

Appendix 1. Descriptions of calculations of economic and social indicators.

Process/ main indicator class	Indicator	value	unit	comment
<b>958 Final felling with harvester (CTL)</b>	<i>Process unit m<sup>3</sup></i>			
Employment	Employment – absolute numbers	1.2 x 10 <sup>-4</sup>	FTE /m <sup>3</sup>	FTE, full time equivalents. From Suominen et al., 2017
<b>944 Thinning with harvester (CTL)</b>	<i>Process unit m<sup>3</sup></i>			
Employment	Employment – absolute numbers	1.2 x 10 <sup>-4</sup>	FTE/ m <sup>3</sup>	From Suominen et al., 2017.
<b>979, Extraction of deciduous residues with forwarder to roadside</b>	<i>Process unit m<sup>3</sup></i>			
Employment	10.1 employment – absolute numbers	8.6 x 10 <sup>-5</sup>	FTE/ m <sup>3</sup>	From Suominen et al., 2017
Gross values added	1.1 Gross Value Added (at factor cost)	5	Euro/ m <sup>3</sup>	Calculation by Jasinevicius:  Costs: 3 Euro to forest owner, (source Skogskundskap), + 5 Euro for operation extraction + 5 Euro for chipping = 13 Euro.  Income: The price 18 Euro for costumer  GVA: 5 Euros.  Selling prices might deviate due to

				market changes.
<b>985, Extraction of coniferous residues with forwarder to roadside</b>	<b>Process unit m<sup>3</sup></b>			
Gross values added	1.1 Gross Value Added (at factor cost)	5	Euro/m <sup>3</sup>	See process 979.
Employment	10.1 employment – absolute numbers	8.6 x 10 <sup>-5</sup>	FTE/m <sup>3</sup>	From Suominen et al., 2017
<b>1005, Chipping of residues at roadside</b>	<b>Process unit tonnes</b>			
Employment	10.1 Employment – absolute numbers	9 x 10 <sup>-4</sup>	FTE/ton	Value from Suominen et al.2017 is 3 x 10 <sup>-4</sup> <b>per m<sup>3</sup></b> . <b>We have tonnes.</b> Conversion factor is 3. Result 9 x 10 <sup>-4</sup> FTE per tonne
<b>843, Transport of dried chips from roadside to CHP plant</b>	<b>Process unit ton</b>			
Gross values added	1.1 Gross Value Added (at factor cost)	2.5	Euro/ton	From Jasinevicius: Transport is 50% of tot GVA
Employment	10.1 Employment – absolute numbers	14 x 10 <sup>-5</sup>	No/ton	From Suominen et al., 2017, 4.8 x 10 <sup>-5</sup> per m <sup>3</sup> We have tones. Conversion factor is 3. Result: 14 x10 <sup>-5</sup> per ton.

<b>881, Combustion at CHP plant</b>	<b><i>Process unit tonnes</i></b>			
Gross values added	1.1 Gross Value Added (at factor cost)	57	Euro/ ton	<p>According to the Växjö Energi AB "årsredovisning" 2015.</p> <p>The profit was zero, however the company paid 50 mill SEK as taxes (taxes considered as value added). 87 % of company activities was energy production from biomass.</p> <p>Meaning that 50 mill SEK * 0.87 =43 mill SEK of taxes related with bioenergy production</p> <p>43 mill SEK/ 75 000 ton of residues used ~ 57 EUR value added per 1 ton of residues used.</p>
Employment	10.1 employment – absolute numbers	0.002	No/ ton	<p>According to the Växjö energi AB "årsredovisning" 2015.</p> <p>172 FTE employees*87 % of company activities was energy production from biomass=149 FTE</p> <p>149 employees/ 75 000 ton of residues used ~ 0.002 per ton of residues used</p>