



Dipl.-Ing. Detlef Loy

# Cogeneration with rapeseed oil for the German Reichstag

## Ecological aspects and controversies

Loy Energy Consulting  
Georg-Wilhelm-Str. 18  
D-10711 Berlin  
E-Mail: [dloy@compuserve.com](mailto:dloy@compuserve.com)



# Input-output ratio for the rapeseed chain

		Rape seed oil			RME		Diesel
		UBA '93 ifeu '91	BUND '92	BML '95	UBA	BML	Ufop, GET '93
<b>Input</b> in GJ / (ha a)	<b>Low</b> (with manure)	22,3		14,7	29,1	18,8	
	<b>High</b> (without manure)	29,5	30,0	21,0	36,3	25,1	
<b>Output</b> in GJ / (ha a)	<b>Low</b> (only rapeseed oil/RME and rapeseed cake as food)	53,1	48,0	-	53,2	-	
	<b>High</b> (with maximum use of all by-products)	133,7	98,0	140,3	144,9	143,9	
<b>Input Output</b>	<b>Low</b> (worst scenario - no manure)	1 : 1,8	1 : 1,6	-	1 : 1,5	-	1 : 5,55
	<b>Medium</b> (no manure, max. use of by-products)	1 : 4,5	1 : 3,3	1 : 6,7	1 : 4,0	1 : 5,8	
	<b>High</b> (best scenario, with manure, max. use of by-products)	1 : 6,0	-	1 : 9,5	1 : 5,0	1 : 7,7	

Source: Drees & Sommer, 1995



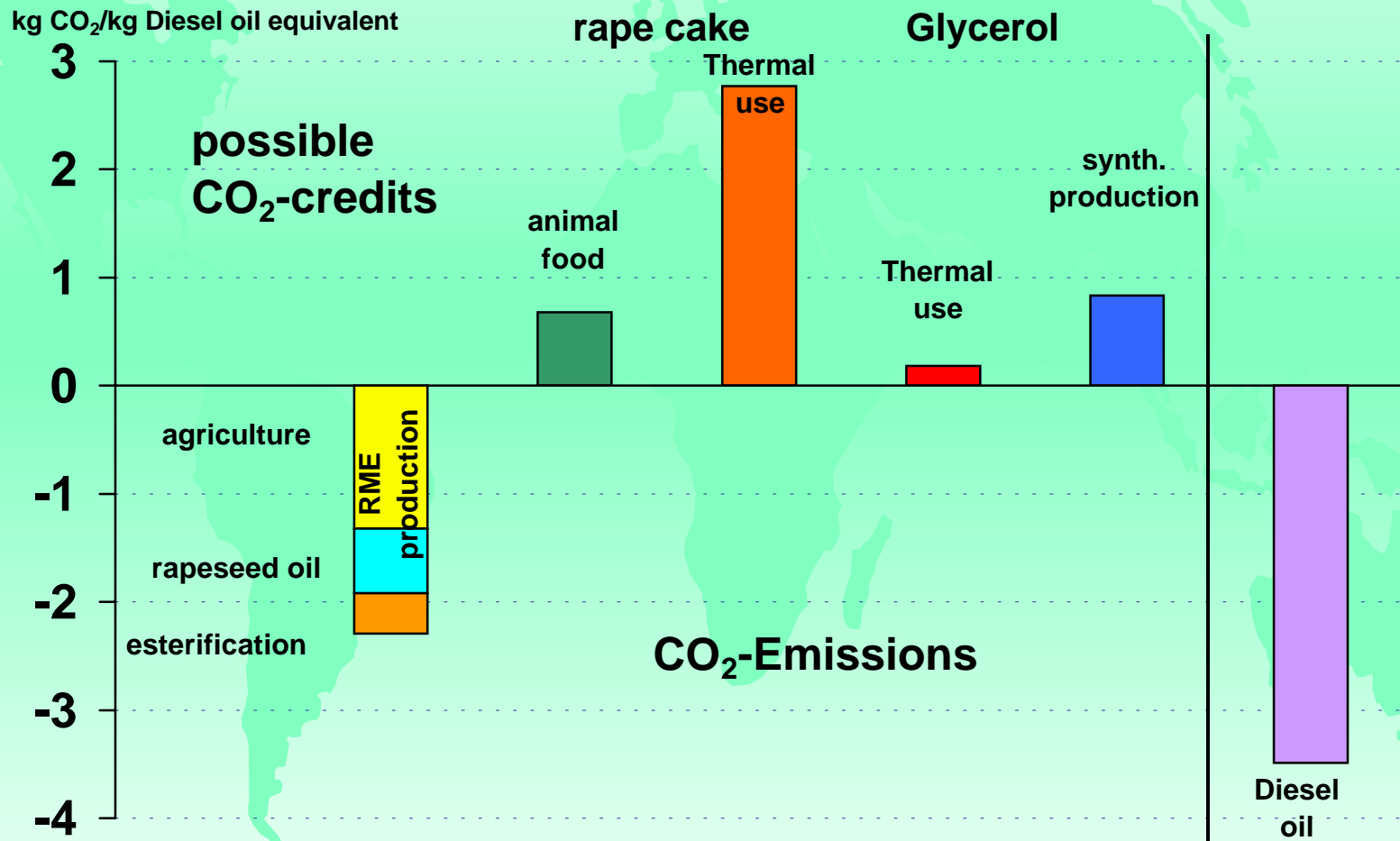
# CO<sub>2</sub>- and cost balances

		Rapeseed oil	RME	Diesel oil
<b>CO<sub>2</sub>-emissions</b>	t/GJ direct	None	None	0,073
	preceeding sum	0,010 - 0015	0,011 - 0,018	0,007
<b>CO<sub>2</sub>-savings</b> (with substitution of Diesel oil)	t/GJ	0,070 - 0,065	0,069 - 0,062	-
<b>Market prices</b>	DM/l	0,60 - 0,80	0,80 - 1,00	0,37 (HEL)
<b>Energy prices</b>	DM / GJ	17,50 - 23,4	24,50 - 30,60	10,40
<b>Surplus costs</b> (compared to Diesel oil)	DM / GJ	7,10 - 13,00	14,10 - 20,20	-
<b>Surplus costs per t CO<sub>2</sub>-reduction</b>	DM/t CO <sub>2</sub>	100 - 200	200 - 325	-
	kg CO <sub>2</sub> / DM	10 - 5	5 - 3	-

Source: Drees & Sommer, 1995



# CO<sub>2</sub>-Balance for RME-Production - central processing -



Source: ifeu Heidelberg 1991

28.08.98



# CO<sub>2</sub>-Emissions of different heating scenarios for Berlin Central Districts

