal et al., 2009). Remarkably, in this period the EU was largely self-sufficient and imports accounted for

<sup>4</sup> Personal communications in the form of interviews were conducted between 2006 and 2011 with actors involved in the governance of biofuels in the EU, such as EC officials (from DG TREN), representatives of the industry, environmental NGOs, researchers and officials of several EU national governments. Data were also collected through direct observations during workshops, roundtables and various public debates on biofuels. Detailed description of the data collected and collection methodologies can be found in Di Lucia et al., (2012).

<sup>5</sup> Governance quality is here assumed to be connected to the performance of the system in achieving specific goals negotiated internally by the system and not exogenously determined, e.g. by the researcher.

<sup>6</sup> This is the case in most member states with the exception of the agricultural components of the biofuel chain.

<sup>3</sup> Only in October 2012, nearly two years after the original term, the EC presented a legislative proposal to address the issue of iLUC of biofuels in Directives 2009/28/EC and 1998/70/EC (EC, 2012a). The proposal is briefly illustrated and discussed in Section 6.

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