

Large-Scale Implementation of SRC Systems: Assessment of Technical and  
Non-Technical Barriers  
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During the IEA Task 30 meeting in Denmark in 2001 a number of ‘high priority areas’ were identified for further investigation by task members. High Priority Area 3 called for an investigation into the ‘Large-scale implementation of SRC systems: Assessment of Technical and Non-Technical Barriers’.

The development of short rotation crops for energy generation has been slow in the majority of member countries. The reasons behind these delays have been discussed for individual countries but there has been limited assimilation of this information or comparison between the experiences of different countries.

The purpose of this investigation was to identify the technical and non-technical barriers to the full-scale implementation of short rotation crops for energy production across all IEA member countries. By identifying the barriers, comparisons could be made and recommendations for joint working between member countries to work towards solutions to the existing barriers could be suggested. This work has drawn on experience of countries that have had greater progress in this field and has identified lessons that can be learnt from these countries and areas for replication.

Initially each member country of Task 30 was contacted and a preliminary list of technical and non-technical barriers was requested. Using this information, a skeleton outline of the final report was produced and this was circulated to all members. The purpose of this second consultation was to allow each of those who had not already contributed to the work an opportunity to put forward any barriers that had not been identified. It also served to provide an opportunity for *all* members to examine the barriers that had been put forward, to assess whether they were subject to the same barriers as other countries and to allow them to offer examples of where barriers had been overcome.

A literature review of existing information relating to the technical and non-technical barriers arising from the large-scale implementation of SRC across participating Task 30 Member countries was carried out through personal correspondence and also on the world-wide web

The study identified that most of the technical barriers could broadly be grouped into three overarching categories; unfamiliar fuel barriers, unfamiliar crop barriers and underdeveloped technologies. The first of these categories, included barriers which were related to the different fuel characteristics of SRC compared to coal and the effects these differences had on transportation impacts and costs, fuel handling and the performance of the conversion technologies, the second included barriers which related to uncertainty over the crops nutritional and water requirements, effects on biodiversity, optimum conditions for maximising yields and the strong need for breeding initiatives. Finally, the

study reported that considerable work was still needed in many member countries on the development of conversion, planting and harvesting technologies.

Unlike the technical barriers, non-technical barriers could not be easily categorised and tended to be much more complex. Solutions to the barriers also tended to be less straight forward and there were many opinions and perceptions, which following good quality demonstration projects, have turned out to be misconceptions. For example, there is still a considerable lack of knowledge of SRC amongst farmers in the UK. Following the failure of the Arbre project, farmers have developed a rather negative perception towards SRC and issues that are not real have been perpetuated, such as that SRC willow is difficult to remove and that pests and diseases are uncontrollable. Negative perceptions such as these tend to linger until they are proven incorrect. Often the only way to do this is to repeatedly demonstrate the benefits of the technology until the negative perceptions are erased.

The issues of competition were raised in relation to many aspects. Competition with non-renewable technologies, not only for its utilisation for energy production, but also for funding, research and development efforts. Competition of SRC with other biomass fuels for bioenergy production and competition of SRC for land with other crops, particularly food crops, were concerns. The development of new industries almost always raises issues of competition, since it generally involves the replacement of existing technologies and products.

The non-technical barriers most likely to cause on-going delays to implementation will be related to government policies. Energy, planning, waste and farming policies are all intricately linked in SRC energy production and changes in one area can have knock-on effects in others. In addition, positive changes in policy are welcome in most respects, but even with positive changes, when policy is changed too frequently, this can undermine investor confidence and ultimately impact the outcome in a negative way.

Many of the other non-technical barriers could be explained by the youth of the industry and the novelty of the approach to farming the crop and generating biomass power. Those countries where SRC have been utilised for the longest time, seem to have overcome many of the non-technical barriers that the less experienced countries are still experiencing. Familiarity, time and the sharing of knowledge and experiences between the experienced and the novices should allow most of these barriers to be overcome. Because SRC is becoming successful in more than one country this suggests that there are unlikely to be any non-technical barriers that cannot be overcome in all other countries.

This report has highlighted areas where a lack of communication and sharing of information is evident. For example, an issue raised by the US was a lack of understanding of the optimum intra-field multiclinal distribution patterns, where this subject has been researched at great length in Europe to great effect and is dictating what combinations of species to plant for commercial crops in best practice guidance.

It would appear that in the majority of cases the technical barriers related to supply chain and conversion technologies are on the verge of resolution. Conversion technologies are becoming more advanced and development in the engineering field is on-going with many commercial power generation plants in existence. However, it is the non-technical barriers that appear to be the more obstructive and if anything being more pervasive. Issues of disjointed legislation and guidelines from government, public misconceptions and fear of an uncertain future will be the toughest obstacles requiring much effort in lobbying and education.