

Short description

Category *1.A.3.d - Navigation* includes emissions from national and international inland and maritime navigation.

NFR-Code	Name of Category	Method	AD	EF	Key Category
1.A.3.d	Navigation	<i>see sub-category details</i>			
consisting of / including source categories					
1.A.3.d i (ii)	International Inland Waterways	<i>Germany does not report emissions from this sub-category.</i>			
1.A.3.d ii	National Navigation (Shipping)	<i>see sub-category details</i>			
1.A.3.d i (i)	International Maritime Navigation	<i>see sub-category details</i>			

Method

Activity Data

Primary fuel deliveries data for the entire navigation sector (maritime and inland waterways) is included in lines 6 ('International Maritime Bunkers') and 64 ('Coastal and Inland Navigation') of the National Energy Balance (NEB) (AGEB, 2019) ¹⁾. (For comparison, official mineral-oil data of the Federal Office of Economics and Export Control (BAFA, 2019) ²⁾ and sales data of the German Petroleum Industry Association (MWV, 2019) ³⁾ are used, too.)

Data on the consumption of *biodiesel* is provided in NEB line 64 from 2004 onward. However, as this data appears to be rather inconsistent, the consumption of biofuels is calculated within TREMOD via the official annual blending rates.

Table 1: Primary fuel deliveries as listed in the National Energy Balance, in terajoules

	= 1990	= 1995	= 2000	= 2004	= 2005	= 2006	= 2007	= 2008	= 2009	= 2010	= 2011	= 2012	= 2013	= 2014	= 2015	= 2016	= 2017	= 2018
< NEB line 6 - Maritime Bunkers ('Hochseebunkeringen')																		
~ Diesel / Light heating oil	> 23,336	> 20,426	> 21,542	> 18,971	> 18,636	> 22,376	> 24,441	> 20,300	> 20,748	> 22,483	> 21,046	> 18,617	> 18,333	> 20,898	> 43,376	> 42,606	> 36,872	> 31,406
~ Heavy fuel oil	> 80,230	> 64,382	> 69,578	> 92,020	> 85,370	> 85,277	> 104,066	> 103,830	> 92,614	> 93,063	> 92,649	> 87,595	> 77,754	> 73,729	> 57,900	> 74,844	> 58,788	> 39,570
< NEB line 64 - Coastal and Inland Navigation ('Küsten- und Binnenschifffahrt')																		
~ Diesel oil	> 27,710	> 23,562	> 11,864	> 11,625	> 12,831	> 11,188	> 6,826	> 5,426	> 11,091	> 11,182	> 12,050	> 11,322	> 11,635	> 12,112	> 13,321	> 11,131	> 10,150	> 9,383
~ Biodiesel	> 0	> 0	> 0	> 100	> 281	> 326	> 499	> 503	> 765	> 725	> 790	> 739	> 674	> 734	> 720	> 481	> 538	> 542
<																		
< TOTAL Navigation	~ 131,276	~ 108,370	~ 102,984	~ 122,716	~ 117,118	~ 119,167	~ 135,832	~ 130,059	~ 125,218	~ 127,453	~ 126,535	~ 118,273	~ 108,396	~ 107,473	~ 115,317	~ 129,062	~ 106,348	~ 80,901

source: National Energy Balances

As the statistical allocation of fuels delivered to the navigation (shipping) sector follows tax aspects, NEB line 6 ('International Maritime Bunkers') includes all fuel deliveries to IMO-registered ship involved in both national and international maritime activities. On the other hand, NEB line 64 ('Coastal and Inland Navigation') includes all fuel deliveries to ship involved in inland and non-IMO maritime navigation.

Table 2: Allocation of for subsector-specific fuel deliveries data in the NEB

~ Diesel oil	> 3.03	2		> 0.233	2		> 0.698	2		> 0.93	2		> 1.16	2		> 20.5	2		> 23.3	2	> 2.33	2	> 27.9	2	> 698	5	> 1,164	5	> 801	6	> 184	6	> 2,847	4	> 0.885	2	> 1.86	2	> 93.0	7		
~ Biodiesel	1		> 0.013	> 0.0013	> 0.142	> 0.0027	> 0.228	> 0.153	> 0.005	> 0.003	> 0.483	806	> 1,343	924	> 212	> 3,284	> 1.02	> 2.15	> 107																							
~ Heavy fuel oil	> 4.46	3		> 0.496	3		> 0.496	3		> 16.9	3		> 17.8	3		> 31.0	3		> 793	3	> 5.20	3	> 29.7	3	> 741	5	> 1,235	5	> 849	6	> 195	6	> 3,020	4	> 14.1	3	> 3.46	3	> 98.7	7		
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bibliography : 1 : AGEb, 2019: Working Group on Energy Balances (Arbeitsgemeinschaft Energiebilanzen (Hrsg.), AGEb): Energiebilanz für die Bundesrepublik Deutschland; URL: <https://www.ag-energiebilanzen.de/7-0-Bilanzen-1990-2017.html>, (Aufruf: 20.11.2019), Köln & Berlin, 2019. : 2 : BAFA, 2019: Federal Office of Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle, BAFA): Amtliche Mineralöl-daten für die Bundesrepublik Deutschland; URL: https://www.bafa.de/SharedDocs/Downloads/DE/Energie/Mineraloel/moel_amtliche_daten_2018_dezember.xlsx?__blob=publicationFile&v=4, Eschborn, 2019. : 3 : MWV (2019): Association of the German Petroleum Industry (Mineralölwirtschaftsverband, MWV): Annual Report 2018, page 65, Table 'Sektoraler Verbrauch von Dieselmotoren 2012-2018'; URL: https://www.mwv.de/wp-content/uploads/2019/11/MWV_Jahresbericht_2019_Web_191219.pdf, Berlin, 2018. : 4 : Knörr et al. (2019a): Knörr, W., Heidt, C., Gores, S., & Bergk, F.: ifeu Institute for Energy and Environmental Research (Institut für Energie- und Umweltforschung Heidelberg gGmbH, ifeu): Fortschreibung des Daten- und Rechenmodells: Energieverbrauch und Schadstoffemissionen des motorisierten Verkehrs in Deutschland 1960-2035, sowie TREMOD, im Auftrag des Umweltbundesamtes, Heidelberg & Berlin, 2019. : 5 : Dechnik (2019): Aktualisierung und Revision des Modells zur Berechnung der spezifischen Verbräuche und Emissionen des von Deutschland ausgehenden Seeverkehrs. from Bundesamts für Seeschifffahrt und Hydrographie (BSH - Federal Maritime and Hydrographic Agency); Hamburg, 2019. : 6 : EMEP/EEA (2019): EMEP/EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019. **bibliography**

- ¹⁾ (bibcite 1)
- ²⁾ (bibcite 2)
- ³⁾ (bibcite 3)
- ⁴⁾ (bibcite 4)
- ⁵⁾ (bibcite 5)
- ⁶⁾ (bibcite 6)
- ⁷⁾ (bibcite 5)
- ⁸⁾ (bibcite 6)