



**inFRes**



## Risk assessment and measures to overcome barriers to the commercialization of inventions

In the INFRES project, some objectives are identified:

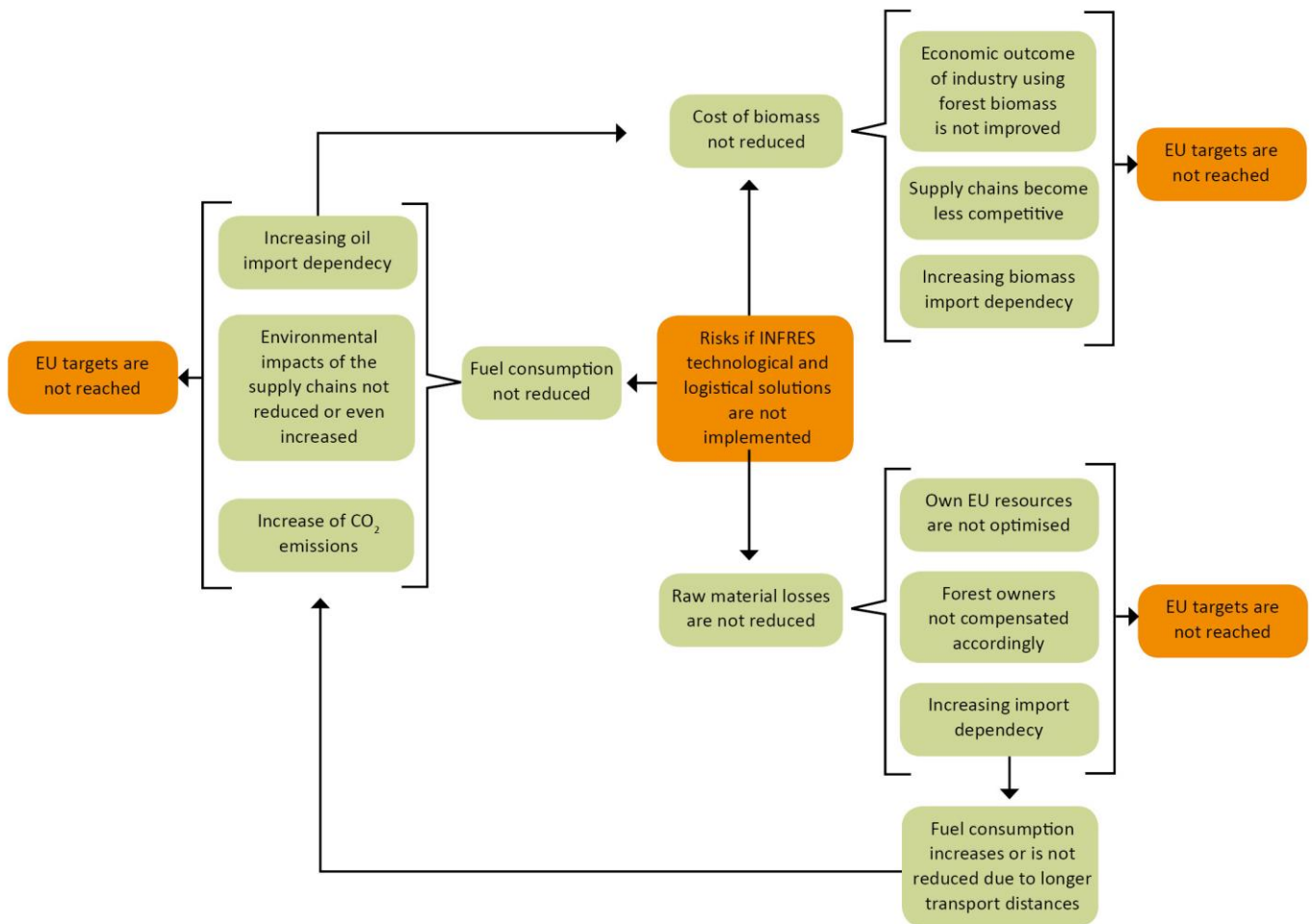
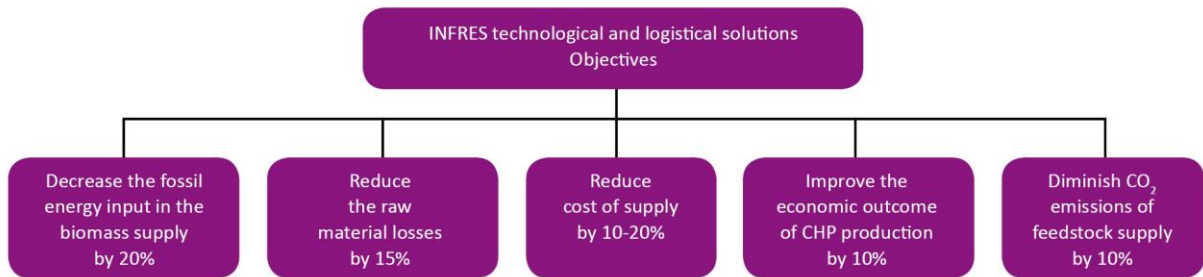
- Develop and demonstrate technological and logistical solutions that reduce the fossil energy input in the biomass supply by 20% and the raw material losses by 15%.
- The cost of supply can be reduced by 10–20% and precision of supply improves the economic outcome of CHP production by 10%.
- The CO<sub>2</sub> emissions of feedstock supply will diminish by 10%.
- With the novel technologies and efficient transfer of best practices between the countries in the consortium and other countries with similar natural conditions, the volume of forest energy supply in EU27 by 2015 will be 30% higher than today.

As an example, and departing from the estimation uttered in the European “Promoting wood energy scenario” that 71 million oven dry tons (odt) of

logging residues and 51 million odt tons of stumps would be needed to be extracted in 2030, it can be calculated that the total amount of fuel that would be needed could reach 570 million litres of diesel (assuming 4.8 l/odt in stump harvesting, 2.9 l/odt and 2.4 l/odt in forwarding of logging residues and stumps respectively). If INFRES objectives are to be realised, this would mean that fuel consumption would be cut by 115 million litres of diesel.

In order to overcome the barriers that would contribute to the realization of the risks, a number of measures have to be taken.





*Potential risks associated with not bringing the demonstrated technological and logistical solutions to practical application along with their consequences.*



Considering measures to overcome barriers that manufacturers face when developing an innovation, the following should be prioritized:

- Proper allocation of resources for product development and improvement of the business profitability
- Ascertaining how markets and trends are developing
- Cooperation with other firms within horizontal structures in industrial districts, with customers (forest companies) to ensure product sales, feedback for further development and with scientists, educational institutes and universities
- Ensuring favourable financing instruments (e.g. affordable and secured loans)
- Subsidies or grants to compensate high-risk investments, particularly for small innovative companies

These measures are mainly in the hands of the manufacturers themselves, with some of the policy makers who may contribute by financing instruments or compensations for high-risk investments.

Considering measures to overcome barriers found during the implementation or use phase the following should be prioritised:

- Collaborate with existing dealers and service networks
- Secure expert help provided by the manufacturer
- Mount demonstration actions to show and promote equipment
- Choose a machine that is properly adapted to the site (size of trees, topography, etc.) with a good service deal and reliable service network
- Evaluate whether – through small low-cost changes – (i.e. different tracks, add another axle or bogie to improve bearing capacity tire size, air-pressure change in tires, knife-change) a machine can be made suitable for a specific environment
- Contact contractors and forest companies
- Ensure enough working hours for expensive machines by good planning and management
- Draft long term contracts that could ensure realistic prospects for profitable business

In this case, there is a good mix of the main actors of the measures between forest companies and manufacturers. It means that both have to work, sometimes together, to overcome the barriers detected. Besides the main actors of the measures, other stakeholders (policy makers, researchers) can take actions to promote or accelerate the implementation of those measures in order to ensure reaching the commitments of the UE regarding forest biomass and wood supply chains.

If the technological and logistical solutions demonstrated during the INFRES project are not implemented or if their implementation is delayed considerably, then the realisation of energy and environmental targets in Europe cannot be achieved. Nor will sustainability and cost efficiency gains in the biomass supply chains be realised.

**Successful innovations:** increase productivity of the operations, reduce the cost and are flexible

**Failed innovations:** are poorly marketed, require complicated logistics, can only be used in specific conditions and have a low productivity.

### Contact

Dimitris Athanassiadis  
SLU  
Tel: +46 907 868 304  
Email: Dimitris.Athanassiadis@slu.se

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