

How to Select the right Investment in Renewable Energy for Cooperatives

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Objective and Rational

While investments in renewable energy are becoming popular also for cooperatives, the elementary question is:
Which type of investment in renewable energy fits to which type of cooperative?

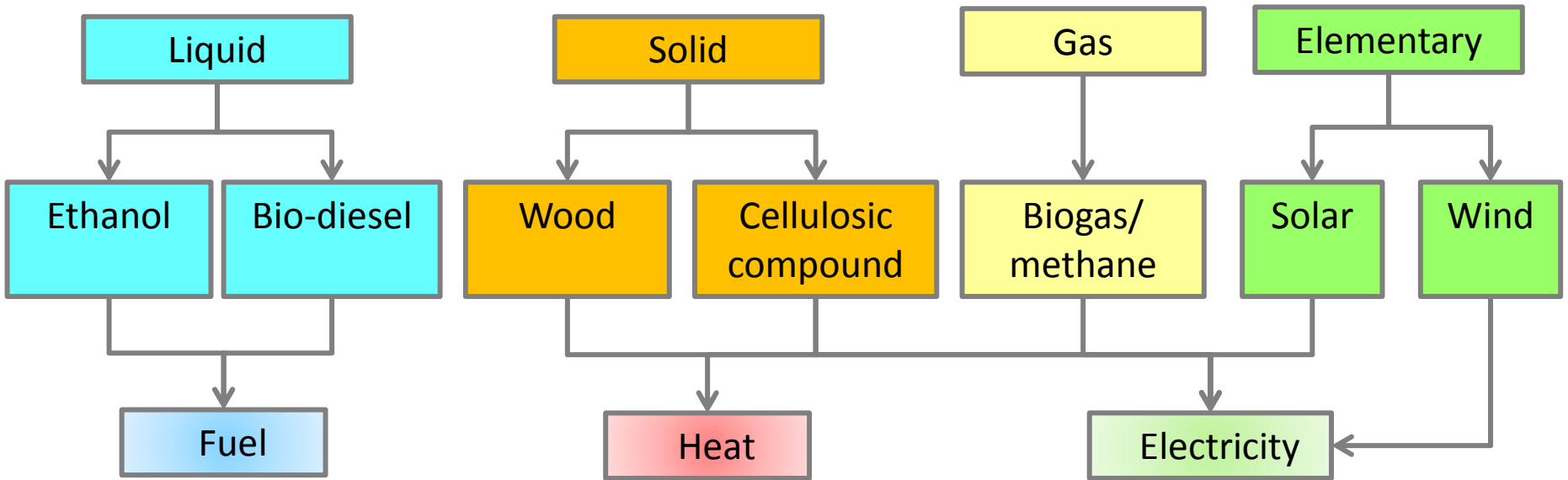


Filter and selection scheme

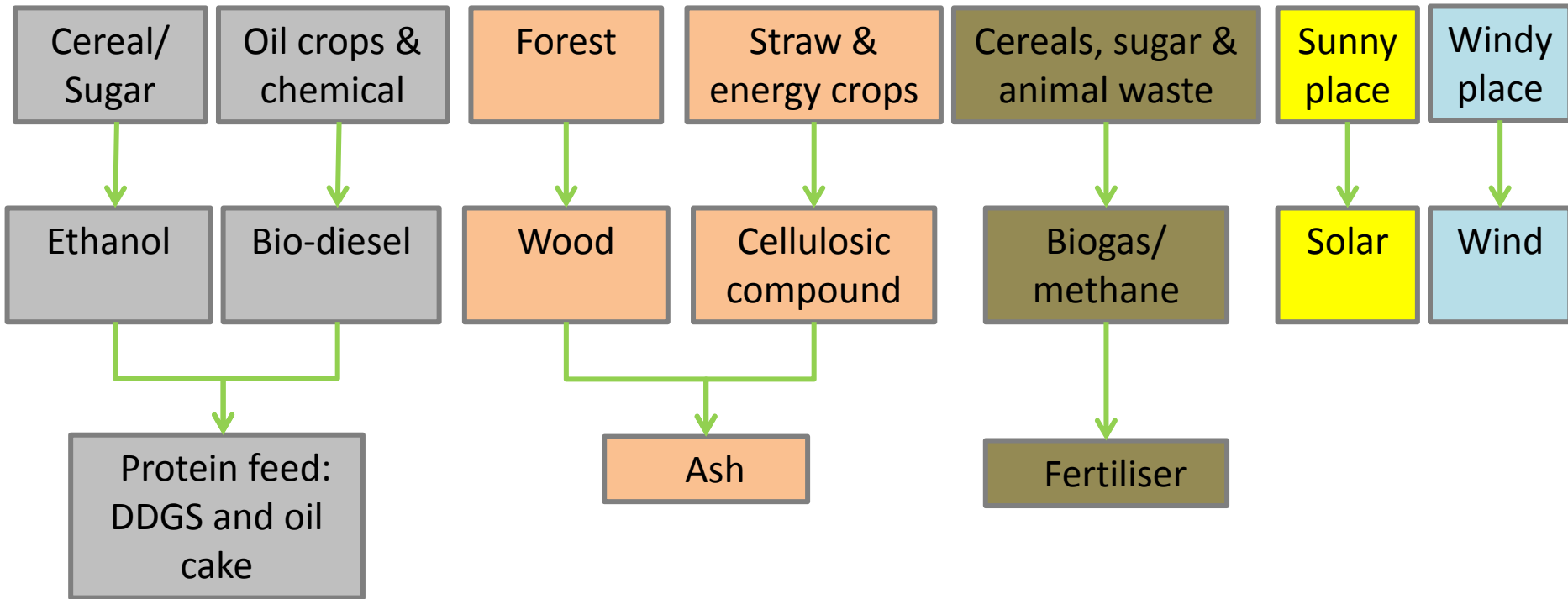
Criteria for Selection



Forms of Renewable Energy

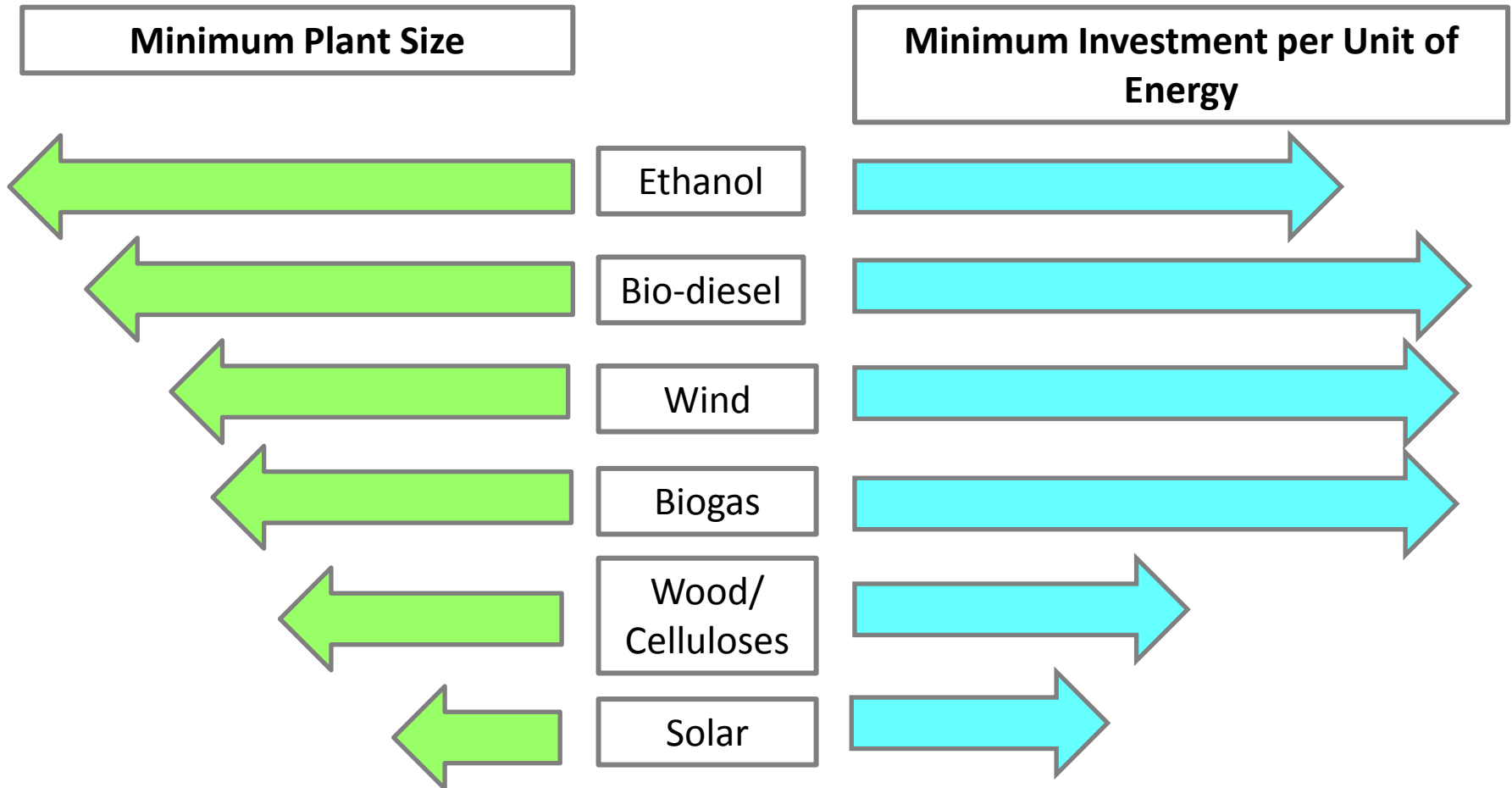


Raw Materials and By-Products



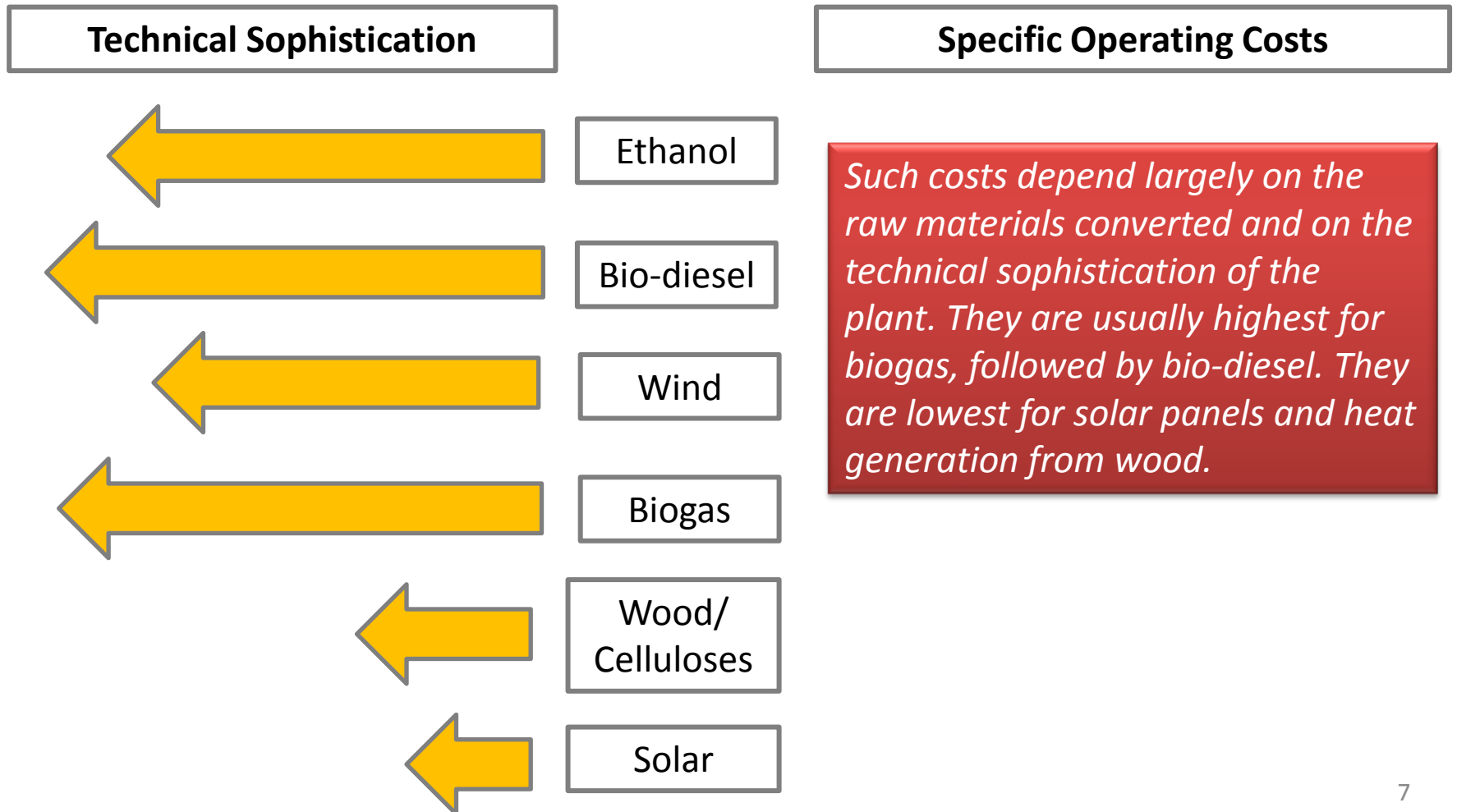
If the necessary raw materials for conversion to renewable energy are not readily available in sufficient quantities, operation and economics become major challenges!

Typical Plant Size and Start-up Investment

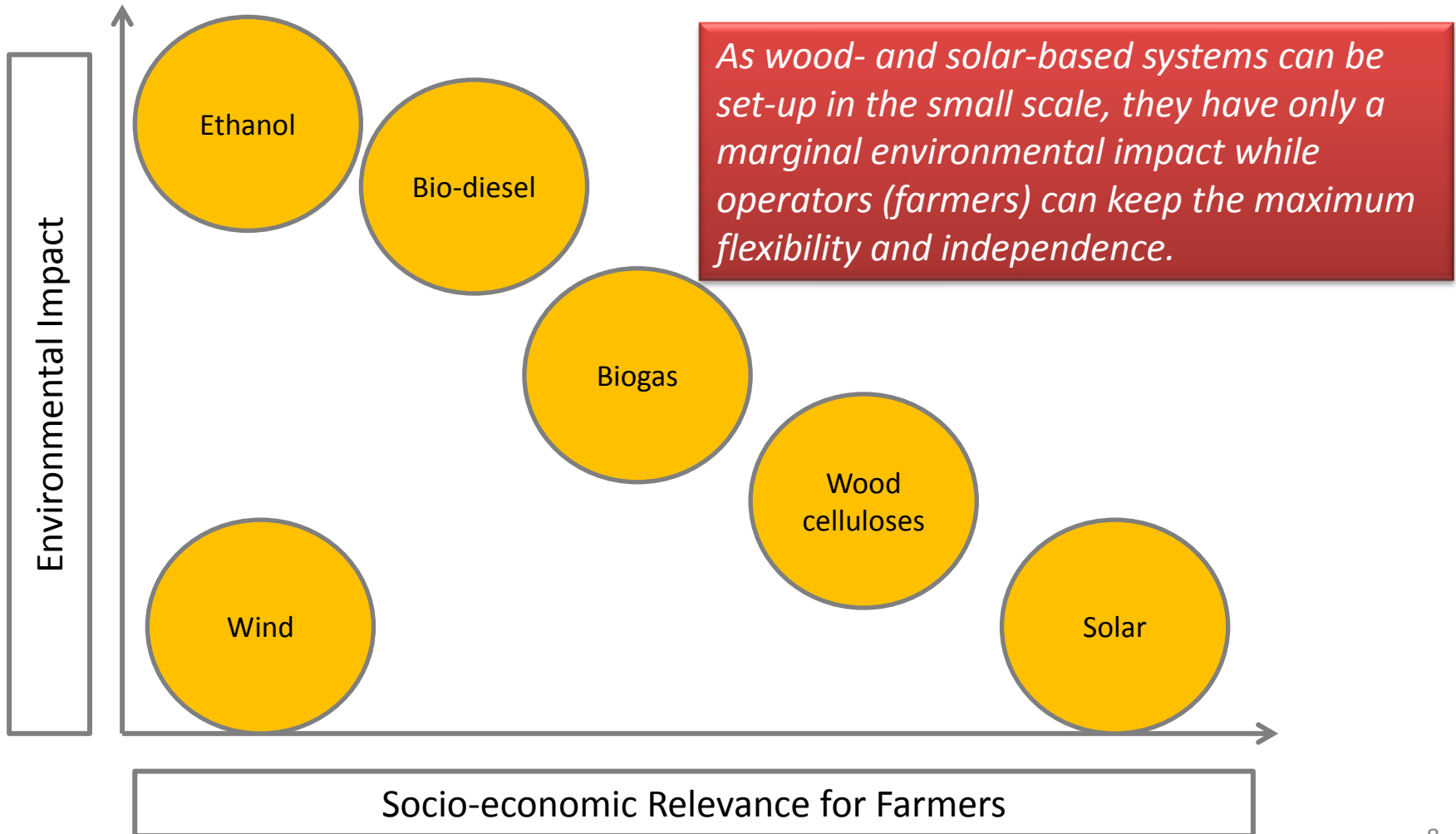


In most cases, minimum plant sizes are large and subsequently investments as well. Only solar panels and to some extent wood-based heating systems can be designed in very small scale.

Technical Sophistication and Specific Operating Costs



Environmental Impact and Socio-economic Relevance for Farmers



Customers, Markets and Logistics

Product	Energy Type	Customer/Market	Logistics
Ethanol	Fuel	Refinery	Easy
Bio-diesel	Fuel	Refinery	Easy
Biogas	Electricity	Public net & own consumption	Easy
Wood/Celluloses	Electricity & Heat	Public net & own consumption	Difficult for heat
Wind	Electricity	Public net	Easy
Solar	Electricity	Public net & own consumption	Easy

Most markets for renewable energy are monopolised. Depending on governmental regulations, only biogas, wood and solar systems offer the option for own consumption. Logistics of electricity or of liquid fuel is relatively easy, while heat poses a challenge which is a clear negative attribute of wood-based heat generation systems.

Government Regulations

Energy produced by non-traditional actors requires a regulatory frame to

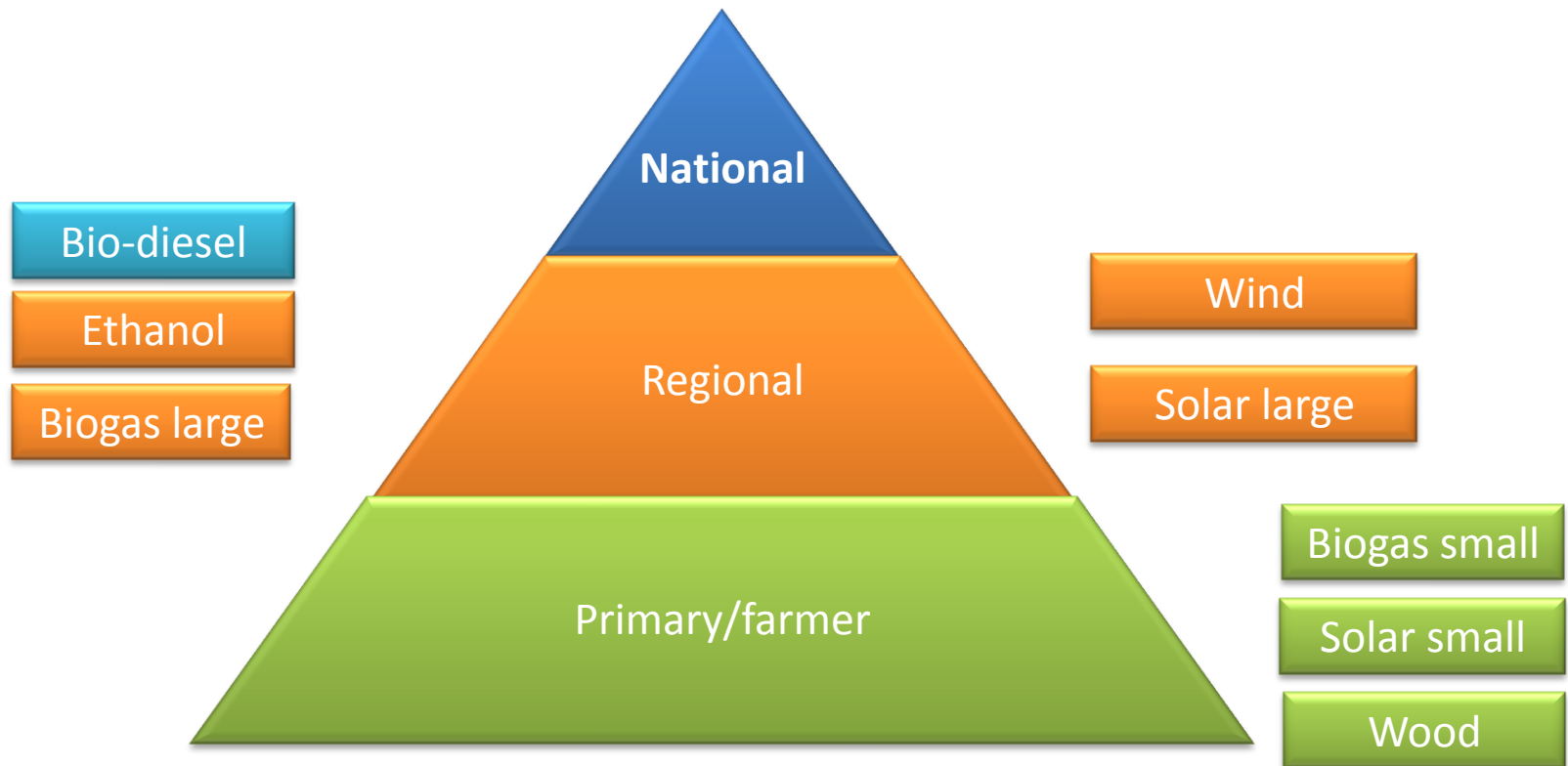
- Provide market incentives and in-roads for an interaction/competition with established energy suppliers
- Allow and to facilitate the supply of the public distribution network with the produced energy
- Regulate the use of raw materials and interface with e.g. Agricultural and other policies
- Define criteria for site selection and land use
- Amend company, corporate and cooperative laws, in the case needed



Renewable energy laws and by-laws

Compatibility with Cooperative Philosophy

Commercial activities of a cooperative follow free market economic rules, but not only. There is also a socioeconomic dimension. Potential benefits from investing and operating renewable energy systems occur at different levels of a cooperative structure in a country.



Proposed Selection Process

