1. Description of the park

Sila National Park has been set with the Regional Decree 14.11.2002 (published on the Official Journal num. 63 - 17/03/2003)) and at the same time the Management Agency has been founded. It includes the territories formerly part of the "Historical" Calabria National Park (1968). It protects areas of great environmental interest in Sila Piccola, Sila Grande and Sila Greca, for a total of 73.695 hectares. The Sila National Park includes some of the most interesting areas in Calabria Region, its large forests are situated over plateaux spreading from Pollino mountains to Serre mountains. There are many rural villages and a rich cultural and artistic heritage. The highest mountains are Botte Donato (mt. 1928), in Sila Grande and Gariglione (mt. 1764) in Sila Piccola; there are many torrential rivers and artificial lakes with several utilisations. The fauna, both permanent and migratory, is numerous and diverse. The economic income of wood, assured for centuries by the wood crop, has characterized life in the National Park. Locally used as the main building material for houses, the wood has been, and continues to be, the leading production in the carpentry sector of building and in the little semi-industrial and hand-crafted joinery handiworks. The woody essences of larch pine and chestnut-tree are mainly used, because of their features of endurance face of parasites and durability in time; and again the beech, the maple, the oak and even the strawberry-tree and heather, these last used in the ebony field restoration

2. Wood biomass potentials in the park

As already mentioned, about 80% of the area of Sila National Park is covered with forests. More precisely, forests cover about 60.000 ha out of 73.000 ha. Except for Integral and Biogenetic Reserves (property of the Region) and areas owned by the municipalities, forests are privately owned. This is why private owners were invited to take part in the meetings held by the SNP to discuss the biomass supply plan.

Conifers - The forests of Sila National Park that are potentially suitable to supply biomass occupy an area of about 28.000 HA, entirely in zone C. More specifically, the area involved in the plan is up to 13.000 ha conifers, representing 50% of SNP areas, almost exclusively composed by Corsican Pine var Calabrica or Corsican Pine mixed with beech.

Hardwoods - As regards hardwoods, 12.000 ha of SNP area, also included in zone C, will be involved. More specifically, hardwoods forests can be identified into 9.000 ha of beech forests and beech forests mixed with other hardwoods. Most of these SNP forests are not included in any Forest Management Plan, therefore, their exploitation is up to the owner (either private or public) who asks Calabria Region for a cut permission.

3. Description of production chian

The following procedure is used by most of the forestry companies operating in the SNP territory:

Felling - Felling consists in cutting the tree at the bottom. This operation is generally carried out with chainsaws and other tools able to determine the felling direction, such as wedges, felling levers, tackles, etc… the operator has first made the undercut and then the felling cut.

Processing - It includes delimbing, cross cutting, debarking where necessary. Delimbing and cross cutting are carried out through the chainsaw and manual tools such as bush knives and adzes. This operation can be carried out either in the felling point or in the landing area, after extracting the whole or delimbed trees.

Bunching and extraction - The cross-cut wood or the long stems are first moved from the felling point to the strip road, along which they are later brought to the landing. The landing is an area dedicated to the gathering of wood and it is accessible by roads suitable for heavy vehicles.

Chipping - This operation involves reducing woods of different kind and form in small-sized pieces (called chips), through a mechanic cutting. In the use of biomass for energy purpose, chipping can be carried out in the forest, this shows some advantages compared to traditional bunching techniques.

Pelletisation - Wood chips and sawdust obtained from first wood processing will be transformed into pellet which will then be supplied to SNP heating systems. The material supplied will have to comply with Uni standards.

- **Lower calorific value** >16,5 MJ/kg,
- **Moisture content** <10%,
- **Ashes** <0,7%
- **Diameter** 5-6 mm.

Each supply must be accompanied by **ENPLUS-A1 certification**.

4. Description of producers, suppliers of wood biomass

Most of the forestry companies existing in the SNP area have been invited to take part in round tables and specific meetings.
The choice of actors to be involved has been made taking into account the capacity to create the supply chain and to maintain it in the future.
In particular, target forestry companies would have the following characteristics:

- Without regard to juridical status, target companies need to rely on a team of qualified workers and a number of forestry machines suitable for the creation of a short supply chain.
- Moreover, the company has to be included in the regional register of forestry companies with specific reference to forestry works, environment restoration, biomass chipping, reforestation, restoration of degraded forests, wood transportation.

4 Description of end users

Analysing the flows of biomass that is currently produced within the SNP area, it results that the destination of wood biomass are thermal power stations in Crotone and Cosenza provinces. Thus, the final user is GSE (national manager of energy services). As a consequence, all the energy produced from SNP biomass enters the national system with no direct advantage for the local territory.
This project proposes a new approach to solid biomass valorisation, based on social and environmental sustainability and directed to promote the utilisation of biomass inside the harvesting area. This would, on the one hand, reduce transportation costs and, on the other hand, ensure the supply to small an very small-scale local stations.
In order to favour this process, during the first year of activity of the supply chain the Park has played the role, as further described in the next paragraph, of final user of biomass and has issued a call for tenders to purchase pellet form local suppliers.
The biomass purchased will be destined to 8 heating systems in buildings managed by the Park that have been converted from diesel and lpg to pellet; their technical specifications are showed below:

N	Structure	Municipality	Prv	Fuel	Brand	KW	Final users
1	SNP headquarters	Lorica	Cs	Pellet	Pasqualicchio	208	Staff and Visitors
2	Cupone Segheria - Museum	Spezzano Sila	Cs	Pellet	Pasqualicchio	208	Visitors
3	Cupone study center	Spezzano Sila	Cs	Pellet	Pasqualicchio	77	Visitors
4	Longobucco Museum	Longobucco	Cs	Pellet	Pasqualicchio	92	Visitors
5	Lorica - Mellaro	Lorica	Cs	Pellet	Pasqualicchio	114	Visitors
6	CTA - Cava di Melis	Longobucco	Cz	Pellet	Palazzetti	15	Staff CFS
7	CTA - Carbonello	Taverna	Cz	Pellet	Palazzetti	15	Staff CFS
8	CTA - Cupone	Spezzano Sila	Cs	Pellet	Palazzetti	15	Staff CFS