

Athens, Greece	Manolis Karampinis
<i>Institution</i>	Chemical process and Energy institute (CERTH)
<i>Position</i>	Research associate
<i>Field of work</i>	Solid biofuels logistics and energy conversion technologies Technical/research advisor to municipalities and waste management companies in Greece Prunings from parks and public spaces
<i>Experience</i>	
<i>About the feedstock</i>	<p>There are no official data of LCMW feedstock amounts, quantities produced depend on the size of municipality and number of trees. For example, it is estimated that the Athens Municipality produces about 5,000 tons of green prunings from parks and public spaces.</p> <p>Moisture content of the green residues is estimated to be 40 - 50 % wt.</p> <p>LCMW Feedstock originates from prunings of certain tree types (olive trees, bitter oranges, mulberries) harvested once per year as part of typical gardening activities. Other trees in a municipality are pruned or cut down if there is a specific reason (e.g. danger to damage electricity cables or fall down). The material is mostly landfilled, some municipalities use it as feedstock for compost. In rural areas, larger branches may be used as firewood.</p>
<i>Processing chain</i>	<p>Pruning of trees by municipality workers</p> <p>Piling of prunings on roadside</p> <p>Collection in municipal trucks</p> <p>Transfer to Landfill (mostly) or to a composting bin</p>
<i>Environmental issues</i>	The feedstock has high moisture content and is expected to be quite high in ash. Presence of leaves and bark is also expected to result in high nitrogen content. It is not ideal feedstock for combustion for domestic heating, since the emissions can be high. Combustion in larger plants would be possible.
<i>Context</i>	<p>As a research organization, CERTH has been approached by several municipalities with interest in utilizing local biomass sources, including LCMW. CERTH has also worked with waste management companies which may handle LCMW as a resource.</p> <p>Currently, there is no established market for the feedstock. The pruning of trees in public spaces and collection of prunings is an ongoing activity, performed regularly throughout the whole year. What is missing in the majority of cases is the conversion to bioenergy or other utilization step. For this to occur, political will and a change in the waste treatment scheme is</p>

required.

Difficulties

The feedstock has characteristics, which make it difficult for some energy conversion technologies, especially in small-scale applications; a drying step might be required. Due to the high moisture, transport of the feedstock as a valuable commodity may be limited. The amount of feedstock in some municipalities may not be enough to justify such investments, LCMW should be part of a larger logistics / waste handling scheme.

Wider insight

The LCMW has potential in the framework of a waste handling system which includes separate collection and treatment steps for the organic fraction of municipal waste.

Since in the near future we expect that municipal waste handling in Greece will have to adapt better practices, including separate collection and treatment of the organic fraction of municipal waste, it is expected that there is potential in the energetic utilization of this feedstock.

Contact information

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Photo Gallery



Picture 1: residues from maintenance of public spaces