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Swedish Forest Sector Outlook Study

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- SWEFSOS is based on results from the EUwood project

A central feature: the Wood Resource Balance (WRB)

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a balance sheet for wood

→ source			use ←
[mio. m³]			[mio. m³]
stemwood	EFISCEN	EFSOS Conversion factors and WRB	Sawmill industry
forest residues			Panel industry
bark			Pulp industry
			other material uses
Woody biom. outside for.	Literature & modelling		
post consumer wood		EU RES 2020 calc. enquiries	Wood based fuel industry
sawmill by products			wood industry internal use
other industrial residues			biomass power plants
black liquor			household use
			liquid biofuels
Processed wood fuel	Energy use		

Source: http://ec.europa.eu/energy/renewables/studies/doc/bioenergy/euwood_methodology_report.pdf

Econometric modeling => material use of wood

GDP projections from IPCC's A1 and B2 scenarios

A1: **Rapid economic** (GDP) **growth** and technological progress, regional convergence, **intensified global trade**, limited environm. awareness,

B2: **Slower economic growth** and technological progress, local & regional solutions to economic, social and environm. sustainability. **High environm. awareness**.

Region	Average annual GDP growth (%,) 2010–2030	
	A1	B2
Western Europe	2.0	1.1
Eastern EU countries	6.4	3.9
Russia, Ukraine and Belarus	6.4	4.4
World total	4.3	2.7

Source: Moiseyev et al. Journal of Forest Economics 17 (2011): 197–213

Energy use of wood based on the EU RES Directive

	2008	Target for 2020
Austria	28.5 %	34 %
Belgium	3.3 %	13 %
Bulgaria	9.4 %	16 %
Cyprus	4.1 %	13 %
Czech Republic	7.2 %	13 %
Denmark	18.8 %	30 %
Estonia	19.1 %	25 %
Finland	30.5 %	38 %
France	**11.0 %**	**23 %**
Germany	**9.1 %**	**18 %**
Greece	8.0 %	18 %
Hungary	6.6 %	13 %
Ireland	3.8 %	16 %
Italy	**6.8 %**	**17 %**
Latvia	29.9 %	40 %
Lithuania	15.3 %	23 %
Luxembourg	2.1 %	11 %
Malta	0.2 %	10 %
Netherlands	3.2 %	14 %
Poland	7.9 %	15 %
Portugal	23.2 %	31 %
Romania	20.4 %	24 %
Slovak Republic	8.4 %	14 %
Slovenia	15.1 %	25 %
Spain	8.7 %	20 %
Sweden	**44.4 %**	**49 %**
United Kingdom	**2.2 %**	**15 %**
EU 27	**10.3 %**	**20 %**

Source: Eurostat

Wood Resource Balance for Sweden

(in million m^3)

Reference future B2							
potential	**2010**	**2020**	**2030**	**2010**	**2020**	**2030**	**demand**
forest woody biomass	108	110	116	83	86	87	material uses
other woody biomass	43	45	46	36	36	48	energy uses
total	**151**	**155**	**162**	**119**	**123**	**135**	**total**
Reference future A1							
potential	**2010**	**2020**	**2030**	**2010**	**2020**	**2030**	**demand**
forest woody biomass	108	110	116	83	91	100	material uses
other woody biomass	43	47	52	36	36	48	energy uses
total	**151**	**158**	**168**	**119**	**128**	**148**	**total**

Note: **Medium mobilisation scenario of forest woody biomass**

Wood Resource Balance for EU 27

(in million m^3)

Reference future B2							
potential	**2010**	**2020**	**2030**	**2010**	**2020**	**2030**	**demand**
forest woody biomass	686	678	680	458	495	528	material uses
other woody biomass	287	311	334	346	573	752	energy uses
total	**973**	**989**	**1015**	**805**	**1068**	**1280**	**total**
Reference future A1							
potential	**2010**	**2020**	**2030**	**2010**	**2020**	**2030**	**demand**
forest woody biomass	686	678	680	458	529	620	material uses
other woody biomass	287	327	375	346	573	752	energy uses
total	**973**	**1005**	**1055**	**805**	**1102**	**1372**	**total**

Note: Medium mobilisation scenario of forest woody biomass

Conclusions

Given modelling assumptions, **wood resources** in the **EU** as a whole **will not suffice, by far,** to reach the targets for renewable energy

In addition to **increased imports** of bio-energy feedstock from other regions, already a fact, one would expect a **soaring demand pressure on the forest resource** in the EU, not the least in Sweden and other forest rich member states:

- **Forest owners** in Sweden and other European countries stand to **gain** from higher prices for woody biomass
- An elevated harvest level and **intensified forest management** - shortened rotation periods, increased fertilization, increased extraction of logging residues and stump harvesting - could **compromise** biodiversity and other **non-wood ecosystem services** such as water quality and recreation. In particular, the **general consideration** for biodiversity on all productive forest land, a trait of Swedish forest policy, could be at risk.

However, the modeling does not consider **dynamic processes** (no overall equilibrium model), e.g., an expanding bioenergy sector crowding out pulp and paper.

Further, progress in **electronic ICT** should also decrease future demand for pulpwood