

COMPETITIVENESS OF BIOENERGY- ONE ISSUE DIFFERENT LOGICS

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ABSTRACT: Competitiveness of bioenergy is besides technical issues, an issue of the conceptions held the involved actors. This study has unified conceptions, norms and mindsets etc. that implicit guide the behaviour of actors under the concept of logic. Three influential logics that the actors of the energy system uphold are described under the designation: production logic, market logic and socio-economic logic. *Production logic* ranks forms of energy according to production costs. *Market logic* rank forms of energy after the surplus that they can establish in the market. *Socio-economic logic* ranks forms of energy according to the socio-economic legitimacy given to different forms of energy by involved stakeholders. The three logics are analysed in terms of market strategies. Depending on which logic that are maintained the strategies to e.g. increase the use of bioenergy, will have quite different content. We conclude that it is important to look behind the apprehension of price mechanism as the sole component determining the competitiveness of bioenergy and also acknowledge the importance of the underlying logics maintained be the actors. We argue that this type of underlying logics must be considered in order to achieve an efficient implementation process for e.g. bioenergy.

1. INTRODUCTION

To be able to determine the competitiveness of bioenergy it is obvious that we need to consider the factors that are decisive for competition in the energy sector. Bioenergy is in this paper used as a generic term for the entire process: from biomass production over energy conversion and distribution to energy consumption. Below is a schematic figure of the structure of the bioenergy system.

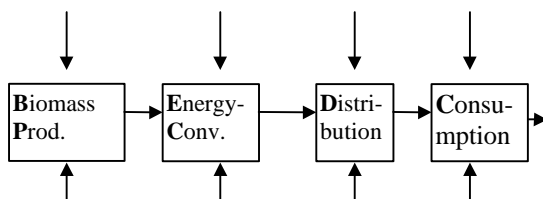


Figure 1: Schematic outline of the bioenergy system symbolised with biomass production, energy conversion, energy distribution and consumption. The vertical arrows symbolise competitive situations, involving other forms of energy or actors taking up alternative activities, at different stages in the chain, from biomass production to the final consumer of bioenergy. The horizontal arrows show the flow of material.

The neo-classic micro theory states that competition is the same as price competition. Cost-effective forms of

energy will survive and the price will stabilise at a level where supply and demand meet. A more Austrian school inspired another answer and one that comes closer to what we in every day language mean by “competition”, i.e. that the competitiveness is determined in a market process in which entrepreneurs have the important role of finding and creating market opportunities [1]. Market opportunities in which bioenergy will prove competitive can be described as the situations and the applications of bioenergy in which the prevailing market structures are more favourable for bioenergy than for other forms of energy.

The market structure is the network of relations in which the bioenergy system is embedded. This means that the positions within the network determine the competitiveness of the actors and their different roles[2]. The relationships within the network consist of activity patterns, resource constellations, and webs of actors[2].

The competitiveness of bioenergy is relation-emergent and is determined by the relation between bioenergy and the surrounding market structure. On the market arena bioenergy will be tested in different applications and under different situations. Successful combinations between bioenergy and the market structure in a wide sense will be considered competitive.

Competitive combinations are not given by nature, but are the outcome of a market process in which the value of bioenergy, when compared to other forms of energy, is discovered and/or created by entrepreneurs. In the bioenergy case all the actors within or connected to the energy system are entrepreneurs or potential entrepreneurs of the bioenergy market. Entrepreneurs interpret signals from the energy market. Guided by these implicit signals, entrepreneurs devise more or less new combinations of bioenergy applications and market situations.

Exchange opportunities depend on the actors' conceptions of bioenergy and of the arena where the competitiveness of bioenergy is determined. The conceptions held by the actors/entrepreneurs will set cognitive restrictions by interlocking the actors' activities into certain patterns [3]. In the case of the competitiveness of bioenergy the interlocking is created by e.g. certain conceptions of the competitiveness of bioenergy, conceptions of the environment, conceptions of the energy consumer, conceptions of the role of bioenergy, and so on.

The cognitive restrictions, in the paper described as logics, will implicitly govern the activities of the actors/entrepreneurs in the market and therefore, in a wide sense establish the competitiveness of bioenergy. The logics work both as restrictions by excluding certain for bioenergy favourable aspects from the market process and as driving forces by emphasising certain for bioenergy favourable aspects in the market process.

2. AIM AND METHOD

The aim of the study is to elucidate implicit logics that represent restrictions as well as driving forces in the process that establishes the competitiveness of bioenergy in Sweden. Some influential conceptions that the actors of the energy system uphold are studied and analysed. The conceptions of the actors are seen as key factors for the understanding of the function of the energy system and accordingly also for the understanding of the competitiveness of bioenergy.

The actors' conceptions have been identified from interviews with 30 significant actors within the Swedish energy system. The material from the interviews has been synthesised into nine ideal types of actors. The nine "model actors" have been the basis for the further analysis which has resulted in a number of idealised patterns of thinking called logics.

3. LOGICS WITHIN THE SWEDISH ENERGY SYSTEM

The study tries to visualise different implicit logics that govern actors in their perceptions of the competitiveness of bioenergy. The three logics of ideal type that have been developed is production logic, market logic and socio-economic logic. Below follows a concise presentation of how the three logics place different energy forms in order of competitiveness.

Production logic ranks forms of energy according to production costs. The lower the production cost is, the more competitive the particular form of energy will be. The competitiveness of bioenergy increases if the production costs are decreased vis-à-vis competing forms of energy.

Market logic rank forms of energy according to the surplus that they can establish in the market. The surplus is materialised by matching the particular form of energy with the preference profile of the market. The higher the surplus is that can be materialised on the market, the more competitive the particular form of energy will be. The market value of bioenergy can increase because of sustainability, environmental and regional reasons etc.

Socio-economic logic ranks forms of energy according to the socio-economic legitimacy given to different forms of energy by involved stakeholders. The socio-economic legitimacy can be based on e.g. the fact that the particular form of energy is local, sustainable or creates employment. A particular form of energy is competitive if it is socio-economically legitimate. The more goodwill, in a wide sense, a particular form of energy gives its stakeholders, the more competitive this form of energy will be.

As shown above the logics determine the way bioenergy and the different market situations match and also which features of bioenergy that will be given importance when ranking different forms of energy. In short, logics affect the entire range of perception of opportunities for bioenergy vis à vis the market.

This is not to say that price does not play an important role on the market; however, reducing the market to a price mechanism prevents studying the dynamics of the market process. The price mechanism creates a situation in which bioenergy is momentarily matched in favourable ways within the market structure; while a dynamic system examines on a continuous basis the pros and cons of bioenergy. The underlying logics, as well as the bioenergy applications, are continuously developed in the course of the market process. Focusing on logics and the market process become a useful means of attempting to develop market strategies for bioenergy. Thus, strategies is the subject of the remaining part of this section.

Upholders of the three logics work with different markets and marketing strategies. The upholders of the *production logic* try to decrease the production cost. Maintaining a production logic therefore makes technical development a key factor when trying to increase the competitiveness of bioenergy. The upholders of the *market logic* strive to create profitable market spaces in order to increase the competitiveness of bioenergy. This can be done by finding market niches and by creating new market combinations for bioenergy. The marketing of green electricity is a *market logic* attempt to increase the competitiveness of bioenergy. Finally, upholders of the *socio-economic logic* look for energy solutions that maintain or augment the legitimacy in the energy system or the community in question. It becomes important to decipher and create opinions.

4. DISCUSSION

Competitiveness of bioenergy is more than an objective rational choice of the most cost-effective source of energy. It also involves implicit logics that represent restrictions as well as driving forces in the process that establishes the competitiveness. Therefore, we conclude that it is important to look behind the apprehension of cost-effectiveness as the sole component of the competitiveness of bioenergy and also acknowledge the importance of the underlying logics maintained by the involved actors. The concept of competitiveness has as this study shows different meaning for different actors and in different settings. The requirements that bioenergy has to meet to become competitive will therefore differ greatly.

In order to be able to develop an efficient strategy for implementing bioenergy, it is important to elucidate the implicit context dependent factors e.g. in terms of the logics of the involved actors and the built-in logics of the present market structure. If the context specific and implicit factors are let into the implementation process they can be great driving forces in the development of bioenergy. However, if ignored this context specific aspects will obstruct the process. We close the paper by arguing that every practical and down to earth way of increasing the use of bioenergy must take into account the differences in conceptual settings under which bioenergy is or will be used. The settings are e.g. manifested in different logics of the involved actors.

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