

Supplementary information to “The Potential for Integrated Production of Biojet Fuel in Swedish Plant Infrastructures”

Table S1. Summary of data for the cases and the estimated production potentials of biofuel intermediates and its system effects national level. The estimates were made scaling up the data for the cases to the total size of the identified eligible host industries.

Integrated production pathway	Size reference for host industry	Data for the cases (PJ/y)				Total size of eligible host industries	Estimates for the national level (PJ/y)		
		Size of host industry	Net biomass input	Net electricity input	Output biofuel intermediate		Net biomass input	Net electricity input	Output biofuel intermediate
1. Sawmill – Fast pyrolysis oil from sawdust (A)	Sawn wood production	0.25 Mm ³ /y	0.34	0	0.303	11.0 Mm ³ /y	14.9	0	13.4
2. Sawmill – Ethanol from sawdust (B)	Sawn wood production	0.50 Mm ³ /y	1.38	0.12	1.33 (+ 0.47) ^a	3.0 Mm ³ /y	20.3	0.7	8.0 (+ 2.8) ^a
3. CHP – Fast pyrolysis oil from forestry residues (A)	Biomass input before retrofit	1.0 PJ/y	0.97	-0.003	0.71	59 PJ/y	57.2	-0.2	41.9
4. CHP – FT crude from forestry residues (B)	Biomass input before retrofit	2.0 PJ/y	0.58	0.46	0.81	37 PJ/y	10.8	8.5	14.9
5. Kraft pulp mill-HTL crude from forestry residues (A, B)	Kraft pulp production	0.4 Mdt/y	3.74 ^b	0.26 ^b	2.81	4.7 Mdt/y	43.9	3.1	33.0
6. Kraft pulp mill – Lignin oil from black liquor (A, B)	Kraft pulp production	0.4 Mdt/y	1.59/0 ^c	0.05/0.35 ^c	1.14	4.7 Mdt/y	9.3 ^d	2.3 ^d	13.4

^aThe number in parentheses refers other co-produced biofuels, including primarily to biogas and a small amount of methanol.

^bBased on values for an integrated kraft pulp and paper mill.

^cThe numbers refer to an integrated and a non-integrated kraft pulp mill, respectively.

^dAssuming half of the production takes place in an integrated kraft pulp mill and the remaining half in a non-integrated kraft pulp mill.

Table S2. Data behind Figure 9.

Integrated production pathways	Net biomass input	Output of refined products					H ₂ req. (total)	Electricity input required to meet 30-100 % of the hydrogen demand			Natural gas/biogas input required to meet 30-100 % of the hydrogen demand		
		Refined output (total)	Jet fuel	Naphtha/ petrol	Diesel	Heavy fuel oil		30%	70%	100%	30%	70%	100%
Combination A (pathways 1, 3, 5 and 6)	125.3	90.2	21.7	22.4	23.8	22.8	30.3	12.7	29.7	42.4	11.8	27.6	39.4
Combination B (pathways 2, 4, 5 and 6)	84.3	65.1	22.6	12.5	17.6	12.8	9.2	3.9	9.0	12.9	3.6	8.4	12.0