

Fakultet kemijskog inženjerstva i tehnologije
Zavod za termodinamiku, strojarstvo i energetiku



ENERGETIKA

Studij: Kemijsko inženjerstvo (V semestar)

prof. dr. sc. Igor Sutlović

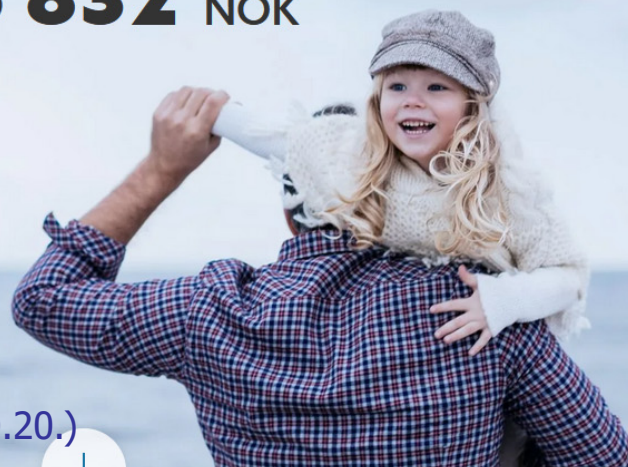
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The fund's market value

10 671 462 816 832 NOK

We work to safeguard and build
financial wealth for future generations

1 NOK=0,680678HRK (srednji tečaj HNB-a, 2.10.20.)





Ove nam zime prijeti manjak plina, upozoravaju stručnjaci

Što će Vlada? Dosad je pod političkim pritiskom Ina uvozila plin zimi po višim cijenama, na štetu svog prihoda, što više nije moguće

Zbog smanjene potrošnje u uvjetima ekonomske krize na prvi pogled situacija s opskrbom plina u Hrvatskoj ove godine izgleda dobro, no neizvjesnost valja očekivati u siječnju, upozorio je Stevo Kolundžić sa 2. međunarodne konferencije o naftno-plinskom gospodarstvu koja se održava u Šibeniku.

Svoje procjene taj dugogodišnji direktor u Ini i dopredsjednik Hrvatske stručne udruge za plin (HSUP) obrazlaže situacijom nastalom nakon što su 2010. godine ruski partneri odbili produljiti ugo-

vor s Inom, koja je potom zaključila ugovor s talijanskim ENI-jem, no ne na količinu od 1,2 milijarde kubika plina, koliko se dotad uvozilo od ruskoga Gazproma, nego je, imajući u vidu pad potrošnje u Hrvatskoj, ugovorila 750 milijuna kubika plina.

"Na aktualnoj je potrošnji to dovoljno, no u pravilu u prosincu hladnoća znatno poveća potrošnju, a u siječnju s padom temperatura potrošnja snažno raste. Dosad je to u pravilu rješavano političkim pritiskom na Inu i uvozom po znatno višim cijenama tijekom zime, a na



Ina je 2010. ugovorila 750 milijuna kubika plina godišnje s ENI-jem na tri godine

račun prihoda Ine. To više nije moguće i vjerojatno će biti problema početkom 2013. godine u rješavanju te vršne potrošnje", ističe Kolundžić. Ugovor s Enijem istječe iduće godine, a rješenje tog problema vidi i u raščišćavanju neriješenih odnosa s Molom i njegove obveze za izdvajanje Prirodnog plina iz Ine. Do 2013. godine za to se mora naći rješenje i definirati tko će uvoziti potrebne količine plina ako Ina nema računa da trozi povojne količine, kaže Kolundžić.

Povoljno je u cijeloj priči što sada, za razliku od 2010.

godine, imamo interkonektor između Hrvatske i Mađarske tako da se može intervenirati i uvesti povećane količine što u doba nabave plina iz Rusije preko Slovačke, Austrije i Slovenije nije bio slučaj.

No cijena količina koje se nabavljaju u sezoni uključivat će i troškove skladišta i interkonektora i taj će plin biti skuplji, zaključuje Kolundžić upozoravajući da je krajnji trenutak da se to pitanje stavi na stol i počne rješavati i barem za iduću godinu osigura normaliziranje stanja opskrbe plina.

mb



About the fund

Norway's oil fund, or the **Government Pension Fund Global ...** was created after we discovered oil in the North Sea. The fund was set up to shield the economy from ups and downs in oil revenue. **It also serves as a financial reserve and as a long-term savings plan so that both current and future generations get to benefit from our oil wealth.** In 1969, one of the world's largest offshore oilfields was discovered off Norway. Suddenly we had a lot of oil to sell, and the country's economy grew dramatically... In 1990, the Norwegian parliament passed legislation to support this, creating what is now the Government Pension Fund Global, and the first money was deposited in the fund in 1996. As the name suggests, **it was decided that the fund should only be invested abroad.** **Oil revenue has been very important for Norway, but one day the oil will run out.** The aim of the fund is to ensure that we use this money responsibly, think long-term and so safeguard the future of the Norwegian economy.

How does the fund grow?

Although revenue from oil and gas production is transferred to the fund, these deposits account for less than half the value of the fund. **Most of it has been earned by investing in equities, fixed income and real estate.**

Prirodni plin

- Prirodni plin (iz ležišta) smjesa je nižih ugljikovodika i anorganskih spojeva i plinova (omjeri ovise o nalazištu):
- dominira metan s više od 70%, uz manje udjele etana, propana i ostalih viših članova niza alkana,
- anorganski sastojci su CO_2 i N_2 (nekoliko %) i H_2S (nekoliko ppm masenih)
- Prirodni plin pojavljuje se samostalno u ležištima (slobodni plin, 95% zaliha) ili zajedno s naftom (naftni, kaptažni plin, 5% zaliha)
- Prije isporuke potrošačima iz p. plina se uklanjaju kiseli plinovi (CO_2 i H_2S), vlaga i viši ugljikovodici (C_{2+})-degazolinaža (za dobivanje zasebnih sirovina)

Total proved reserves

	At end 2000	At end 2010	At end 2019	At end 2020			
	Trillion cubic metres	Trillion cubic metres	Trillion cubic metres	Trillion cubic metres	Trillion cubic feet	Share of total	R/P ratio
Canada	1.6	1.9	2.0	2.4	83.1	1.3%	14.2
Mexico	0.8	0.4	0.2	0.2	6.3	0.1%	5.9
US	4.8	8.3	12.6	12.6	445.6	6.7%	13.8
Total North America	7.3	10.5	14.8	15.2	535.0	8.1%	13.7
Argentina	0.8	0.3	0.4	0.4	13.6	0.2%	10.1
Bolivia	0.2	0.3	0.2	0.2	7.5	0.1%	14.8
Brazil	0.2	0.4	0.4	0.3	12.3	0.2%	14.6
Colombia	0.1	0.1	0.1	0.1	3.0	•	6.5
Peru	0.2	0.3	0.3	0.3	9.2	0.1%	21.6
Trinidad & Tobago	0.5	0.4	0.3	0.3	10.2	0.2%	9.8
Venezuela	4.6	6.1	6.3	6.3	221.1	3.3%	333.9
Other S. & Cent. America	0.1	0.1	0.1	0.1	1.9	•	19.7
Total S. & Cent. America	6.8	8.1	7.9	7.9	278.9	4.2%	51.7
Denmark	0.1	0.1	†	†	1.0	•	20.3
Germany	0.2	0.1	†	†	0.7	•	4.4
Italy	0.2	0.1	†	†	1.5	•	10.9
Netherlands	1.6	1.2	0.1	0.1	4.6	0.1%	6.5
Norway	1.2	2.0	1.5	1.4	50.5	0.8%	12.8
Poland	0.1	0.1	0.1	0.1	2.6	•	18.4
Romania	0.2	0.1	0.1	0.1	2.8	•	9.1
Ukraine	0.8	0.7	1.1	1.1	38.5	0.6%	57.5
United Kingdom	0.7	0.3	0.2	0.2	6.6	0.1%	4.7
Other Europe	0.2	0.1	0.1	0.1	3.2	•	14.3
Total Europe	5.4	4.7	3.3	3.2	111.9	1.7%	14.5
Azerbaijan	1.0	1.0	2.5	2.5	88.4	1.3%	96.9
Kazakhstan	1.7	1.7	2.3	2.3	79.7	1.2%	71.2
Russian Federation	33.2	34.1	37.6	37.4	1320.5	19.9%	58.6
Turkmenistan	1.8	13.6	13.6	13.6	480.3	7.2%	230.7
Uzbekistan	0.9	0.9	0.8	0.8	29.9	0.4%	18.0
Other CIS	†	†	†	†	0.1	•	9.1
Total CIS	38.6	51.3	56.8	56.6	1998.9	30.1%	70.5

Total proved reserves

	At end 2000	At end 2010	At end 2019	At end 2020			
	Trillion cubic metres	Trillion cubic metres	Trillion cubic metres	Trillion cubic metres	Trillion cubic feet	Share of total	R/P ratio
Bahrain	0.3	0.2	0.1	0.1	2.3	*	3.9
Iran	25.4	32.3	32.1	32.1	1133.6	17.1%	128.0
Iraq	3.0	3.0	3.5	3.5	124.6	1.9%	336.3
Israel	†	0.2	0.6	0.6	20.8	0.3%	39.7
Kuwait	1.5	1.7	1.7	1.7	59.9	0.9%	113.2
Oman	0.8	0.5	0.7	0.7	23.5	0.4%	18.0
Qatar	14.9	25.9	24.7	24.7	871.1	13.1%	144.0
Saudi Arabia	6.0	7.5	6.0	6.0	212.6	3.2%	53.7
Syria	0.2	0.3	0.3	0.3	9.5	0.1%	89.6
United Arab Emirates	5.8	5.9	5.9	5.9	209.7	3.2%	107.1
Yemen	0.3	0.3	0.3	0.3	9.4	0.1%	2618.8
Other Middle East	†	†	†	†	0.2	*	24.7
Total Middle East	58.3	77.8	75.8	75.8	2677.1	40.3%	110.4
Algeria	4.4	4.3	4.3	2.3	80.5	1.2%	28.0
Egypt	1.4	2.1	2.1	2.1	75.5	1.1%	36.6
Libya	1.2	1.4	1.4	1.4	50.5	0.8%	107.4
Nigeria	3.9	4.9	5.5	5.5	193.3	2.9%	110.7
Other Africa	1.0	1.2	1.6	1.6	55.4	0.8%	54.8
Total Africa	11.9	14.0	14.9	12.9	455.2	6.9%	55.7
Australia	1.7	2.9	2.4	2.4	84.4	1.3%	16.8
Bangladesh	0.3	0.3	0.1	0.1	3.9	0.1%	4.5
Brunei	0.4	0.3	0.2	0.2	7.9	0.1%	17.6
China	1.4	2.7	8.4	8.4	296.6	4.5%	43.3
India	0.7	1.1	1.3	1.3	46.6	0.7%	55.6
Indonesia	2.7	3.0	1.4	1.3	44.2	0.7%	19.8
Malaysia	1.1	1.0	0.9	0.9	32.1	0.5%	12.4
Myanmar	0.3	0.2	0.4	0.4	15.3	0.2%	24.4
Pakistan	0.5	0.6	0.4	0.4	13.6	0.2%	12.6
Papua New Guinea	†	0.1	0.2	0.2	5.8	0.1%	13.7
Thailand	0.4	0.3	0.1	0.1	5.1	0.1%	4.4
Vietnam	0.2	0.6	0.6	0.6	22.8	0.3%	74.1
Other Asia Pacific	0.2	0.3	0.2	0.2	6.7	0.1%	11.5
Total Asia Pacific	9.8	13.5	16.8	16.6	584.8	8.8%	25.4
Total World	138.0	179.9	190.3	188.1	6641.8	100.0%	48.8
of which: OECD	13.6	17.6	20.0	20.3	716.2	10.8%	13.7
Non-OECD	124.4	162.4	170.3	167.8	5925.6	89.2%	70.6
European Union	2.5	1.6	0.4	0.4	15.6	0.2%	9.2

Source of data – the estimates in this table have been compiled using a combination of primary official sources and third-party data from Cedigaz and the OPEC Secretariat. As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and have been standardized using a gross calorific value (GCV) of 40 MJ/m³.

† Less than 0.05.

* Less than 0.05%.

Notes: Total proved reserves of natural gas – generally taken to be those quantities that geological and engineering information indicates with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. The data series for total proved natural gas does not necessarily meet the definitions, guidelines and practices used for determining proved reserves at a company level, for instance as published by the US Securities and Exchange Commission, nor does it necessarily represent bp's view of proved reserves by country.

Reserves-to-production (R/P) ratio – if the reserves remaining at the end of any year are divided by the production in that year, the result is the length of time that those remaining reserves would last if production were to continue at that rate.

Natural gas: Consumption in billion cubic metres*

Billion cubic metres	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth rate per annum		Share 2021
												2021	2011-21	
Canada	100.6	99.4	105.4	109.8	110.3	106.0	109.9	115.6	117.3	113.3	119.2	5.5%	1.7%	3.0%
Mexico	70.8	73.7	77.8	79.8	80.8	83.0	86.0	87.6	88.0	83.7	88.2	5.7%	2.2%	2.2%
US	658.2	688.1	707.0	722.3	743.6	749.1	740.0	821.7	850.7	831.9	826.7	-0.4%	2.3%	20.5%
Total North America	829.6	861.2	890.3	911.0	934.7	937.1	935.9	1024.9	1056.0	1028.9	1034.1	0.8%	2.2%	25.6%
Argentina	43.8	45.7	46.0	46.2	46.7	48.2	48.3	48.7	46.6	43.9	45.9	4.8%	0.5%	1.1%
Brazil	27.5	32.6	38.4	40.7	42.9	37.1	37.6	35.9	35.7	31.4	40.4	29.1%	3.9%	1.0%
Chile	5.8	5.3	5.3	4.4	4.8	5.9	5.6	5.6	6.5	6.2	6.3	0.9%	0.7%	0.2%
Colombia	8.5	9.5	10.5	11.4	11.2	12.1	11.8	12.7	12.9	13.1	12.6	-3.5%	4.0%	0.3%
Ecuador	0.6	0.7	0.9	0.9	0.8	0.9	0.8	0.7	0.6	0.6	0.5	-0.1%	-0.2%	-
Peru	6.3	6.9	6.7	7.4	7.6	8.5	7.5	8.0	8.2	7.1	8.0	12.8%	2.5%	0.2%
Trinidad & Tobago	20.5	20.2	20.4	20.5	19.6	16.9	18.3	17.4	17.5	15.2	15.6	3.0%	-2.7%	0.4%
Venezuela	33.3	34.6	32.3	34.0	37.0	37.2	38.6	31.6	25.6	21.6	24.0	11.5%	-3.2%	0.6%
Central America	-	-	-	-	-	-	-	0.2	0.5	0.4	0.3	-20.9%	-	-
Other Caribbean	2.7	3.2	3.6	3.7	3.7	3.8	3.6	4.1	5.0	4.6	6.0	30.7%	8.1%	0.1%
Other South America	3.0	3.1	3.3	3.5	3.4	3.5	3.6	3.7	3.8	3.1	3.6	17.3%	1.8%	0.1%
Total S. & Cent. America	152.1	161.8	167.3	172.6	177.8	174.2	175.8	168.7	162.8	147.2	163.3	11.3%	0.7%	4.0%
Austria	9.0	8.6	8.2	7.5	8.0	8.3	9.1	8.7	8.9	8.5	9.0	6.0%	-	0.2%
Belgium	16.5	16.7	16.5	14.5	15.8	16.2	16.4	16.9	17.4	17.0	17.0	0.1%	0.3%	0.4%
Bulgaria	3.1	2.9	2.8	2.7	3.0	3.1	3.2	3.0	2.8	2.9	3.3	13.4%	0.8%	0.1%
Croatia	3.0	2.8	2.7	2.3	2.4	2.5	2.9	2.7	2.8	2.9	2.8	-3.5%	-0.6%	0.1%
Cyprus	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	7.9	8.0	8.1	7.2	7.5	8.2	8.4	8.0	8.3	8.5	9.1	7.5%	1.4%	0.2%
Denmark	4.3	4.1	3.8	3.3	3.3	3.4	3.2	3.1	2.9	2.3	2.3	-	-6.1%	0.1%
Estonia	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	13.3%	-1.8%	-
Finland	3.6	3.2	3.0	2.7	2.3	2.0	1.8	2.1	2.0	2.1	2.0	-1.2%	-5.5%	0.1%
France	43.0	44.4	45.1	37.9	40.8	44.5	44.8	42.8	43.7	40.6	43.0	6.3%	-	1.1%
Germany	80.9	81.1	85.0	73.9	77.0	84.9	87.7	85.9	89.3	87.1	90.5	4.2%	1.1%	2.2%
Greece	4.6	4.2	3.7	2.8	3.1	4.0	4.8	4.7	5.2	6.3	7.0	10.4%	4.3%	0.2%
Hungary	10.9	9.7	9.1	8.1	8.7	9.3	9.9	9.6	9.8	10.2	10.8	6.1%	-0.1%	0.3%
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	4.8	4.7	4.5	4.3	4.4	4.9	5.0	5.2	5.3	5.3	5.1	-3.8%	0.6%	0.1%
Italy	74.2	71.4	66.7	59.0	64.3	67.5	71.6	69.2	70.8	67.6	72.5	7.5%	-0.2%	1.8%
Latvia	1.5	1.4	1.4	1.3	1.3	1.3	1.2	1.4	1.3	1.1	1.2	8.3%	-2.7%	-
Lithuania	3.2	3.1	2.5	2.4	2.4	2.1	2.2	2.2	2.2	2.4	2.2	-5.3%	-3.4%	0.1%
Luxembourg	1.2	1.2	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.8	7.2%	-4.3%	-
Netherlands	40.9	39.3	39.1	34.5	34.1	35.2	36.1	35.5	37.0	36.2	35.1	-2.7%	-1.5%	0.9%
North Macedonia	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.4	26.4%	12.3%	-
Norway	4.0	4.0	4.0	4.3	4.5	4.4	4.6	4.4	4.6	4.4	4.3	-2.5%	0.6%	0.1%
Poland	16.5	17.4	17.4	17.0	17.1	18.3	19.2	19.9	20.9	21.1	23.2	10.7%	3.5%	0.6%
Portugal	5.3	4.6	4.3	4.1	4.8	5.1	6.3	5.8	6.1	6.0	5.9	-2.6%	1.1%	0.1%
Romania	12.9	12.5	11.4	10.9	10.4	10.5	11.3	11.6	10.8	11.3	11.4	1.8%	-1.2%	0.3%
Slovakia	5.4	5.1	5.3	4.4	4.5	4.5	4.8	4.7	4.8	4.8	5.3	12.2%	-0.1%	0.1%
Slovenia	0.9	0.8	0.8	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	5.6%	0.5%	-
Spain	33.6	33.2	30.3	27.5	28.5	29.1	31.7	31.5	36.0	32.5	33.9	4.6%	0.1%	0.8%
Sweden	1.2	1.1	1.0	0.8	0.9	1.0	1.0	1.0	1.0	1.3	1.3	2.9%	0.7%	-
Switzerland	3.1	3.4	3.6	3.1	3.3	3.5	3.5	3.3	3.4	3.3	3.6	9.0%	1.5%	0.1%
Turkey	41.8	43.3	44.0	46.6	46.0	44.5	51.6	47.2	43.4	46.2	57.3	24.4%	3.2%	1.4%
Ukraine	56.1	51.8	47.7	40.3	32.0	31.4	30.2	30.6	28.3	29.3	26.1	-10.8%	-7.4%	0.6%
United Kingdom	81.9	76.9	76.3	70.1	72.0	80.7	78.5	78.6	77.7	73.0	76.9	5.7%	-0.6%	1.9%
Other Europe	4.2	3.9	4.2	4.1	4.5	4.6	5.3	5.3	5.5	5.5	6.2	14.8%	4.0%	0.2%
Total Europe	590.4	565.7	554.4	500.0	509.2	537.4	558.8	547.4	554.5	542.0	571.1	5.7%	-0.2%	14.1%
Azerbaijan	8.9	9.4	9.4	9.9	11.1	10.9	10.6	10.8	11.8	12.4	12.7	3.1%	3.6%	0.3%
Belarus	19.2	19.4	19.3	19.1	17.9	17.8	18.2	19.3	19.2	17.8	19.0	7.5%	-0.1%	0.5%
Kazakhstan	9.9	10.7	11.2	12.7	12.9	13.4	14.1	16.5	16.6	17.4	15.1	-12.9%	4.4%	0.4%
Russian Federation	435.6	428.6	424.9	422.2	408.7	420.6	431.1	454.5	444.3	423.5	474.6	12.4%	0.9%	11.8%
Turkmenistan	20.7	22.9	19.3	20.0	25.4	25.1	24.8	28.4	31.5	29.6	36.7	24.2%	5.9%	0.9%
Uzbekistan	47.4	46.2	46.2	48.5	46.3	43.3	44.8	44.4	44.6	43.6	46.4	6.9%	-0.2%	1.1%
Other CIS	5.5	5.7	4.8	5.3	5.2	5.1	5.1	5.9	5.6	5.9	6.2	6.1%	1.3%	0.2%
Total CIS	547.2	543.0	535.0	537.6	527.5	536.4	548.7	579.8	573.5	550.1	610.8	11.4%	1.1%	15.1%

Natural gas: Consumption in billion cubic metres*

Iran	153.2	152.5	153.8	173.4	184.0	196.3	205.0	212.6	218.4	234.3	241.1	3.2%	4.6%	6.0%
Iraq	6.3	6.3	7.1	7.5	7.3	9.9	11.4	14.6	19.5	18.5	17.1	-7.3%	10.5%	0.4%
Israel	4.7	2.4	6.6	7.2	8.1	9.2	9.9	10.5	10.8	11.3	11.7	3.5%	9.4%	0.3%
Kuwait	15.9	17.5	17.8	17.9	20.3	21.1	21.0	21.2	23.3	22.1	25.1	13.5%	4.7%	0.6%
Oman	18.1	19.7	21.7	21.3	23.0	22.9	23.4	25.0	25.0	25.9	29.5	14.2%	5.0%	0.7%
Qatar	28.9	33.6	35.3	38.4	43.4	41.4	41.2	40.7	41.9	38.9	40.0	3.1%	3.3%	1.0%
Saudi Arabia	87.6	94.4	95.0	97.3	99.2	105.3	109.3	112.1	111.2	113.1	117.3	4.0%	3.0%	2.9%
United Arab Emirates	61.6	63.9	64.7	63.4	71.5	71.9	72.5	71.2	71.0	69.6	69.4	•	1.2%	1.7%
Other Middle East	22.1	20.6	21.3	20.9	22.5	23.1	23.2	22.0	23.2	23.2	24.3	4.9%	0.9%	0.6%
Total Middle East	398.5	411.0	423.4	447.4	479.3	501.2	516.8	529.9	544.2	556.9	575.4	3.6%	3.7%	14.3%
Algeria	26.8	29.9	32.1	36.1	37.9	38.6	39.5	43.4	45.1	43.6	45.8	5.4%	5.5%	1.1%
Egypt	47.8	50.6	49.5	46.2	46.0	49.4	55.9	59.6	59.0	58.3	61.9	6.4%	2.6%	1.5%
Morocco	0.9	1.2	1.1	1.1	1.1	1.1	1.1	1.0	0.8	0.8	0.8	0.9%	-1.4%	•
South Africa	4.3	4.4	4.1	4.3	4.3	3.7	4.0	4.4	4.3	4.0	3.9	-2.7%	-1.0%	0.1%
Eastern Africa	1.0	1.1	1.1	1.3	1.6	2.0	2.0	2.1	2.4	2.3	2.7	16.2%	10.8%	0.1%
Middle Africa	3.0	3.7	4.1	4.0	4.3	5.5	5.5	5.5	5.1	5.3	6.1	16.5%	7.5%	0.2%
Western Africa	12.2	12.9	12.7	16.0	23.8	21.1	22.0	23.5	24.2	25.9	28.0	8.5%	8.6%	0.7%
Other Northern Africa	10.1	10.9	12.3	11.3	13.4	15.7	14.8	14.8	14.0	13.5	15.3	13.5%	4.2%	0.4%
Other Southern Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Africa	106.1	114.7	117.0	120.2	132.5	137.0	144.9	154.4	155.0	153.6	164.4	7.3%	4.5%	4.1%
Australia	32.8	33.0	34.7	37.2	38.8	37.9	37.1	36.8	43.9	43.1	39.4	-8.3%	1.9%	1.0%
Bangladesh	19.6	21.3	22.0	23.0	25.9	26.5	26.6	27.4	30.9	29.9	31.1	4.3%	4.7%	0.8%
China	135.2	150.9	171.9	188.4	194.7	209.4	241.3	283.9	308.4	336.6	378.7	12.8%	10.9%	9.4%
China Hong Kong SAR	2.9	2.6	2.5	2.4	3.0	3.1	3.1	3.0	3.1	4.9	4.8	-2.1%	5.4%	0.1%
India	60.3	55.7	49.0	48.5	47.8	50.8	53.6	58.0	59.2	60.5	62.2	3.1%	0.3%	1.5%
Indonesia	42.7	43.0	44.5	44.0	45.8	44.6	43.2	44.5	44.0	37.5	37.1	-0.9%	-1.4%	0.9%
Japan	112.0	123.2	123.5	124.8	118.7	116.4	117.0	115.7	108.1	104.1	103.6	-0.2%	-0.8%	2.6%
Malaysia	38.3	42.0	44.6	44.7	46.8	45.0	45.0	44.7	45.2	38.3	41.1	7.5%	0.7%	1.0%
New Zealand	4.0	4.5	4.7	5.2	4.8	4.8	5.0	4.5	4.8	4.6	3.9	-14.9%	-0.4%	0.1%
Pakistan	35.3	36.6	35.6	35.0	36.5	38.7	40.7	43.6	44.5	41.2	44.8	9.1%	2.4%	1.1%
Philippines	3.8	3.6	3.4	3.5	3.3	3.8	3.8	4.1	4.2	3.8	3.3	-14.3%	-1.5%	0.1%
Singapore	8.3	8.9	10.0	10.4	11.6	11.9	12.3	12.3	12.5	12.6	13.4	6.3%	4.9%	0.3%
South Korea	48.4	52.5	55.0	50.0	45.6	47.6	49.8	57.8	56.0	57.5	62.5	9.0%	2.6%	1.5%
Sri Lanka	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taiwan	17.0	17.9	17.9	18.9	20.2	21.0	23.2	23.7	23.3	24.9	27.3	10.0%	4.8%	0.7%
Thailand	44.3	48.6	48.9	49.9	51.0	50.6	50.1	50.0	50.9	46.9	47.0	0.6%	0.6%	1.2%
Vietnam	8.2	9.0	9.4	9.9	10.3	10.2	9.5	9.7	9.8	8.8	7.1	-19.2%	-1.4%	0.2%
Other Asia Pacific	6.9	8.5	8.2	9.7	10.9	10.4	10.7	10.8	11.3	11.6	11.0	-4.7%	4.8%	0.3%
Total Asia Pacific	620.1	662.0	685.7	705.5	715.7	732.7	772.0	830.5	860.4	866.9	918.3	6.2%	4.0%	22.7%
Total World	3234.0	3319.4	3373.0	3394.4	3476.9	3556.1	3652.9	3835.6	3906.3	3845.6	4037.5	5.3%	2.2%	100.0%
of which: OECD	1546.9	1583.2	1616.1	1590.7	1623.5	1656.1	1677.8	1762.6	1803.0	1758.6	1794.9	2.3%	1.5%	44.5%
Non-OECD	1687.1	1736.2	1756.9	1803.8	1853.3	1899.9	1975.2	2073.0	2103.3	2087.0	2242.6	7.8%	2.9%	55.5%
European Union	389.0	382.2	374.5	331.4	346.7	368.2	365.2	378.1	391.8	380.3	396.6	4.6%	0.2%	9.8%

Source: includes data from Cedigaz, FGE MENA natural gas service.

*Excludes natural gas converted to liquid fuels but includes derivatives of coal as well as natural gas consumed in gas-to-liquids transformation.

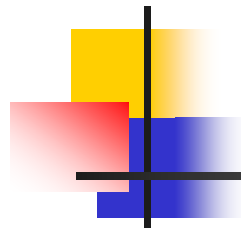
•Less than 0.05%.

Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar); as they are derived directly from measures of energy content using an average conversion factor and have been standardized using a gross calorific value (GCV) of 40 MJ/m³, they do not necessarily equate with gas volumes expressed in specific national terms.

The difference between these world consumption figures and the world production statistics is due to variations in stocks at storage facilities and liquefaction plants, together with unavoidable disparities in the definition, measurement or conversion of gas supply and demand data. Growth rates are adjusted for leap years.

Annual changes and shares of total are calculated using billion cubic metres figures.

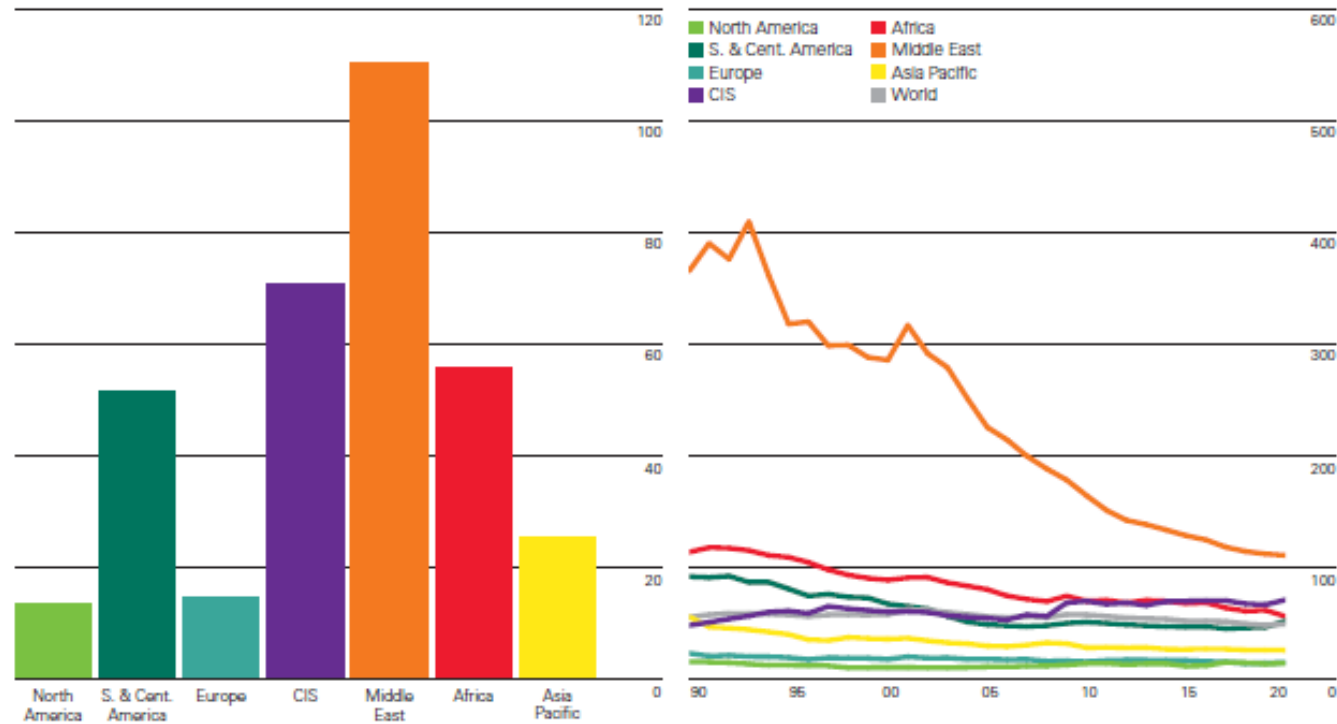
R/P omjer pojedinih svjetskih regija



Reserves-to-production (R/P) ratios

Years

2020 by region



World proved gas reserves decreased by 2.2 Tcm to 188.1 Tcm in 2020. A revision to Algeria (-2.1 Tcm) provided the largest decrease, partially offset by a 0.4 Tcm increase in Canadian reserves. Russia (37 Tcm), Iran (32 Tcm) and Qatar (25 Tcm) are the countries with the largest reserves. The current global R/P ratio shows that gas reserves in 2020 accounted for 48.8 years of current production. The Middle East (110.4 years) and CIS (70.5 years) are the regions with the highest R/P ratio.

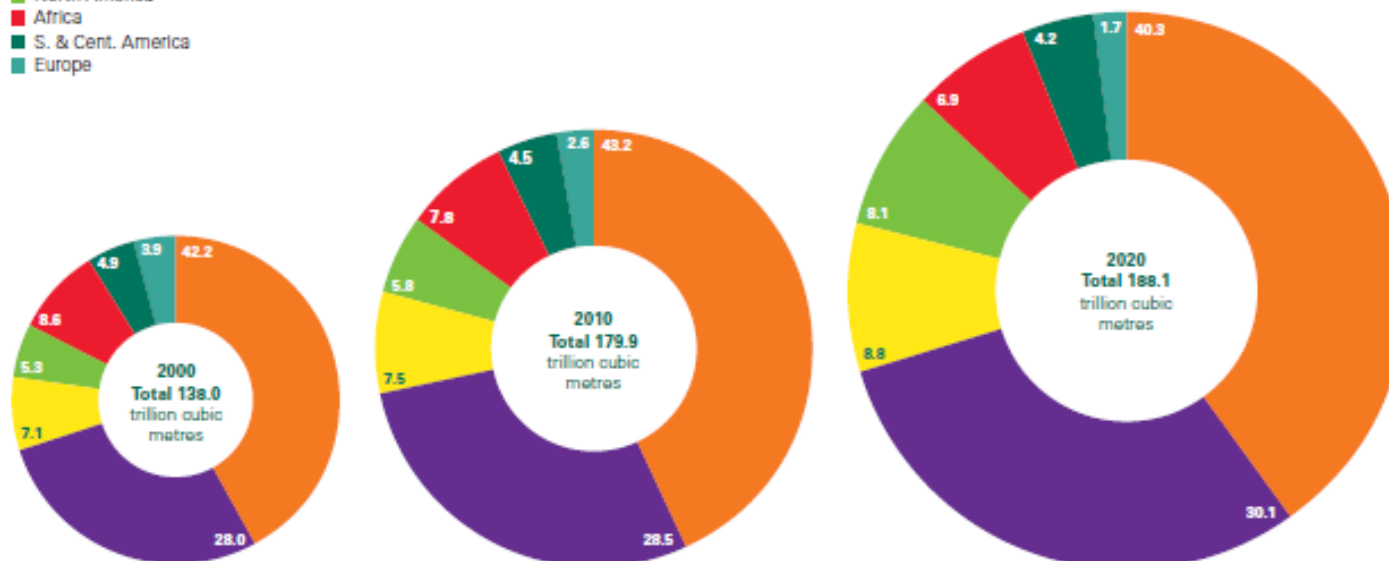
Udio pojedinih svjetskih regija u zalihama prirodnog plina s pregledom ukupnih zaliha



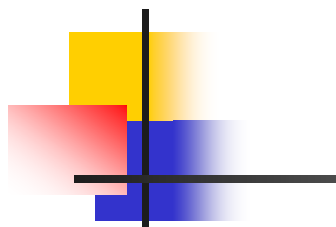
Distribution of proved reserves in 2000, 2010 and 2020

Percentage

- Middle East
- CIS
- Asia Pacific
- North America
- Africa
- S. & Cent. America
- Europe



Cijene prirodnog plina (USD/10⁶Btu, 1kWh=3412Btu) na nekim točkama trgovanja



Prices

US dollars per million Btu	LNG		Natural gas					Crude oil OECD countries CIF ⁶
	Japan CIF ¹	Japan Korea Marker (JKM) ²	Average German Import Price ³	UK (Heren NBP Index) ⁴	Netherlands TTF (DA Heren Index) ⁵	US Henry Hub ⁵	Canada (Alberta) ⁵	
1984	5.10	-	4.00	-	-	-	-	5.00
1985	5.23	-	4.25	-	-	-	-	4.75
1986	4.10	-	3.93	-	-	-	-	2.57
1987	3.35	-	2.55	-	-	-	-	3.09
1988	3.34	-	2.22	-	-	-	-	2.56
1989	3.28	-	2.00	-	-	1.70	-	3.01
1990	3.64	-	2.78	-	-	1.64	1.05	3.82
1991	3.99	-	3.23	-	-	1.49	0.89	3.33
1992	3.62	-	2.70	-	-	1.77	0.98	3.19
1993	3.52	-	2.51	-	-	2.12	1.69	2.82
1994	3.18	-	2.35	-	-	1.92	1.45	2.70
1995	3.46	-	2.43	-	-	1.69	0.89	2.96
1996	3.66	-	2.50	1.87	-	2.76	1.12	3.54
1997	3.91	-	2.66	1.96	-	2.53	1.36	3.29
1998	3.05	-	2.33	1.86	-	2.08	1.42	2.16
1999	3.14	-	1.86	1.58	-	2.27	2.00	2.98
2000	4.72	-	2.91	2.71	-	4.23	3.75	4.83
2001	4.64	-	3.67	3.17	-	4.07	3.61	4.08
2002	4.27	-	3.21	2.37	-	3.33	2.57	4.17
2003	4.77	-	4.06	3.33	-	5.63	4.83	4.89
2004	5.18	-	4.30	4.46	-	5.85	5.03	6.27
2005	6.05	-	5.83	7.38	6.07	8.79	7.25	8.74
2006	7.13	-	7.87	7.87	7.46	6.76	5.83	10.66
2007	7.73	-	7.99	6.01	5.93	6.95	6.17	11.95
2008	12.55	-	11.60	10.79	10.66	8.85	7.99	16.76
2009	9.06	5.28	8.53	4.85	4.96	3.89	3.38	10.41
2010	10.93	7.72	8.03	6.96	6.77	4.39	3.69	13.47
2011	14.77	14.02	10.49	9.04	9.26	4.01	3.47	18.55
2012	16.75	15.12	10.93	9.46	9.45	2.76	2.27	18.82
2013	16.17	16.56	10.73	10.64	9.75	3.71	2.93	18.25
2014	16.33	13.86	9.11	8.25	8.14	4.35	3.87	16.80
2015	10.27	7.45	6.72	6.53	6.44	2.60	2.01	8.77
2016	6.93	5.72	4.93	4.69	4.54	2.46	1.55	7.04
2017	8.10	7.13	5.62	5.80	5.72	2.96	1.58	8.97
2018	10.07	9.76	6.64	8.06	7.90	3.12	1.18	11.68
2019	9.94	5.49	5.03	4.47	4.45	2.51	1.27	10.82
2020	7.78	4.39	4.06	3.42	3.07	1.99	1.58	7.27
2021	10.07	18.60	8.94	15.80	16.02	3.84	2.75	11.82

¹Source: EDMC Energy Trend, bp analysis.

²Source: S&P Global Platts ©2021, S&P Global Inc.

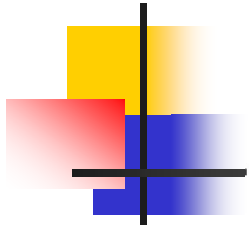
³Source: 1986-1990 German Federal Statistical Office, 1991-2021 German Federal Office of Economics and Export Control (BAFA).

⁴Source: ICIS Heren Energy Ltd.

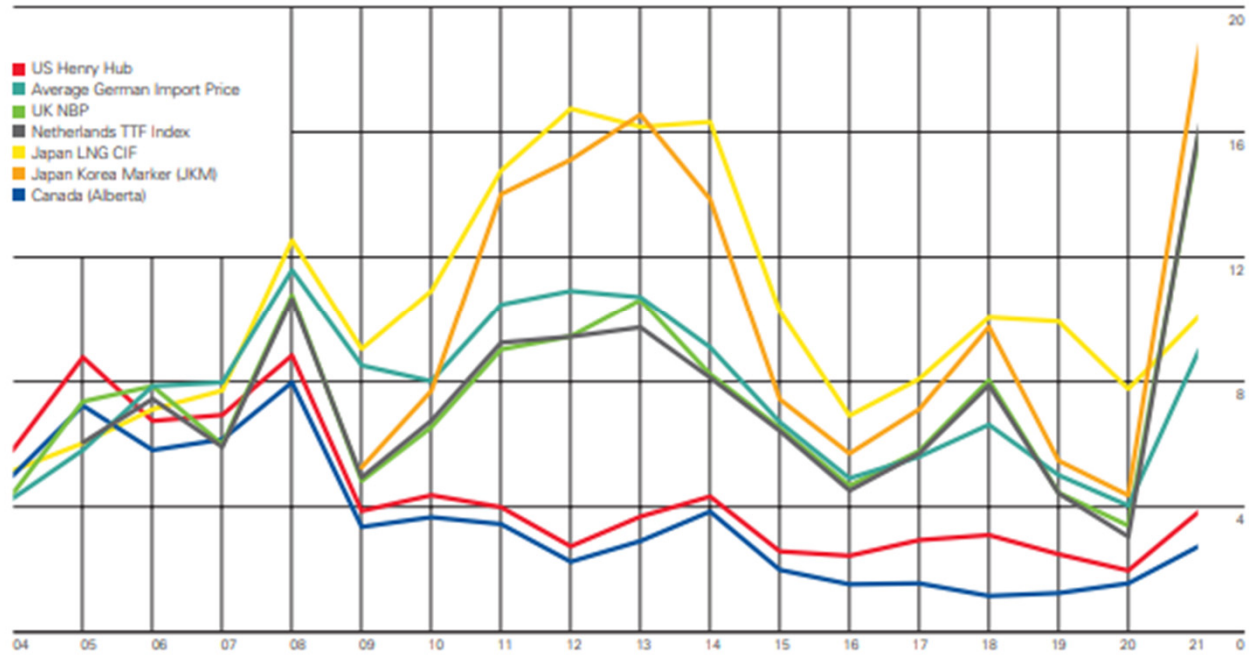
⁵Source: Energy Intelligence Group, Natural Gas Week.

⁶Source: ©OECD/IEA 2021, Oil, Gas, Coal and Electricity, Quarterly Statistics www.iea.org/statistics.

Note: CIF = cost+insurance+freight (average prices).



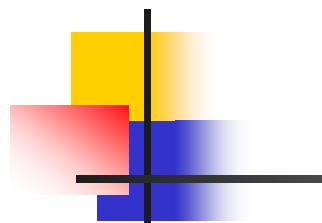
Prices
\$/mmBtu



Trgovina prirodnim plinom

Natural gas: Inter-regional trade

Billion cubic metres	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth rate per annum		Share 2021
												2021	2011-21	
US														
Pipeline imports	85.0	80.8	75.9	71.8	71.6	79.5	80.5	76.6	73.3	68.2	75.9	11.7%	-1.1%	7.4%
LNG imports	9.9	4.9	2.7	1.7	2.5	2.4	2.2	2.1	1.5	1.3	0.6	-54.3%	-24.6%	0.1%
Total imports	94.9	85.6	78.6	73.5	74.1	82.0	82.7	78.8	74.7	69.5	76.5	10.4%	-2.1%	7.5%
Pipeline exports	39.1	45.3	42.5	40.4	47.2	58.7	65.7	67.8	77.4	78.9	84.3	7.2%	8.0%	8.2%
LNG exports*	1.8	0.8	0.2	0.4	0.7	4.0	17.1	28.6	47.4	61.3	95.0	55.4%	49.1%	9.3%
Total exports	40.9	46.1	42.7	40.8	47.9	62.7	82.8	96.3	124.8	140.2	179.3	28.3%	15.9%	17.5%
Other North America														
Pipeline imports	39.1	45.3	42.5	40.4	47.2	58.7	65.7	67.8	77.4	78.9	84.3	7.2%	8.0%	8.2%
LNG imports	7.0	6.5	8.8	9.8	7.4	5.9	7.0	7.5	7.1	3.4	1.6	-51.8%	-13.6%	0.2%
Total imports	46.1	51.7	51.3	50.2	54.7	64.5	72.7	75.3	84.5	82.2	85.9	4.8%	6.4%	8.4%
Pipeline exports	85.0	80.8	75.9	71.8	71.6	79.5	80.5	76.6	73.3	68.2	75.9	11.7%	-1.1%	7.4%
LNG exports*	0.1	-	-	†	†	†	†	0.1	†	†	†	-5.6%	-23.6%	•
Total exports	85.1	80.8	75.9	71.9	71.6	79.6	80.6	76.7	73.3	68.2	75.9	11.7%	-1.1%	7.4%
Brazil														
Pipeline imports	9.3	9.5	11.0	11.4	11.2	9.8	8.4	7.6	6.4	6.2	7.1	15.0%	-2.6%	0.7%
LNG imports	0.7	3.5	5.2	7.1	6.8	2.6	1.7	2.9	3.2	3.3	10.1	203.8%	31.2%	1.0%
Total imports	9.9	13.0	16.3	18.5	18.0	12.4	10.1	10.5	9.7	9.5	17.2	81.2%	5.7%	1.7%
LNG exports*	-	0.5	0.1	0.2	†	0.6	0.2	0.1	-	-	0.1	-	-	•
Total exports	-	0.5	0.1	0.2	†	0.6	0.2	0.1	-	-	0.1	-	-	•
Other S&C America														
LNG imports	9.3	11.1	12.9	12.5	12.1	12.6	11.7	11.6	9.9	10.5	14.3	35.9%	4.4%	1.4%
Total imports	9.3	11.1	12.9	12.5	12.1	12.6	11.7	11.6	9.9	10.5	14.3	35.9%	4.4%	1.4%
Pipeline exports	9.3	9.5	11.0	11.4	11.2	9.8	8.4	7.6	6.4	6.2	7.1	15.0%	-2.6%	0.7%
LNG exports*	23.4	23.4	24.1	23.3	21.4	19.9	19.1	21.4	22.5	19.8	13.16	-33.5%	-5.6%	1.3%
Total exports	32.7	32.9	35.1	34.7	32.6	29.7	27.5	29.0	28.9	26.0	20.3	-21.9%	-4.7%	2.0%
Europe														
Pipeline imports	234.4	228.5	234.1	209.4	214.9	230.6	247.4	247.3	236.7	210.5	232.8	10.9%	-0.1%	22.8%
of which: Russia	186.0	177.0	187.3	164.0	169.4	176.3	193.2	193.2	191.3	166.9	167.0	0.3%	-1.1%	16.3%
Africa	34.4	38.5	33.3	29.1	29.8	38.7	37.2	37.3	26.5	25.2	37.2	48.1%	0.8%	3.6%
Other CIS	5.7	4.7	5.2	7.6	8.1	8.2	8.1	9.2	11.5	13.3	19.5	47.0%	13.1%	1.9%
Middle East	8.3	8.2	8.2	8.7	7.5	7.4	8.9	7.6	7.4	5.1	9.1	77.8%	0.9%	0.9%
LNG imports	89.2	68.2	51.8	52.1	56.0	56.4	64.8	71.2	119.4	116.3	108.2	-6.6%	2.0%	10.6%
Total imports	323.6	296.7	285.8	261.4	270.9	287.0	312.2	318.5	356.1	326.8	341.0	4.6%	0.5%	33.4%
LNG exports*	6.1	8.1	9.0	13.0	11.0	10.6	7.9	11.7	8.8	7.0	3.8	-45.9%	-4.6%	0.4%
Total exports	6.1	8.1	9.0	13.0	11.0	10.6	7.9	11.7	8.8	7.0	3.8	-45.8%	-4.6%	0.4%
Russia														
Pipeline imports	41.2	39.7	32.9	33.1	26.5	24.3	28.6	24.6	30.3	10.4	15.1	45.6%	-9.5%	1.5%
Total imports	41.2	39.7	32.9	33.1	26.5	24.3	28.6	24.6	30.3	10.4	15.1	45.6%	-9.5%	1.5%
Pipeline exports	210.6	201.5	210.7	189.6	194.2	202.0	219.7	222.4	220.7	197.1	201.7	2.6%	-0.4%	19.7%
of which: Europe	186.0	177.0	187.3	164.0	169.4	176.3	193.2	193.2	191.3	166.9	167.0	0.3%	-1.1%	16.3%
Other CIS	24.6	24.5	23.3	25.6	24.8	25.7	26.5	29.2	29.2	26.3	27.1	3.2%	1.0%	2.7%
LNG exports	14.3	14.3	14.5	13.6	14.6	14.6	15.4	24.9	39.1	41.8	39.6	-4.9%	10.7%	3.9%
Total exports	224.9	215.8	225.2	203.2	208.8	216.7	235.2	247.3	259.8	238.9	241.3	1.3%	0.7%	23.6%
Other CIS														
Pipeline imports	25.4	25.2	24.0	26.3	25.4	26.3	28.6	30.4	29.8	26.9	27.6	3.0%	0.8%	2.7%
Total imports	25.4	25.2	24.0	26.3	25.4	26.3	28.6	30.4	29.8	26.9	27.6	3.0%	0.8%	2.7%
Pipeline exports	71.8	69.7	69.5	75.4	72.6	72.8	78.0	80.8	85.2	61.2	76.5	25.4%	0.6%	7.5%
of which: China	13.6	20.8	26.2	27.4	28.7	33.0	36.7	45.0	43.0	37.3	41.7	12.3%	11.8%	4.1%
Europe	5.7	4.7	5.2	7.6	8.1	8.2	8.1	9.2	11.5	13.3	19.5	47.0%	13.1%	1.9%
Middle East	11.4	4.5	5.2	7.3	9.3	7.3	4.6	2.0	0.4	0.2	0.2	-18.4%	-34.5%	•
Russia	41.2	39.7	32.9	33.1	26.5	24.3	28.6	24.6	30.3	10.4	15.1	45.6%	-9.5%	1.5%
Total exports	71.8	69.7	69.5	75.4	72.6	72.8	78.0	80.8	85.2	61.2	76.5	25.4%	0.6%	7.5%



Natural gas: Inter-regional trade

Middle East														
Pipeline imports	13.0	5.3	6.3	7.6	9.6	7.3	4.6	2.1	1.6	0.6	0.9	45.9%	-23.4%	0.1%
of which: Africa	1.6	0.8	1.1	0.3	0.3	-	-	0.1	1.2	0.4	0.7	76.6%	-7.7%	0.1%
Other CIS	11.4	4.5	5.2	7.3	9.3	7.3	4.6	2.0	0.4	0.2	0.2	-18.4%	-34.5%	*
LNG imports	4.4	4.2	4.3	5.3	9.8	13.7	13.0	9.4	9.4	9.1	9.6	5.8%	8.0%	0.9%
Total imports	17.4	9.4	10.6	12.9	19.4	21.1	17.7	11.5	11.0	9.7	10.5	8.4%	-5.0%	1.0%
Pipeline exports	9.1	9.0	8.9	9.3	8.1	8.0	11.0	8.8	8.0	7.7	13.4	73.6%	3.9%	1.3%
LNG exports	128.7	130.3	135.2	132.2	125.4	126.0	122.3	125.9	127.5	127.3	129.7	2.2%	0.1%	12.7%
Total exports	137.9	139.3	144.2	141.5	133.5	133.9	133.2	134.8	135.6	135.0	143.1	6.3%	0.4%	14.0%
Africa														
Pipeline imports	-	-	-	-	-	-	-	-	-	2.1	3.8	85.6%	-	0.4%
LNG imports	-	-	-	-	3.9	10.7	8.3	3.2	-	-	-	-	-	-
Total imports	-	-	-	-	3.9	10.7	8.3	3.2	-	2.1	3.8	85.6%	-	0.4%
Pipeline exports	36.1	39.3	34.4	29.4	30.1	38.7	37.2	37.5	27.7	25.6	38.0	48.6%	0.5%	3.7%
of which: Europe	34.4	38.5	33.3	29.1	29.8	38.7	37.2	37.3	26.5	25.2	37.2	48.1%	0.8%	3.6%
Middle East	1.6	0.8	1.1	0.3	0.3	-	-	0.1	1.2	0.4	0.7	76.6%	-7.7%	0.1%
LNG exports	56.4	54.2	47.0	49.5	48.5	46.2	55.7	53.5	61.6	56.0	58.5	4.7%	0.4%	5.7%
Total exports	92.4	93.5	81.4	78.8	78.6	84.9	92.9	90.9	89.4	81.7	96.5	18.5%	0.4%	9.4%
China														
Pipeline imports	13.6	20.8	26.4	30.3	32.4	36.8	39.9	47.9	47.7	45.1	53.2	18.5%	14.6%	5.2%
of which: Other Asia	-	-	0.2	2.9	3.8	3.7	3.2	2.9	4.4	3.9	3.9	0.6%	-	0.4%
Russia	-	-	-	-	-	-	-	-	0.3	3.9	7.6	96.0%	-	0.7%
Other CIS	13.6	20.8	26.2	27.4	28.7	33.0	36.7	45.0	43.0	37.3	41.7	12.3%	11.8%	4.1%
LNG imports	16.9	20.1	25.1	27.3	27.0	36.8	52.9	73.5	84.7	94.0	109.5	16.8%	20.6%	10.7%
Total imports	30.5	40.8	51.5	57.5	59.4	73.5	92.8	121.3	132.5	139.1	162.7	17.3%	18.2%	15.9%
LNG exports*	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-
Total exports	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-
India														
LNG imports	17.4	18.4	18.0	19.1	20.0	24.3	26.0	30.5	32.4	36.7	33.6	-8.1%	6.8%	3.3%
Total imports	17.4	18.4	18.0	19.1	20.0	24.3	26.0	30.5	32.4	36.7	33.6	-8.1%	6.8%	3.3%
LNG exports*	-	-	-	-	0.4	0.1	0.1	-	0.1	-	-	-	-	-
Total exports	-	-	-	-	0.4	0.1	0.1	-	0.1	-	-	-	-	-
OECD Asia														
Pipeline imports	5.3	5.0	5.9	5.2	5.8	5.5	4.9	4.9	4.3	5.3	4.8	-9.3%	-1.0%	0.5%
LNG imports	156.3	169.6	175.7	173.6	161.6	159.9	165.4	173.2	161.1	157.2	165.5	5.6%	0.6%	16.2%
Total imports	161.6	174.6	181.6	178.8	167.4	165.3	170.2	178.1	165.5	162.5	170.2	5.1%	0.5%	16.7%
LNG exports*	26.0	28.3	30.6	32.2	40.1	60.5	76.8	91.9	104.7	106.1	108.3	2.3%	15.3%	10.6%
Total exports	26.0	28.3	30.6	32.2	40.1	60.5	76.8	91.9	104.7	106.1	108.3	2.3%	15.3%	10.6%
Other Asia														
LNG imports	17.3	18.5	22.4	25.2	29.8	33.0	40.2	45.5	55.3	58.4	63.2	8.6%	13.8%	6.2%
Total imports	17.3	18.5	22.4	25.2	29.8	33.0	40.2	45.5	55.3	58.4	63.2	8.6%	13.8%	6.2%
Pipeline exports	5.3	5.0	6.1	8.1	9.5	9.2	8.1	7.8	8.7	9.2	8.7	-5.1%	5.1%	0.9%
of which: China	-	-	0.2	2.9	3.8	3.7	3.2	2.9	4.4	3.9	3.9	0.6%	-	0.4%
OECD Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LNG exports*	71.5	65.0	66.2	69.3	75.0	75.8	78.5	72.4	72.4	70.8	68.1	-3.6%	-0.5%	6.7%
Total exports	76.8	70.0	72.3	77.5	84.5	85.0	86.6	80.2	81.1	80.0	76.8	-3.8%	*	7.5%
World														
Inter-regional pipeline trade	466.3	480.0	459.0	435.4	444.6	478.7	508.7	509.3	507.5	454.1	505.6	11.6%	0.8%	49.5%
LNG trade	328.3	324.9	326.8	333.6	337.1	358.3	393.3	430.4	484.2	490.1	516.2	5.6%	4.6%	50.5%
Total trade	794.6	784.9	785.9	769.1	781.7	836.9	902.0	939.7	991.6	944.3	1021.9	8.5%	2.5%	100.0%

*LNG exports include re-exports.

†Less than 0.05.

*Less than 0.05%.

Notes: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and have been standardized using a gross calorific value (GCV) of 40 MJ/m³. Growth rates are adjusted for leap years.

Source: statistics are taken from national statistical agencies, international organizations, and other proprietary sources.

Natural gas: LNG imports

Billion cubic metres	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Growth rate per annum		Share 2021
												2021	2011-21	
Canada	3.2	1.6	1.0	0.5	0.6	0.3	0.4	0.6	0.5	0.8	0.7	-14.7%	-13.9%	0.1%
Mexico	3.8	4.9	7.8	9.3	6.8	5.6	6.6	6.9	6.6	2.5	0.9	-64.3%	-13.4%	0.2%
US	9.9	4.9	2.7	1.7	2.5	2.4	2.2	2.1	1.5	1.3	0.6	-54.3%	-24.6%	0.1%
Total North America	16.8	11.4	11.4	11.5	10.0	8.3	9.2	9.6	8.6	4.6	2.2	-52.5%	-18.4%	0.4%
Argentina	3.7	4.7	6.3	6.2	5.6	5.1	4.6	3.6	1.8	1.8	3.7	108.8%	-0.1%	0.7%
Brazil	0.7	3.5	5.2	7.1	6.8	2.6	1.7	2.9	3.2	3.3	10.1	203.8%	31.2%	2.0%
Chile	3.7	4.0	3.8	3.5	3.7	4.5	4.4	4.3	3.3	3.7	4.5	22.0%	2.0%	0.9%
Other S. & Cent. America	1.9	2.4	2.8	2.8	2.8	3.0	2.8	3.7	4.8	5.1	6.1	20.5%	12.6%	1.2%
Total S. & Cent. America	9.9	14.6	18.1	19.6	18.9	15.2	13.5	14.5	13.1	13.9	24.4	76.4%	9.4%	4.7%
Belgium	6.3	4.1	3.1	2.9	3.6	2.4	1.3	3.3	7.3	6.4	5.5	-14.9%	-1.5%	1.1%
France	14.4	9.8	8.3	6.9	6.4	9.1	10.9	12.7	23.2	19.1	18.1	-5.2%	2.3%	3.5%
Italy	9.1	7.1	5.8	4.5	5.9	5.9	8.3	8.2	13.5	12.5	9.5	-23.7%	0.5%	1.8%
Spain	23.9	21.4	15.7	16.2	13.7	13.8	16.6	15.0	22.0	20.9	20.8	-0.4%	-1.4%	4.0%
Turkey	5.9	7.6	5.9	7.1	7.5	7.6	10.9	11.4	12.9	14.8	13.9	-5.9%	8.9%	2.7%
United Kingdom	24.7	13.9	9.2	11.2	13.7	10.7	6.6	7.2	17.1	18.6	14.9	-19.3%	-4.9%	2.9%
Other European Union	4.9	4.4	3.7	3.3	5.2	6.9	10.2	13.4	23.5	23.8	25.5	7.4%	18.0%	4.9%
Rest of Europe	-	†	-	†	-	†	0.1	†	†	0.1	0.1	-30.8%	-	-
Total Europe	89.2	68.2	51.8	52.1	56.0	56.4	64.8	71.2	119.4	116.3	108.2	-6.6%	2.0%	21.0%
Egypt	-	-	-	-	3.9	10.7	8.3	3.2	-	-	-	-	-	-
Kuwait	3.0	2.8	2.3	3.6	4.3	4.7	4.8	4.3	5.1	5.7	7.7	35.5%	9.8%	1.5%
United Arab Emirates	1.4	1.4	1.6	1.6	2.9	4.2	3.0	1.0	1.6	1.5	1.7	9.8%	1.6%	0.3%
Other Middle East & Africa	-	-	0.5	0.1	2.7	4.8	5.3	4.0	2.7	1.9	0.2	-87.2%	-	-
Total Middle East & Africa	4.4	4.2	4.3	5.3	13.7	24.5	21.4	12.5	9.4	9.1	9.6	5.8%	8.0%	1.9%
China	16.9	20.1	25.1	27.3	27.0	36.8	52.9	73.5	84.7	94.0	109.5	16.8%	20.6%	21.2%
India	17.4	18.4	18.0	19.1	20.0	24.3	26.0	30.5	32.4	36.7	33.6	-8.1%	6.8%	6.5%
Japan	108.6	119.8	120.4	121.8	115.9	113.6	113.9	113.0	105.5	101.7	101.3	-0.1%	-0.7%	19.6%
Malaysia	-	-	2.0	2.2	2.2	1.5	2.0	1.8	3.3	3.6	2.5	-32.4%	-	0.5%
Pakistan	-	-	-	-	1.5	4.0	6.1	9.4	11.8	10.6	12.1	14.9%	-	2.3%
Singapore	-	-	1.3	2.6	3.0	3.2	4.1	4.5	5.0	5.7	5.1	-10.4%	-	1.0%
South Korea	47.7	49.7	55.3	51.8	45.8	46.3	51.4	60.2	55.6	55.4	64.1	16.0%	3.0%	12.4%
Taiwan	16.3	17.1	17.2	18.6	19.6	20.4	22.7	22.9	22.8	24.3	26.8	10.4%	5.1%	5.2%
Thailand	1.1	1.4	2.0	1.9	3.6	3.9	5.2	6.0	6.7	7.5	9.2	22.4%	24.1%	1.8%
Other Asia Pacific	-	0.1	-	-	-	-	-	0.8	5.7	6.6	7.6	15.8%	-	1.5%
Total Asia Pacific	207.9	226.6	241.2	245.2	238.5	253.9	284.5	322.6	333.6	346.3	371.8	7.7%	6.0%	72.0%
Total LNG imports	328.3	324.9	326.8	333.6	337.1	358.3	393.3	430.4	484.2	490.1	516.2	5.6%	4.6%	100.0%

Source: statistics are taken from national statistical agencies, international organizations, and other proprietary sources. Includes data from GIIIGNL, S&P Global.

Gross LNG trade

*Less than 0.05%.

†Less than 0.05.

Note: Growth rates are omitted for lean years

Natural gas: Trade movements 2021 as LNG*

To	From																			Total imports				
	US	Peru	Trinidad & Tobago	Other Americas*	Norway	Other Europe*	Russian Federation	Oman	Qatar	United Arab Emirates	Yemen	Algeria	Angola	Egypt	Nigeria	Other Africa	Australia	Brunei	Indonesia		Malaysia	Papua New Guinea	Other Asia Pacific*	
Canada	†	0.1	0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7
Mexico	0.4	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	0.9
US	-	-	0.6	†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6
North America	0.4	0.1	1.3	†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	2.2
Argentina	2.2	-	0.1	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7
Brazil	8.7	-	0.3	-	-	0.1	-	-	0.9	-	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-	10.1
Chile	3.4	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	0.4	†	-	-	-	-	-	-	4.5
Other S. & Cent. America	2.5	-	2.6	0.6	-	0.3	-	-	†	-	-	-	-	†	†	-	-	-	-	-	-	-	†	6.1
S. & Cent. America	16.8	-	3.6	0.6	-	0.4	-	-	2.3	-	-	-	0.1	†	0.1	0.4	†	-	-	-	-	-	†	24.4
Belgium	0.2	-	-	-	-	-	1.9	-	3.2	-	-	0.1	-	0.1	-	-	-	-	-	-	-	-	-	5.5
France	4.3	0.1	-	0.1	-	-	4.7	-	0.7	-	-	4.5	-	0.2	3.5	-	-	-	-	-	-	-	-	18.1
Italy	1.0	-	0.2	-	-	0.1	-	-	6.5	-	-	1.3	-	0.3	0.3	-	-	-	-	-	-	-	-	9.5
Spain	5.8	0.1	1.1	-	-	0.1	3.3	-	2.4	-	-	2.1	0.4	0.4	4.3	0.8	0.1	-	-	-	-	†	-	20.8
Turkey	4.5	-	0.2	-	-	†	-	-	0.3	-	-	6.1	-	1.3	1.5	-	-	-	-	-	-	-	-	13.9
United Kingdom	4.0	0.8	0.2	-	-	0.1	3.0	-	6.0	-	-	0.7	-	-	0.1	-	-	-	-	-	-	-	-	14.9
Other European Union	11.1	0.3	0.8	†	0.2	0.4	4.4	-	3.5	-	-	0.6	0.4	0.3	3.4	0.2	-	-	-	-	-	-	-	25.5
Rest of Europe	-	-	-	-	-	0.1	†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1
Europe	30.8	1.3	2.4	0.1	0.2	0.8	17.4	-	22.5	-	-	15.4	0.8	2.5	13.0	1.0	0.1	-	-	-	-	†	-	108.2
Egypt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	0.9	-	0.2	-	-	0.3	-	0.4	3.6	0.3	-	0.1	0.1	0.4	1.3	0.1	-	-	-	-	-	-	0.1	7.7
United Arab Emirates	-	-	-	-	-	-	-	-	1.4	-	-	-	0.1	-	0.2	-	-	-	-	-	-	-	-	1.7
Other Middle East & Africa	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2
Middle East & Africa	1.2	-	0.2	-	-	0.3	-	0.4	5.0	0.3	-	0.1	0.2	0.4	1.5	0.1	-	-	-	-	-	-	0.1	9.6
China	12.4	0.2	0.6	†	-	0.5	6.2	2.2	12.3	1.0	-	0.3	0.6	1.7	2.1	1.4	43.6	0.9	6.6	11.7	4.5	0.6	-	109.5
India	5.6	-	0.4	-	-	0.6	0.6	1.7	13.6	4.9	-	0.1	1.4	1.5	2.0	0.8	0.4	-	-	0.1	-	-	-	33.6
Japan	9.6	0.7	-	-	-	0.2	8.8	2.6	12.3	1.8	-	-	-	0.3	1.2	0.4	36.3	5.8	2.6	13.9	4.8	0.2	-	101.3
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	2.1	0.3	-	-	-	-	-	2.5
Pakistan	1.2	-	-	-	-	0.2	-	†	8.1	0.3	-	-	0.8	1.1	0.2	0.1	-	-	-	-	-	-	-	12.1
Singapore	0.7	-	-	-	-	-	0.1	-	0.2	-	-	-	0.3	0.3	0.1	0.2	3.0	-	0.1	0.1	-	-	-	5.1
South Korea	12.1	1.2	0.1	-	-	0.2	3.9	6.3	16.1	0.4	-	-	0.2	0.3	0.9	0.4	12.9	0.3	3.3	5.3	0.3	0.1	-	64.1
Taiwan	2.4	-	0.2	-	-	-	2.6	0.6	6.5	0.1	-	-	-	0.3	0.8	0.3	8.6	0.1	1.6	0.7	2.0	-	-	26.8
Thailand	0.5	-	0.3	-	-	0.1	-	0.3	3.6	-	-	-	0.2	-	1.2	0.3	1.0	0.3	-	1.5	-	-	-	9.2
Other Asia Pacific	1.2	-	-	-	-	0.4	0.1	-	4.1	-	-	0.2	0.2	0.6	0.2	0.2	0.1	-	0.1	0.2	-	0.1	-	7.6
Asia Pacific	45.8	2.1	1.6	†	-	2.2	22.2	13.8	76.9	8.5	-	0.6	3.5	6.1	8.7	3.9	108.0	7.6	14.3	33.5	11.5	0.9	-	371.8
Total exports	95.0	3.5	9.1	0.7	0.2	3.6	39.6	14.2	106.8	8.8	-	16.1	4.7	9.0	23.3	5.4	108.1	7.6	14.6	33.5	11.5	1.0	-	516.2

Source: statistics are taken from national statistical agencies, international organizations, and other proprietary sources. Includes data from GIIGNL, S&P Global.

*Includes re-exports.

† Less than 0.05.

Note: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardized using a gross calorific value (GCV) of 40 MJ/m³.

Natural gas: Trade movements 2021 by pipeline

Billion cubic metres		From																			Total imports			
To	Canada	Mexico	US	Bolivia	Other S. & Cent. America	European Union	Norway	Other Europe ¹	Azerbaijan	Kazakhstan	Russian Federation	Turkmenistan	Uzbekistan	Iran	Qatar	Other Middle East	Algeria	Libya	Other Africa	Indonesia		Myanmar	Other Asia Pacific	
Canada	-	-	25.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.5
Mexico	-	-	58.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.7
US	75.9	†	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.9
North America	75.9	†	84.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160.2
Argentina	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5
Brazil	-	-	-	7.0	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.1
Other S. & Cent. America	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.8
S. & Cent. America	-	-	-	11.5	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.4
European Union	-	-	-	-	-	80.9	11.2	8.2	-	132.3	-	-	-	-	-	-	34.1	3.1	-	-	-	-	-	269.8
Rest of Europe	-	-	-	-	-	12.3	31.9	-	11.3	-	34.7	-	-	9.1	-	-	-	-	-	-	-	-	-	99.3
Europe	-	-	-	-	-	12.3	112.9	11.2	19.5	-	167.0	-	-	9.1	-	-	34.1	3.1	-	-	-	-	-	369.1
Belarus	-	-	-	-	-	-	-	-	-	18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7
Kazakhstan	-	-	-	-	-	-	-	-	-	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7
Russian Federation	-	-	-	-	-	-	-	-	4.6	-	10.5	-	-	-	-	-	-	-	-	-	-	-	-	15.1
Other CIS	-	-	-	-	-	-	†	-	-	5.7	0.2	-	0.5	-	-	-	-	-	-	-	-	-	-	6.4
CIS	-	-	-	-	-	-	-	†	4.6	27.1	10.5	0.2	0.5	-	-	-	-	-	-	-	-	-	-	42.9
United Arab Emirates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.5	-	-	-	-	-	-	-	-	19.5
Other Middle East	-	-	-	-	-	-	-	-	0.2	-	-	-	-	7.7	1.6	2.8	-	-	0.7	-	-	-	-	13.1
Middle East	-	-	-	-	-	-	-	-	0.2	-	-	-	-	7.7	21.1	2.8	-	-	0.7	-	-	-	-	32.5
South Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	-	-	-	-	3.5
Other Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	4.8	-	0.9	-	-	-	-	9.5
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	4.8	-	4.4	-	-	-	-	13.0
Australia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	4.8
China	-	-	-	-	-	-	-	-	-	5.9	7.6	31.5	4.3	-	-	-	-	-	-	-	-	3.9	-	53.2
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	0.4
Singapore	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	-	2.0	-	9.1
Thailand	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	-	-	6.7
Asia Pacific	-	-	-	-	-	-	-	-	5.9	7.6	31.5	4.3	-	-	-	-	-	-	-	7.5	10.6	6.7	-	74.2
Total exports	75.9	†	84.3	11.5	0.9	12.3	112.9	11.2	19.6	10.6	201.7	42.1	4.5	17.3	21.1	6.7	38.9	3.1	5.2	7.5	10.6	6.7	-	704.4

Source: statistics are taken from national statistical agencies, international organizations, and other proprietary sources. Includes data from FGE MENA natural gas service, S&P Global.

†Less than 0.05.

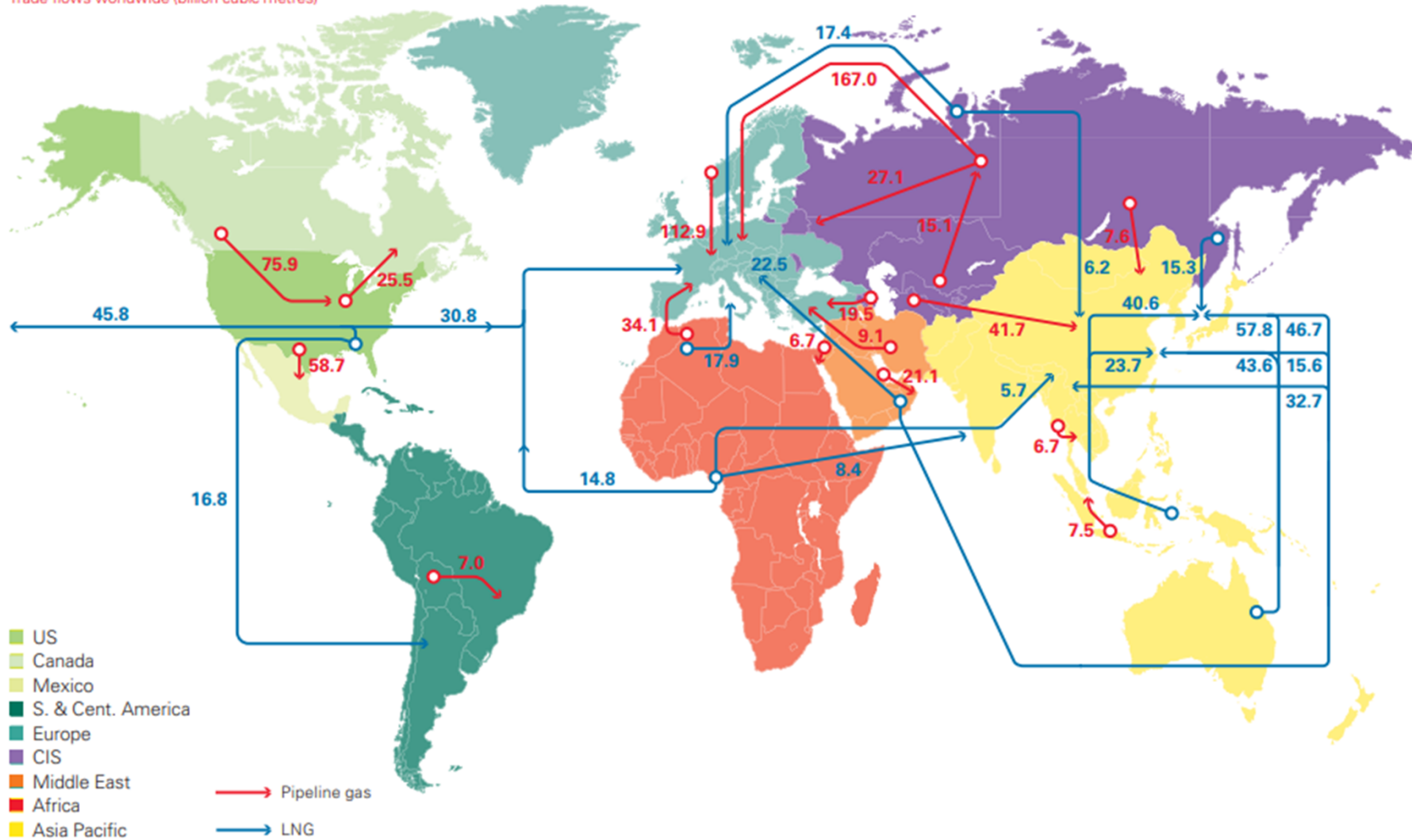
Note: As far as possible, the data above represents standard cubic metres (measured at 15°C and 1013 mbar) and has been standardized using a gross calorific value (GCV) of 40 MJ/m³.

¹Includes all of non-EU Europe other than Norway.

Tokovi trgovaja prirodnim plinom mlrd.m³

Major trade movements 2021

Trade flows worldwide (billion cubic metres)



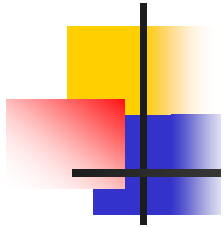
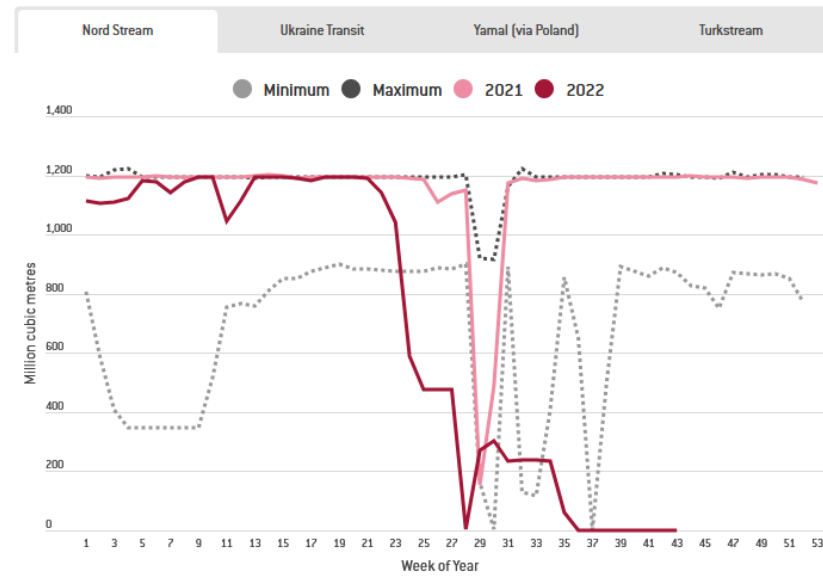


Figure 3: EU + UK Natural Gas Imports from Russia by exporting route



Last updated: 01/11/2022 (updated every Tuesday)



Source: Entso-g, <https://transparency.entso-g.eu/#/map>

Note: Minimum and Maximum values are calculated from the period 2015-2020.

Share



<https://www.bruegel.org/dataset/european-natural-gas-imports>



Sastav prirodnog plina koji se isporučuje potrošačima

Kemijski sastav (volumni udio, %):

Metan (CH ₄)	min.	85	%
Etan (C ₂ H ₆)	maks.	7	%
Propan (C ₃ H ₈) i viši ugljikovodici	maks.	6	%
Dušik (N ₂), ugljični dioksid (CO ₂) i drugi inertni plinovi	maks.	7	%



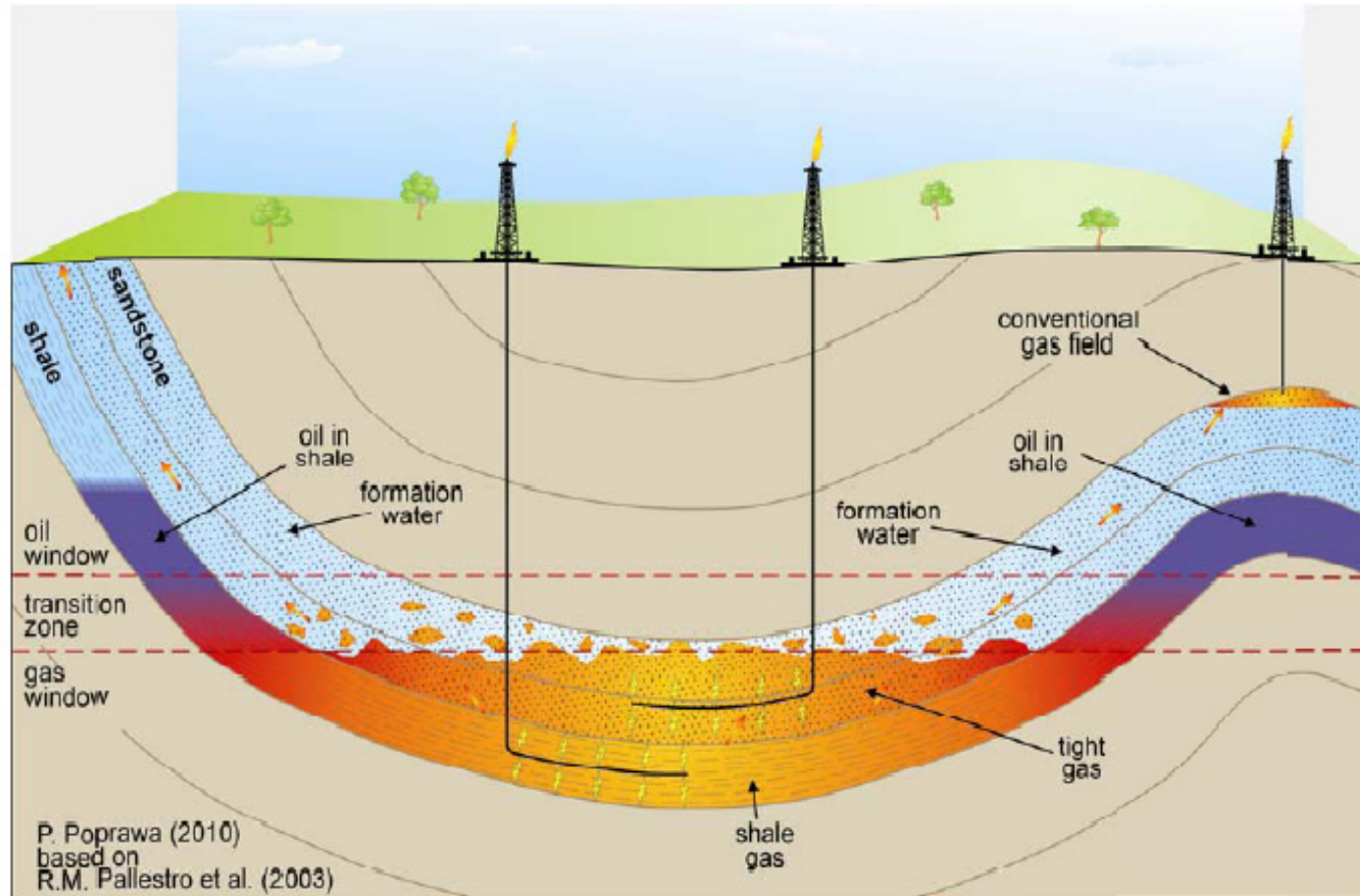
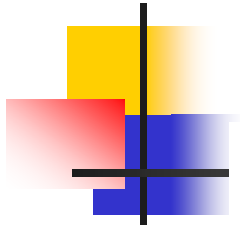
Nekonvencionalni plin

Pojam nekonvencionalnog plina označava prirodni plin koji je nemoguće proizvesti uz dostatan dotok ili u ekonomskim količinama klasičnim tehnologijama bez stimulacije ležišta hidrauličkim frakturiranjem, horizontalnim bušenjem, multilateralnim bušenjem ili drugim tehnikama. Na ekonomsku prihvatljivost proizvodnje iz nekonvencionalnih izvora utječu tehnološki razvoj i cijene plina.

Vrste nekonvencionalnih ležišta:

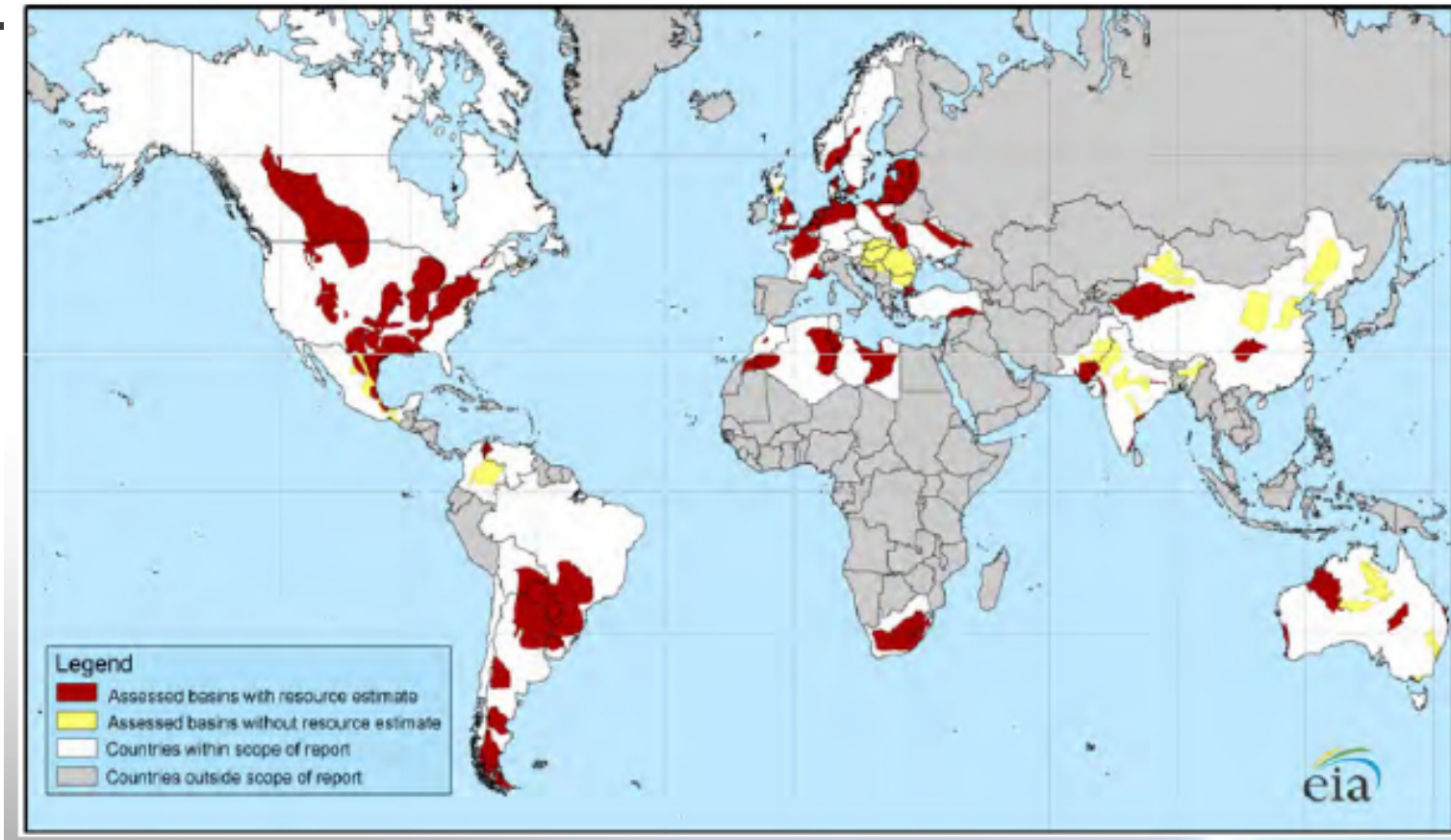
- Slabopropusni pješčenjaci
- Frakturirani šejlovi (škriljevci)
- Plin iz ležišta ugljena
- Metan otopljen u dubokim akviferima
- Ležišta hidrata

Usporedba konvencionalnih i nekonvencionalnih ležišta prirodnog plina



Svjetske rezerve nekonvencionalnog prirodnog plina

Figure 1. Map of 48 major shale gas basins in 32 countries



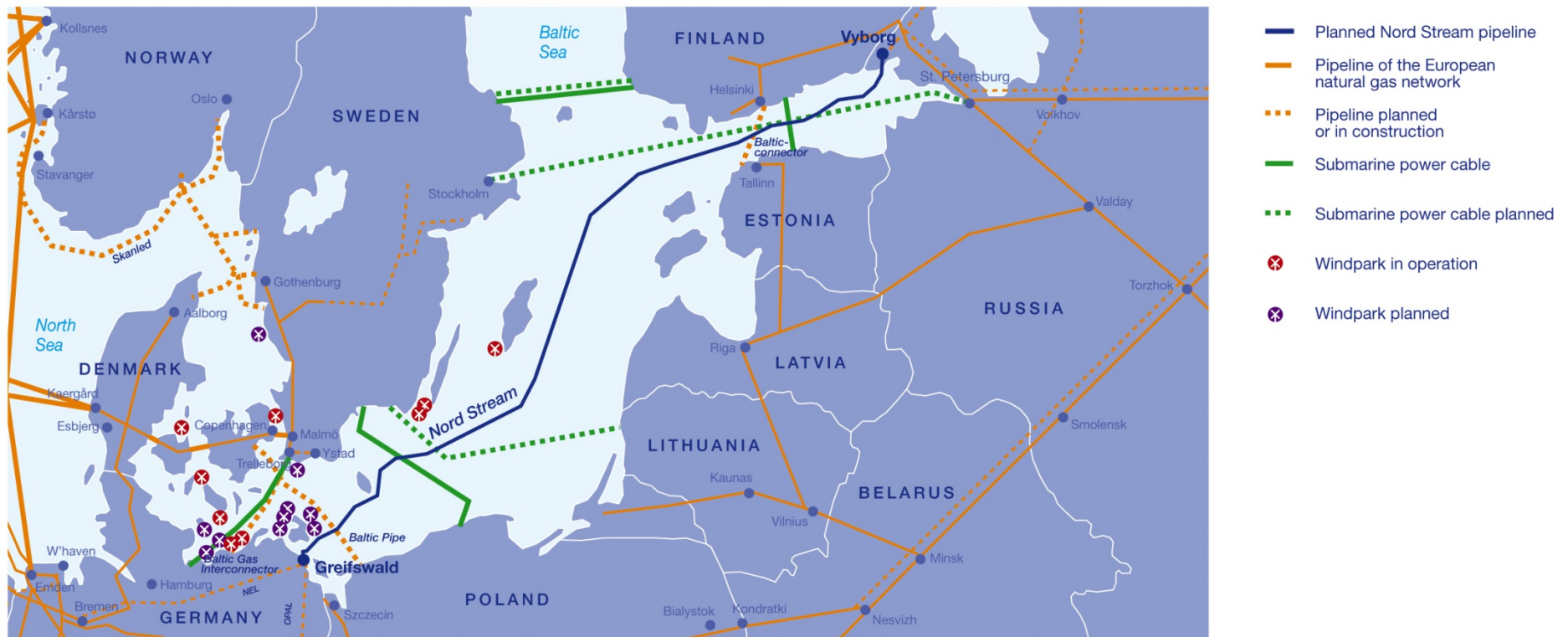


Zalihe prirodnog plina nisu upitne, ali je opskrba prirodnim plinom povezana sa savladavanjem velikih udaljenosti.

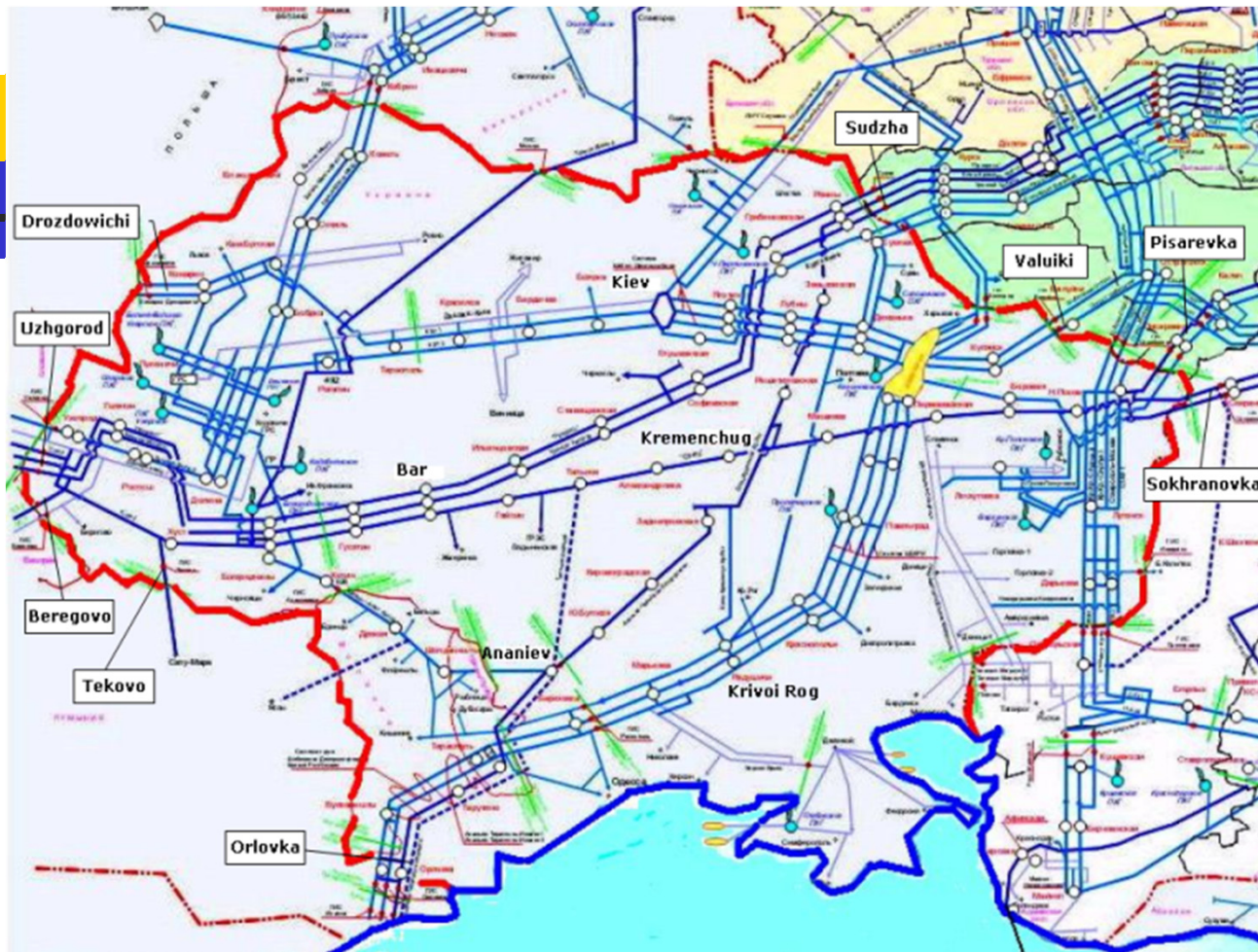
- Plin se transportira na velike udaljenosti.
- plinovodima ili
- pomorskim putem (LNG)

- Oboje predstavlja financijski izrazito intenzivne projekte koji osim o ekonomskim još više ovise o političkim čimbenicima.

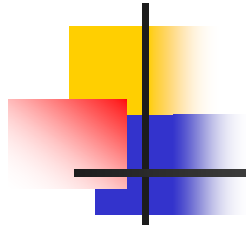
Nord Stream je zajednički projekt više kompanija: OAO Gazprom, BASF SE/Wintershall Holding GmbH, E.ON Ruhrgas AG and N.V. Nederlandse Gasunie. Nord Stream je dug 1220 km i sastoji se od 2 paralelna cjevovoda. Prvi kapaciteta 27,5 mlrd. m³ završen je 2011. god. Drugi će biti završen 2012., čime će se udvostručiti kapacitet na 55 mlrd m³ godišnje što je dovoljno za opskrbu 25 milijuna kućanstava u Europi. Vrijednost projekta procjenjuje se na 7.4 mlrd. eura.



Izvor: Nord Stream



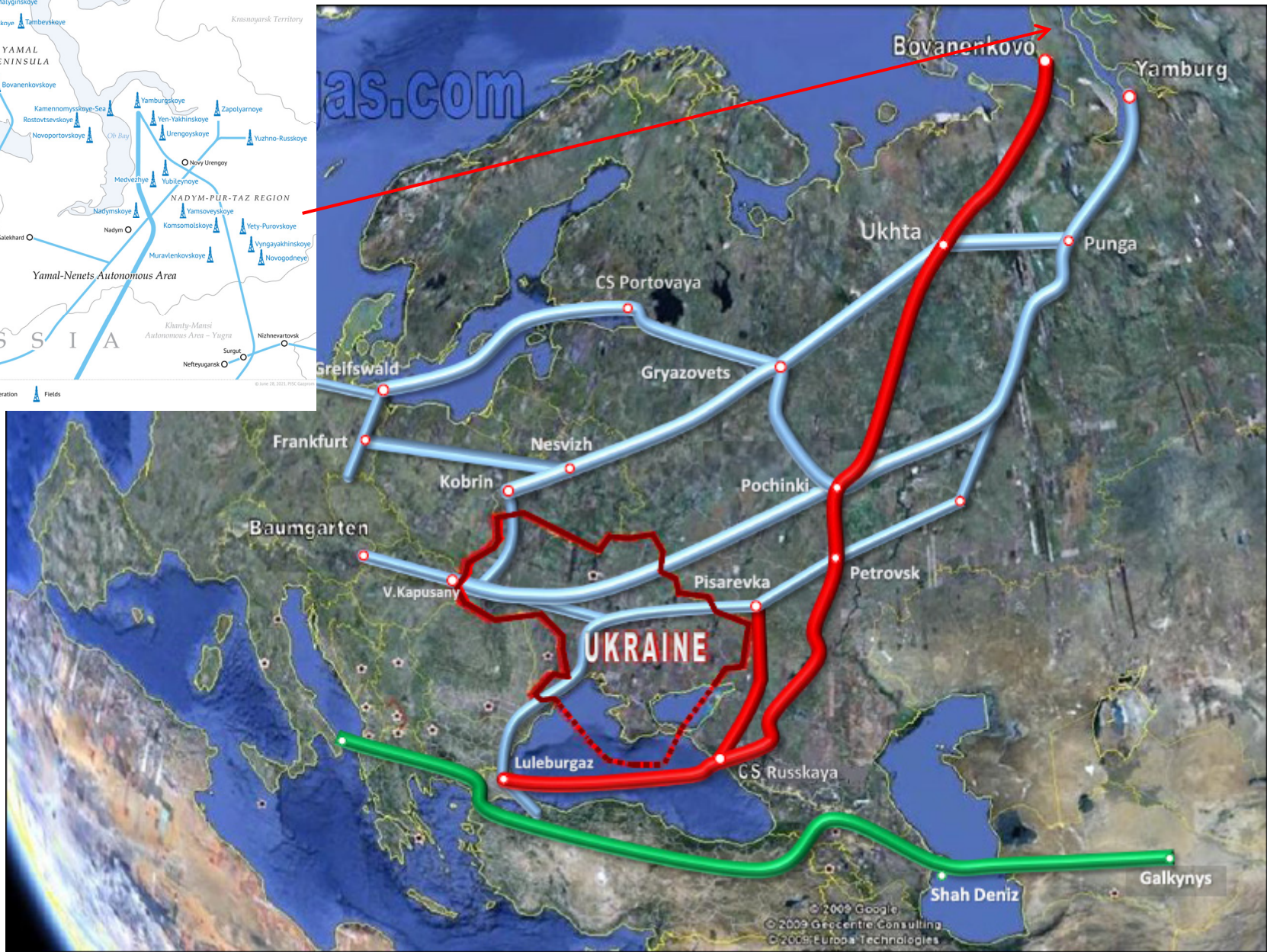
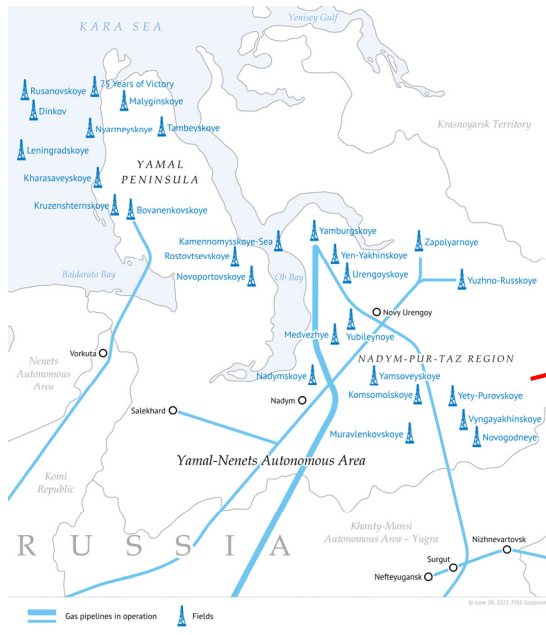
Ukrajinski dobavni pravac

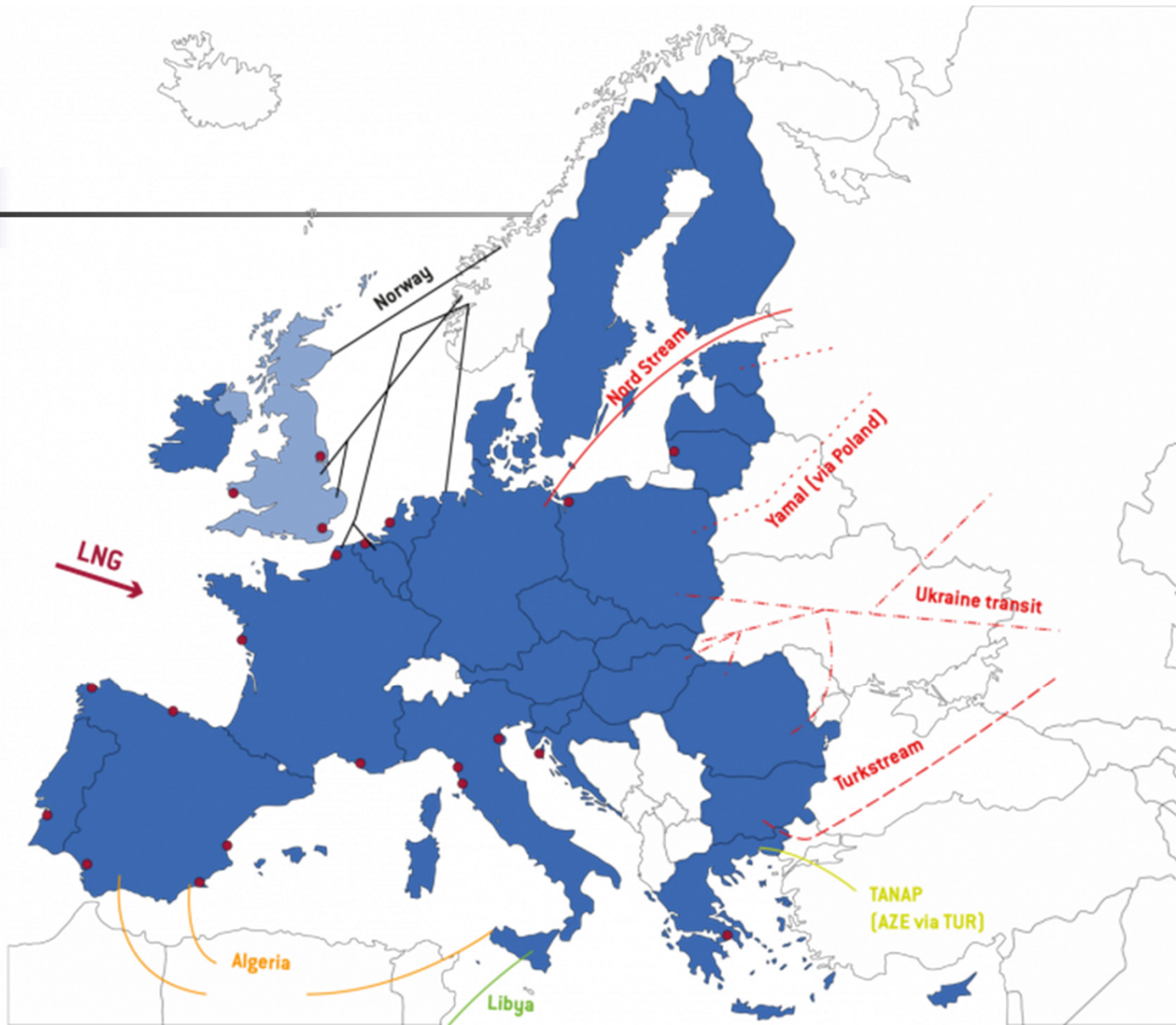
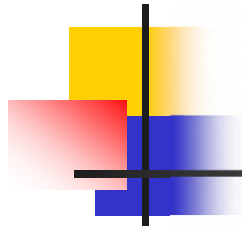


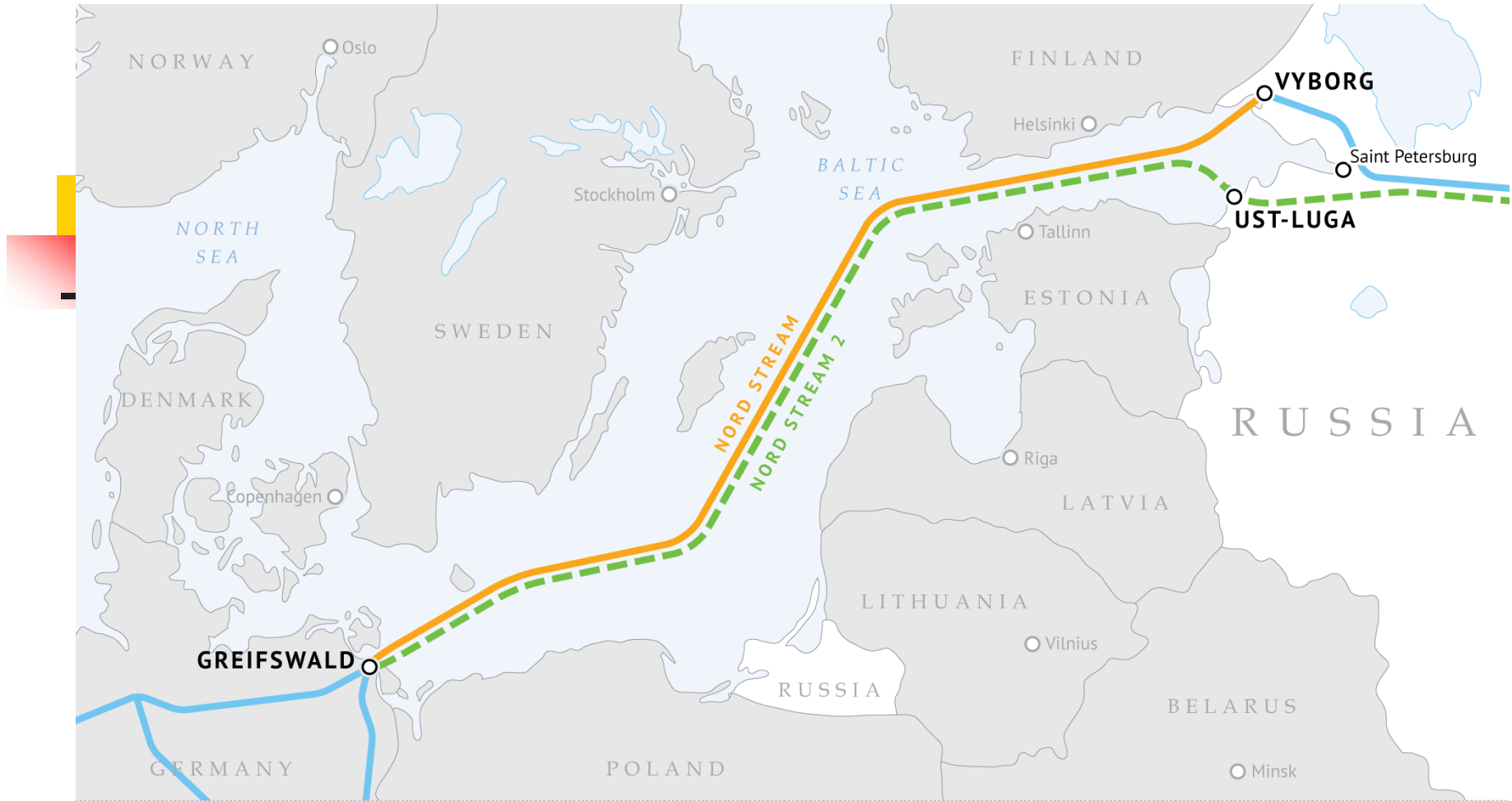
Do siječnja 2009.	Do 185 bcm/year	Od toga 120 za Zap E.
1999-2008	400 to 570 million cubic meters(mmcm)	Do 400 mmcm
2003-2008		Ne manje od 235 mmcm.

<http://www.eegas.com/>

Pipeline	Capacity	Number
Name (import-export gas metering station)	bcm/yr	of lines
Orenburg-Western border (Sokhranovka-Uzhgorod)	26	1
Urengoy-Uzhgorod (Sudzha-Uzhgorod)	28	1
Yamburg-Western border (Sudzha-Uzhgorod)	28	1
Dolina-Uzhgorod (Uzhgorod)	20	2
Komarno-Drozdowichi (Drozdowichi)	5	2
Uzhgorod-Beregovo (Beregovo)	11	2
Hust-Satu Mare (Tekovo)	2	1
Ananiev-Tiraspol-Izmail (Orlovka)	24	1
Shebelinka-Krivoi Rog-Izmail (Orlovka)	24	3-2
Total export capacity:		143
Major import pipelines:		
Yelets-Kremenchug-Krivoi Rog (Sudzha)	31	1
Yelets-Kursk-Dikan'ka (Sudzha)	15	1
Kursk-Kiev (Sudzha)	14	1
Ostrogzhsk-Shebelinka (Valuiki)	23	2
Urengoy-Novopskov (Pisarevka)	31	1
Petrovsk-Novopskov (Pisarevka)	14	1
Orenburg-Novopskov (Sokhranovka)	18	1







- Gas pipelines in operation
- Ongoing projects

Yamal Europe – 32,9 mlrd. m³ godišnje

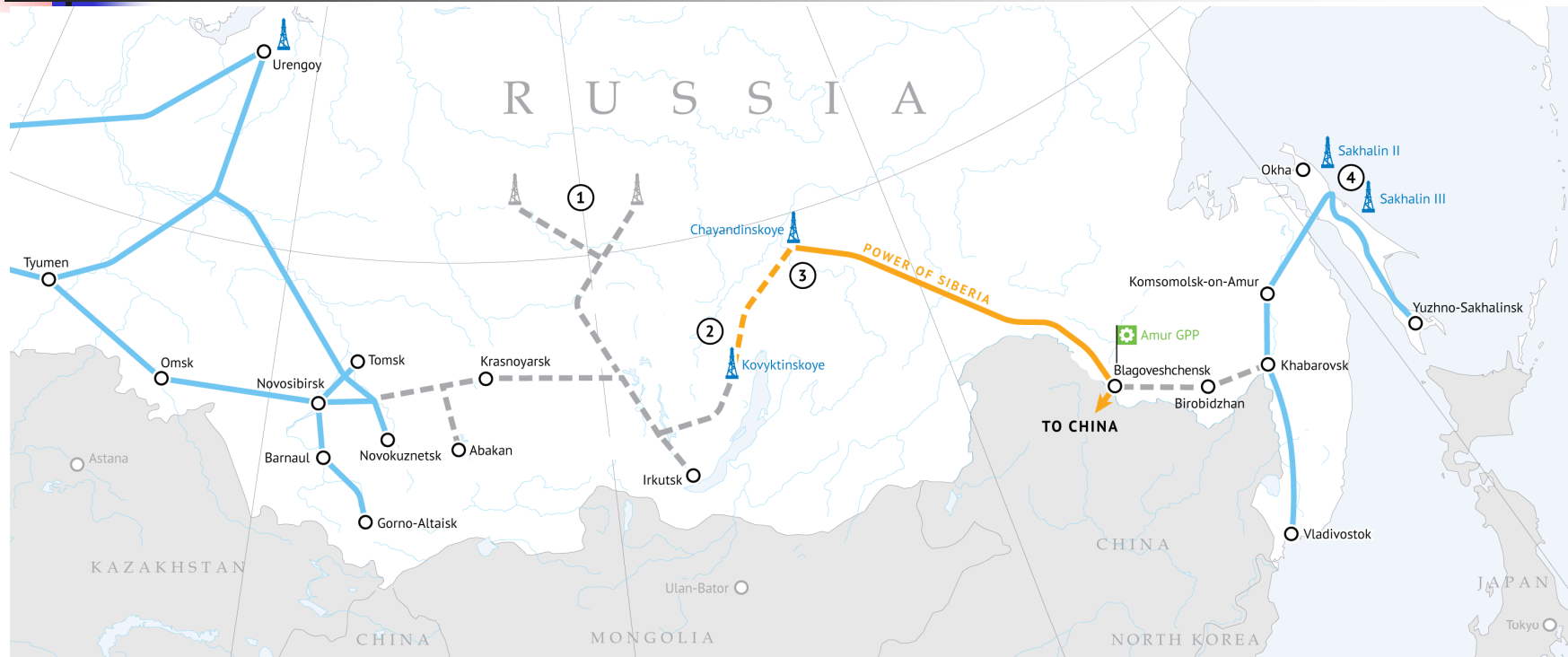


— Yamal – Europe gas pipeline
— Gas pipelines

TurkStream - 31.5 mlrd. m³ godišnje(2x15.75 mlrd. m³), početak rada siječanj 2020.
Blue Stream – 14,6 mlrd. m³ godišnje, početak rada veljača 2002.



Snaga Sibira – 38 mlrd. m³ godišnje



- Gas pipelines in operation
- Ongoing projects
- - - Prospective gas pipelines
- Gas production centers
- ① Krasnoyarsk ② Irkutsk ③ Yakutia ④ Sakhalin
- Fields

Tanap- Trans Anadolian Pipeline



Zalihe i proizvodnja prirodnog plina u Hrvatskoj od 2002.-2012.

Tablica 4.1.1. Bilančne rezerve i proizvodnja prirodnog plina (u 10⁶m³)

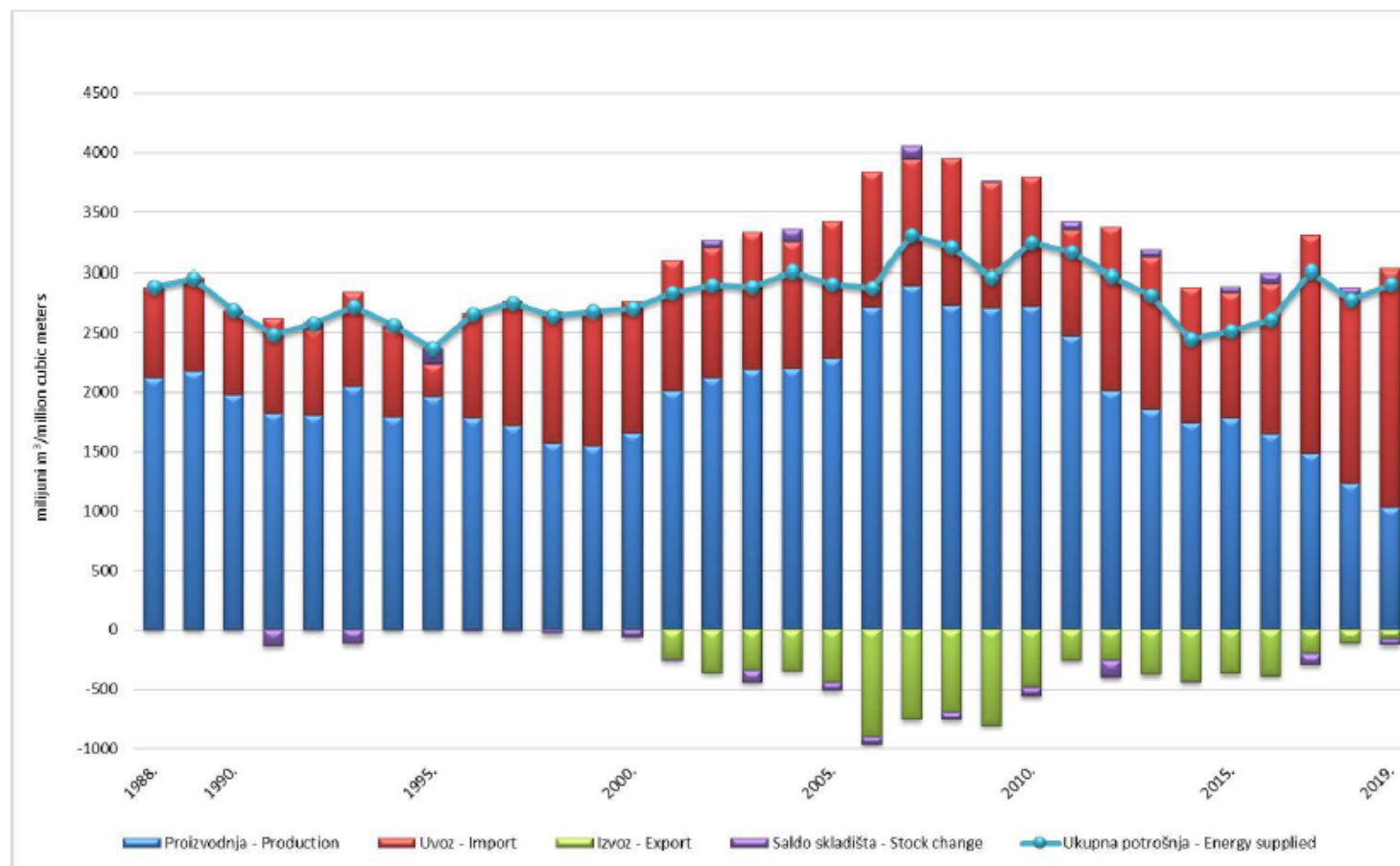
Table 4.1.1. Natural gas reserves and production (in 10⁶m³)

Prirodni plin Natural Gas	2011.	2012.	2013.	2014.	2015.	2016.	2017.	2018.	2019.
Rezerve Reserves	23 959,9	24 214,3	21 386,6	17 933,0	14 928,6	13 168,4	10 286,3	20 290,7	21 094,0
Proizvodnja Production	2 471,5	2 013,1	1 856,1	1 747,0	1 780,5	1 647,2	1 483,5	1 230,1	1 028,9

Slika 4.3.1. Raspoložive količine prirodnog plina u Hrvatskoj

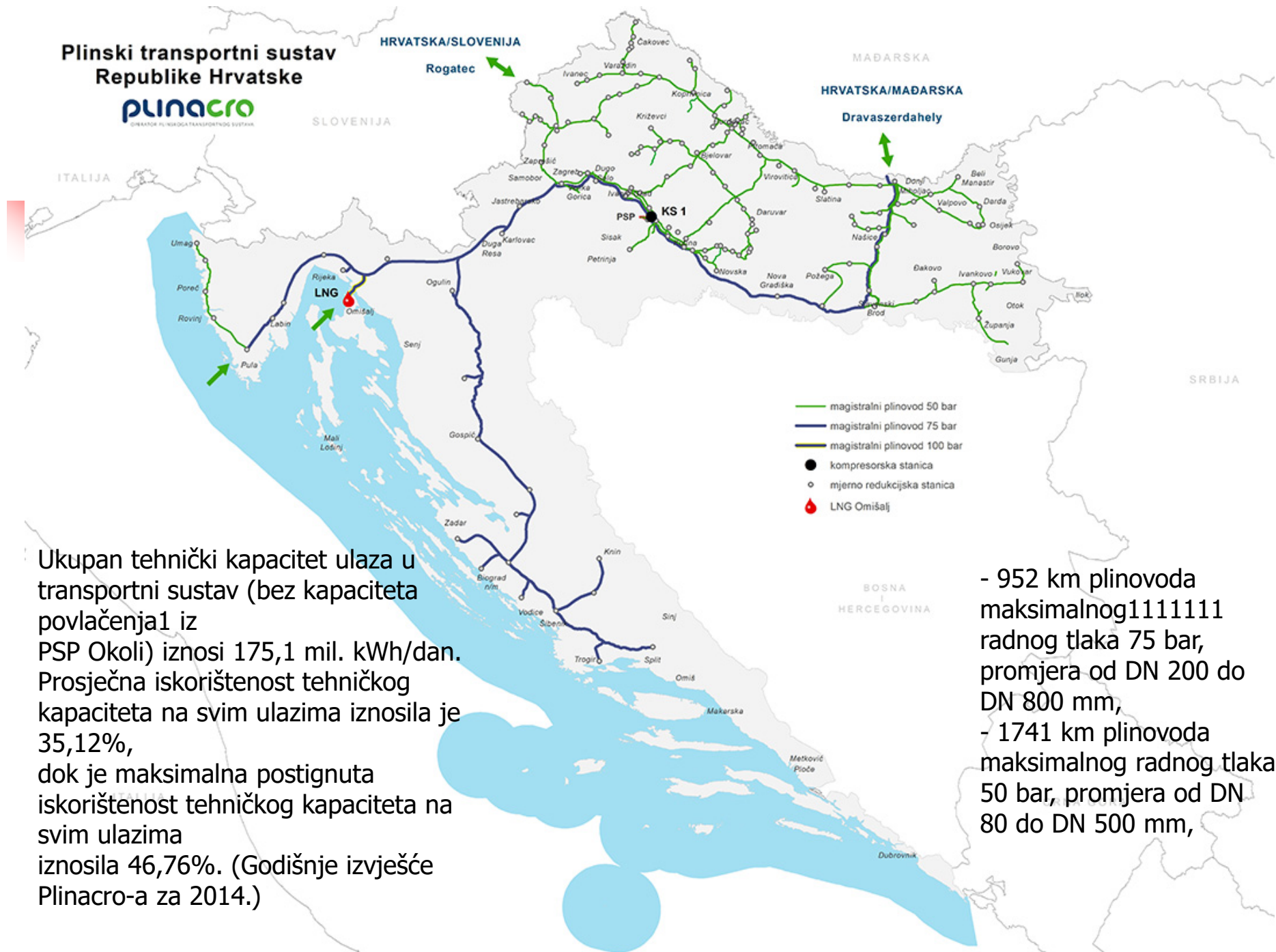
Figure 4.3.1. Natural gas supply in Croatia

ergija u Hr



Plinski transportni sustav Republike Hrvatske

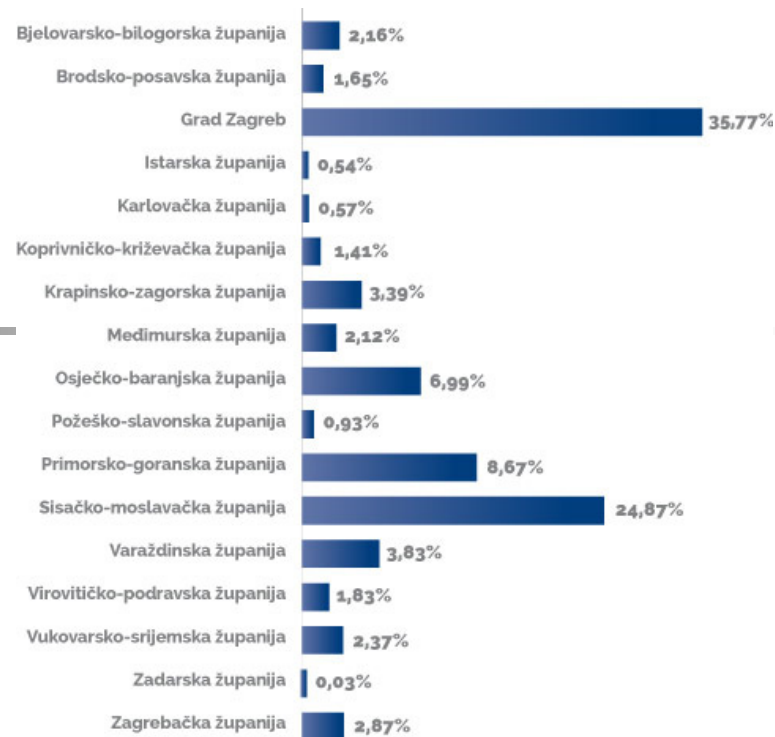
plinacro
DIREKTOR PLINOGASNA TRANSPORTNOG SUSTAVA



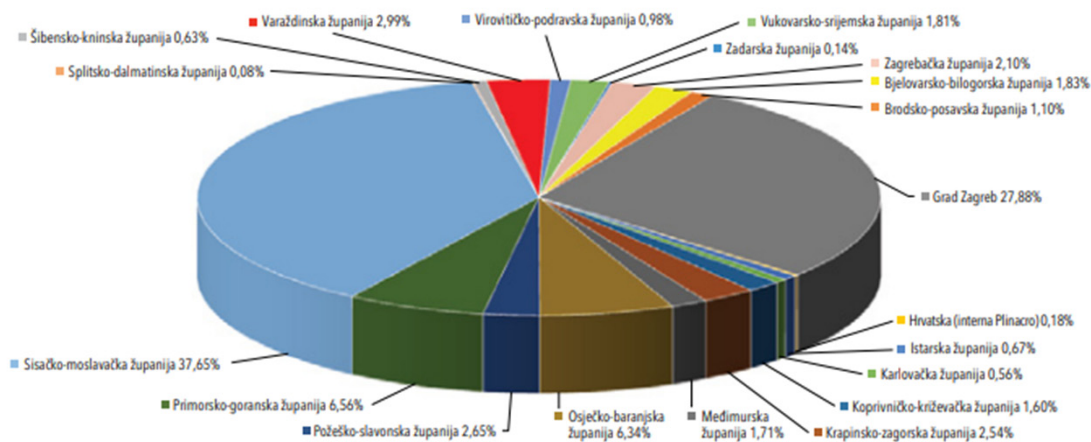
Ukupan tehnički kapacitet ulaza u transportni sustav (bez kapaciteta povlačenja iz PSP Okoli) iznosi 175,1 mil. kWh/dan. Prosječna iskorištenost tehničkog kapaciteta na svim ulazima iznosila je 35,12%, dok je maksimalna postignuta iskorištenost tehničkog kapaciteta na svim ulazima iznosila 46,76%. (Godišnje izvješće Plinacro-a za 2014.)

- 952 km plinovoda maksimalnog radnog tlaka 75 bar, promjera od DN 200 do DN 800 mm,
- 1741 km plinovoda maksimalnog radnog tlaka 50 bar, promjera od DN 80 do DN 500 mm,

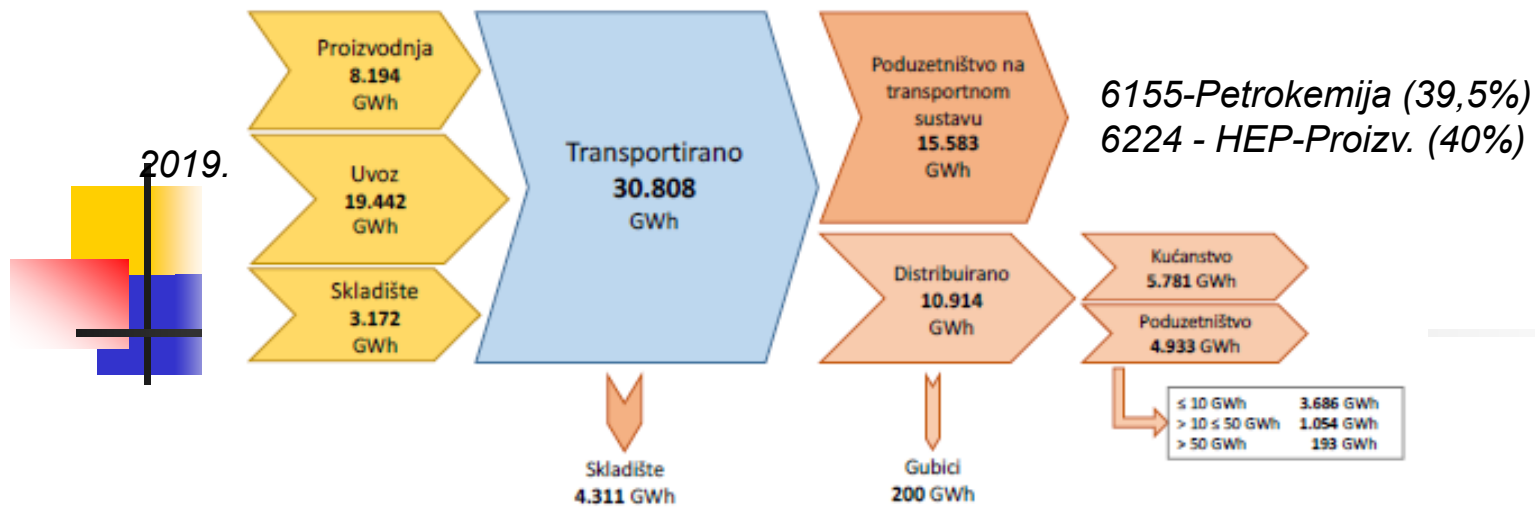
Raspodjela količina p.p. predanog kupcima na izlazima iz transportnog sustava u 2019. Plinacro.



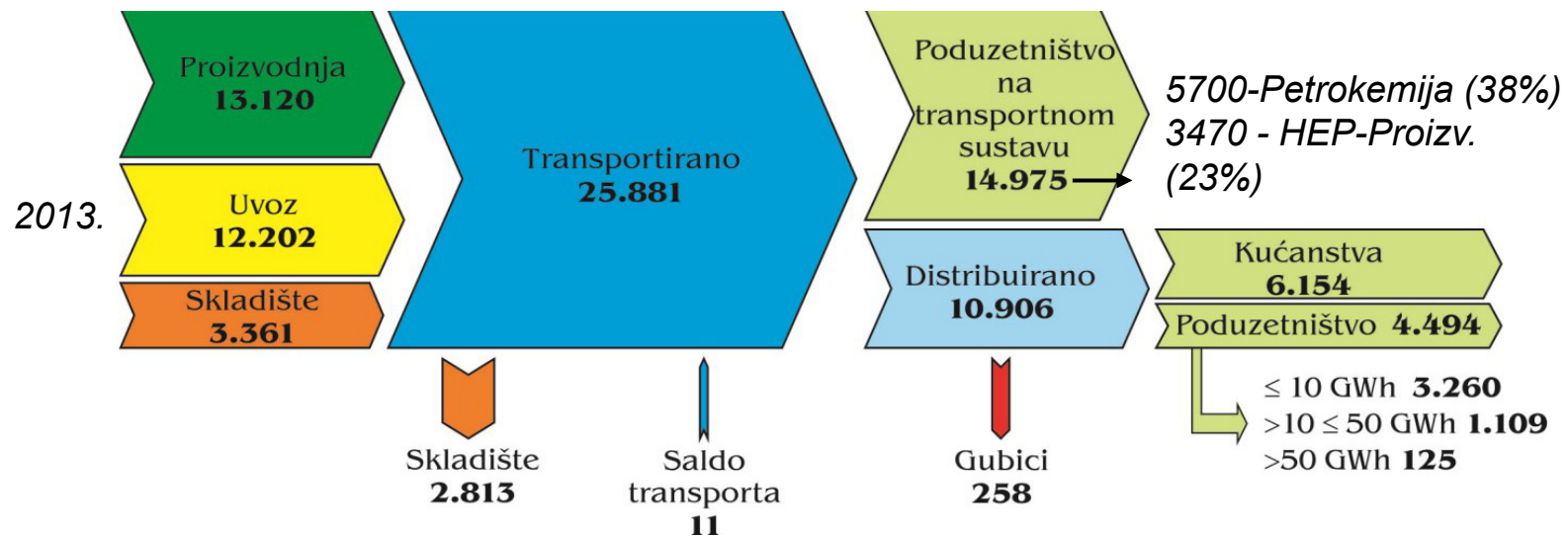
Slika 4.2.2. Struktura transportiranih količina prirodnog plina po županijama tijekom 2020. godine
Figure 4.2.2. Structure of transported natural gas volumes per county in 2020



Izvor: PLINACRO | Source: PLINACRO



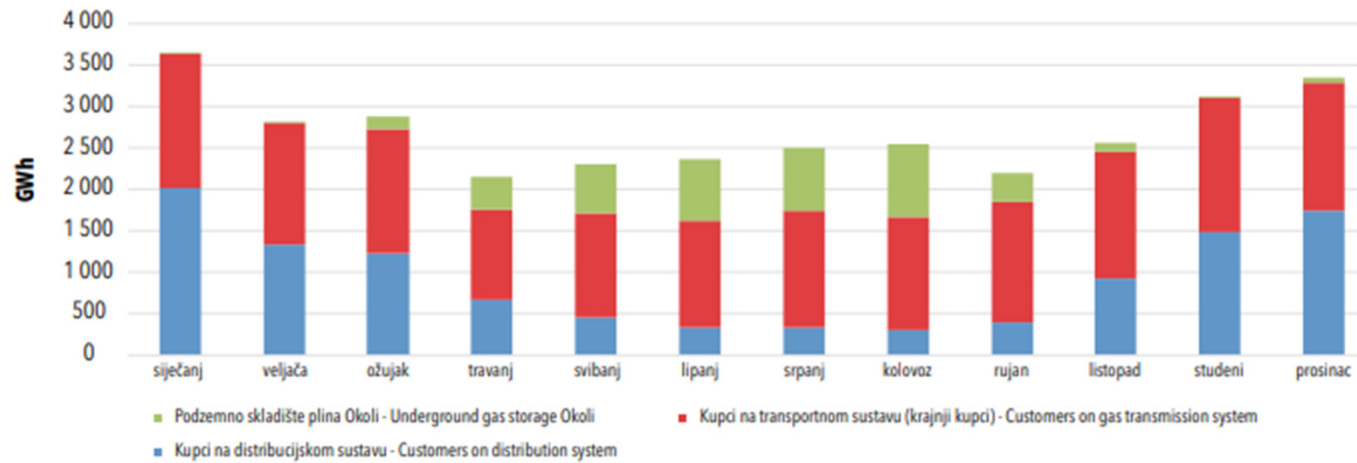
Slika 5.3.1. Bilanca prirodnog plina u Republici Hrvatskoj u 2019. godini



Bilanca prirodnog plina u RH, GWh (izvor: Godišnje izvješće HERA)

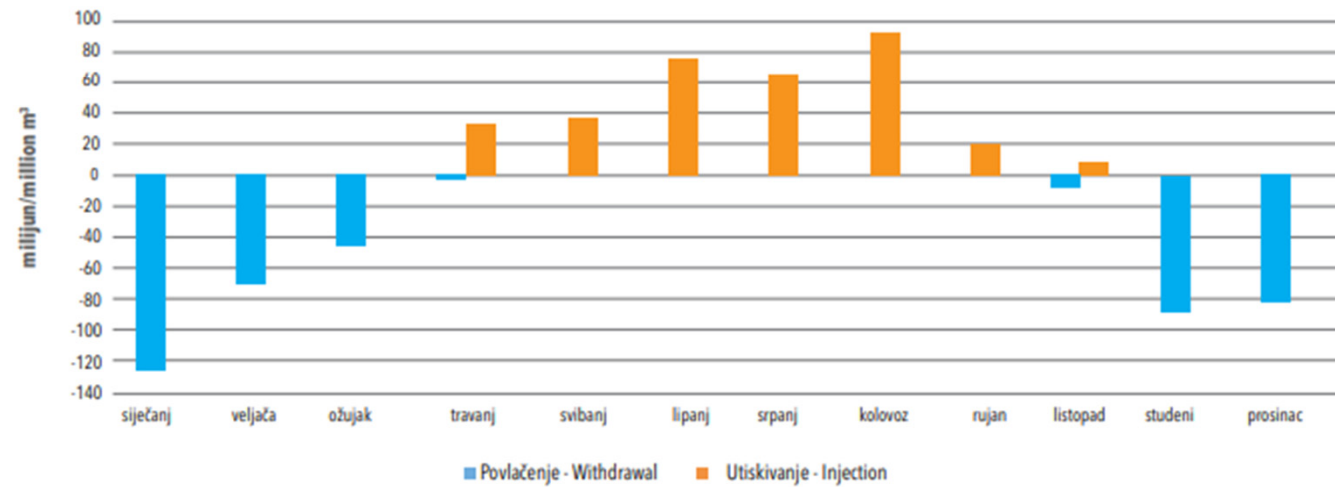
10 Gwh cca. 1mil.m³

Slika 4.2.1. Struktura transportiranih količina prirodnog plina prema izlaznim mjerno-redukcijskim stanicama (IMRS) tijekom 2020. godine
 Figure 4.2.1. Structure of transported natural gas volumes per exit measuring-reduction stations (EMRS) in 2020



Izvor: PLINACRO | Source: PLINACRO

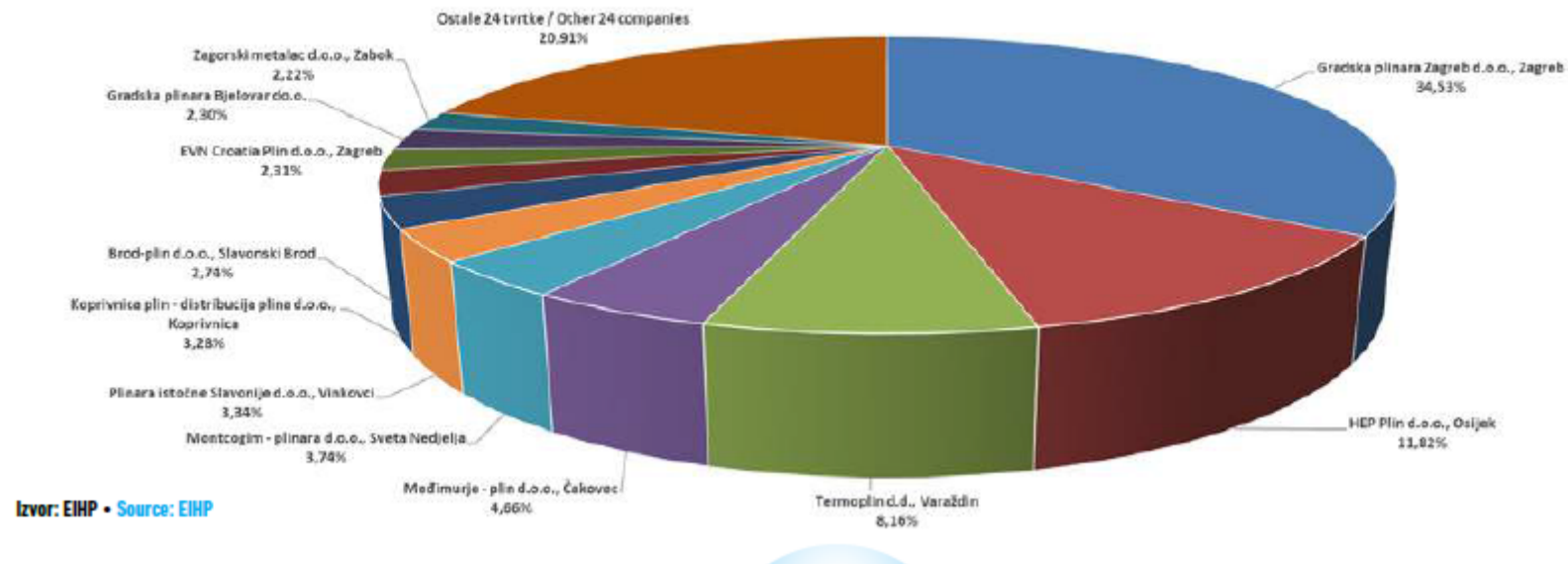
Slika 4.2.4. Rad PSP Okoli u 2020. godini
 Figure 4.2.4. Operation of UGS Okoli in 2020



Udjeli u potrošnji prirodnog plina po pojedinim tvrtkama u Hrvatskoj 2019. g.
(EIHP) (kućanstva i poduzetništvo na distribucijskom sustavu)

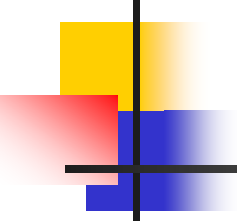
Slika 4.4.1. Udjeli količina prirodnog plina preuzetog iz transportne mreže pojedinih tvrtki u ukupnoj potrošnji u 2019. godini

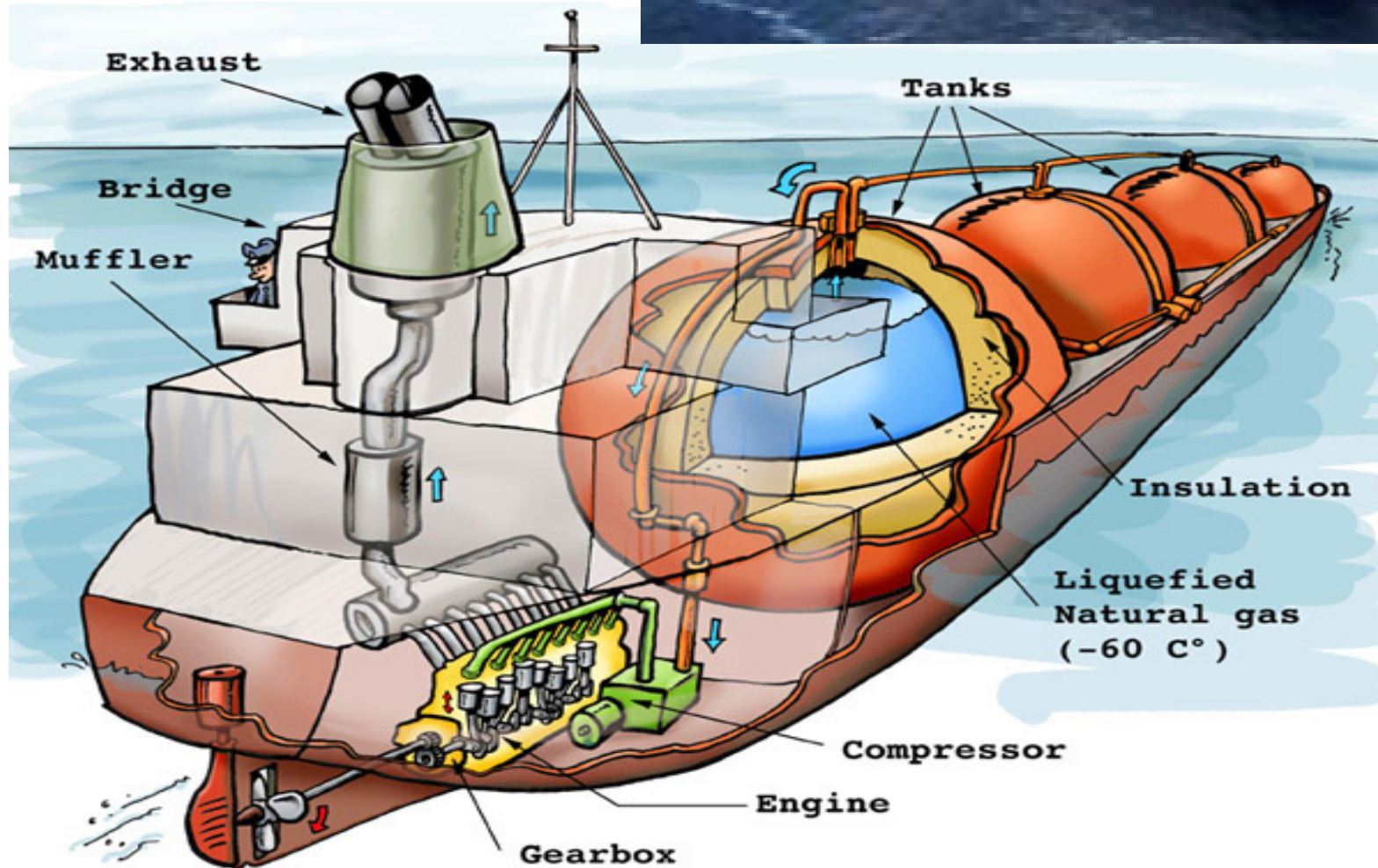
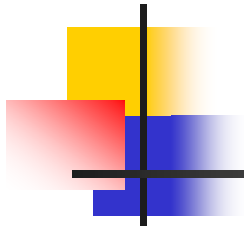
Figure 4.4.1. Shares of gas quantities taken from transmission network by distribution companies in 2019



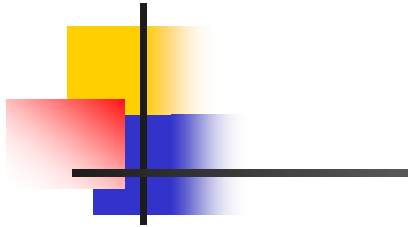
Izvor: EIHP • Source: EIHP

LNG-Liquified Natural Gas-Ukapljeni prirodni plin

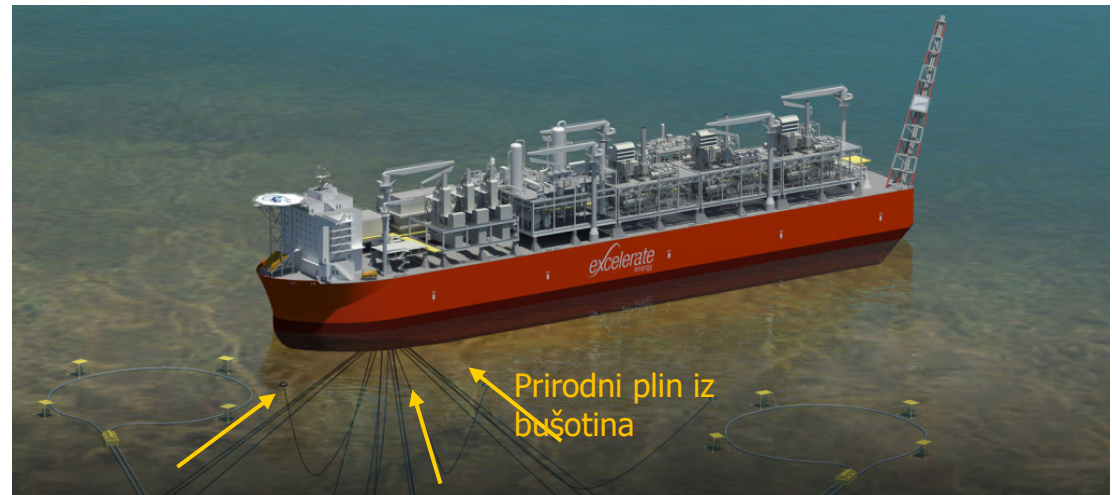
- 
- Tehnologija se sastoji od hlađenja prirodnog plina da bi postao tekuć (-161°C),
 - u tekućem stanju prevozi se specijalnim brodovima do odredišta,
 - na odredištu se iskrcava iz brodova u spremnika, nakon čega se prevodi u plinovito stanje i dalje se odvodi plinovodima do potrošača.
 - 25% prekograničnog transporta prirodnog plina odvija se na ovaj način odn. 6% ukupne trgovine prirodnim plinom (e.on)



FLNG-Floating Liquified Natural Gas- brod na kojem se ukapljuje prirodni plin



LNG tanker



Shell's Prelude FLNG marine insight
 Bigger Than World's Biggest Ship

www.marineinsight.com

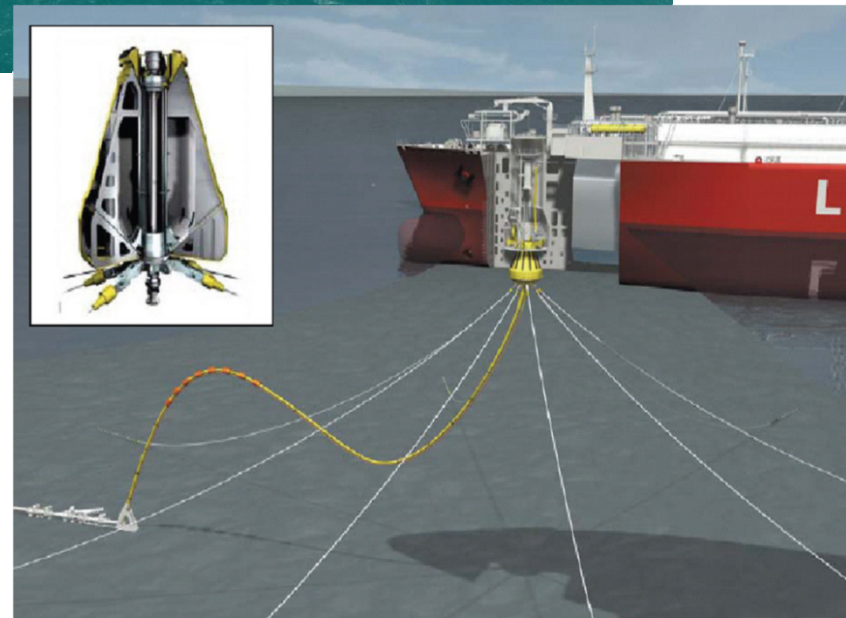
105m
 12m > Big Ben
 488m
 88m > Maersk TRIPLE-E
 74m
 3m > Boeing 747
 Mærsk Mc-Kinney Møller

PRODUCTION	WHERE?	FACTS
300-350 crew members working in shifts 3.6 million metric tons / annum LNG Production capacity	475 KM The distance of the ship's working location from the nearest coast of Western Australia 25 years Approx. Time the Facility would be moored in one location	5 Soccer Fields back to back = Ship's Deck Area 50 million ltrs. Water /hour to be used for cooling LNG

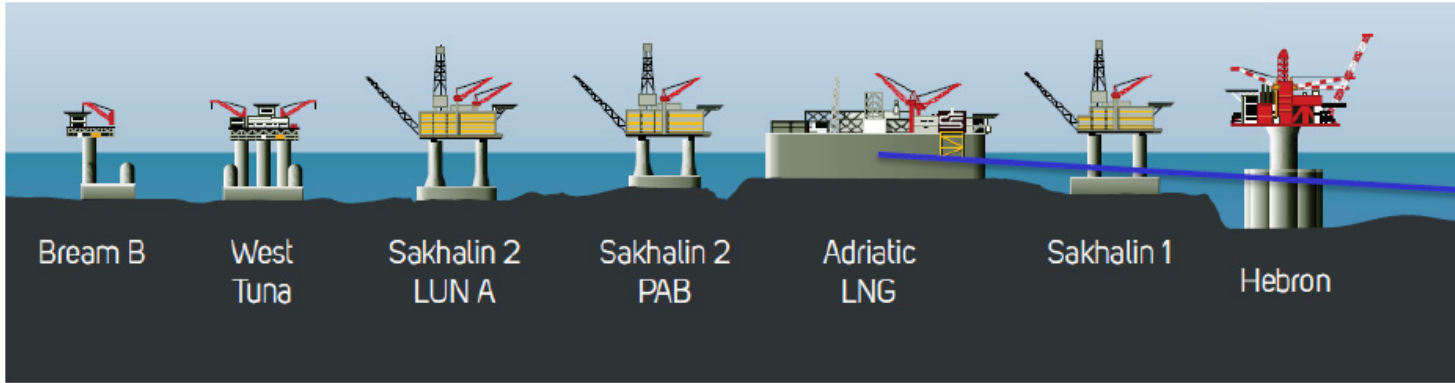
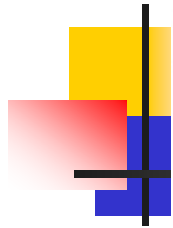
FSRU-Floating Storage Regasification Unit

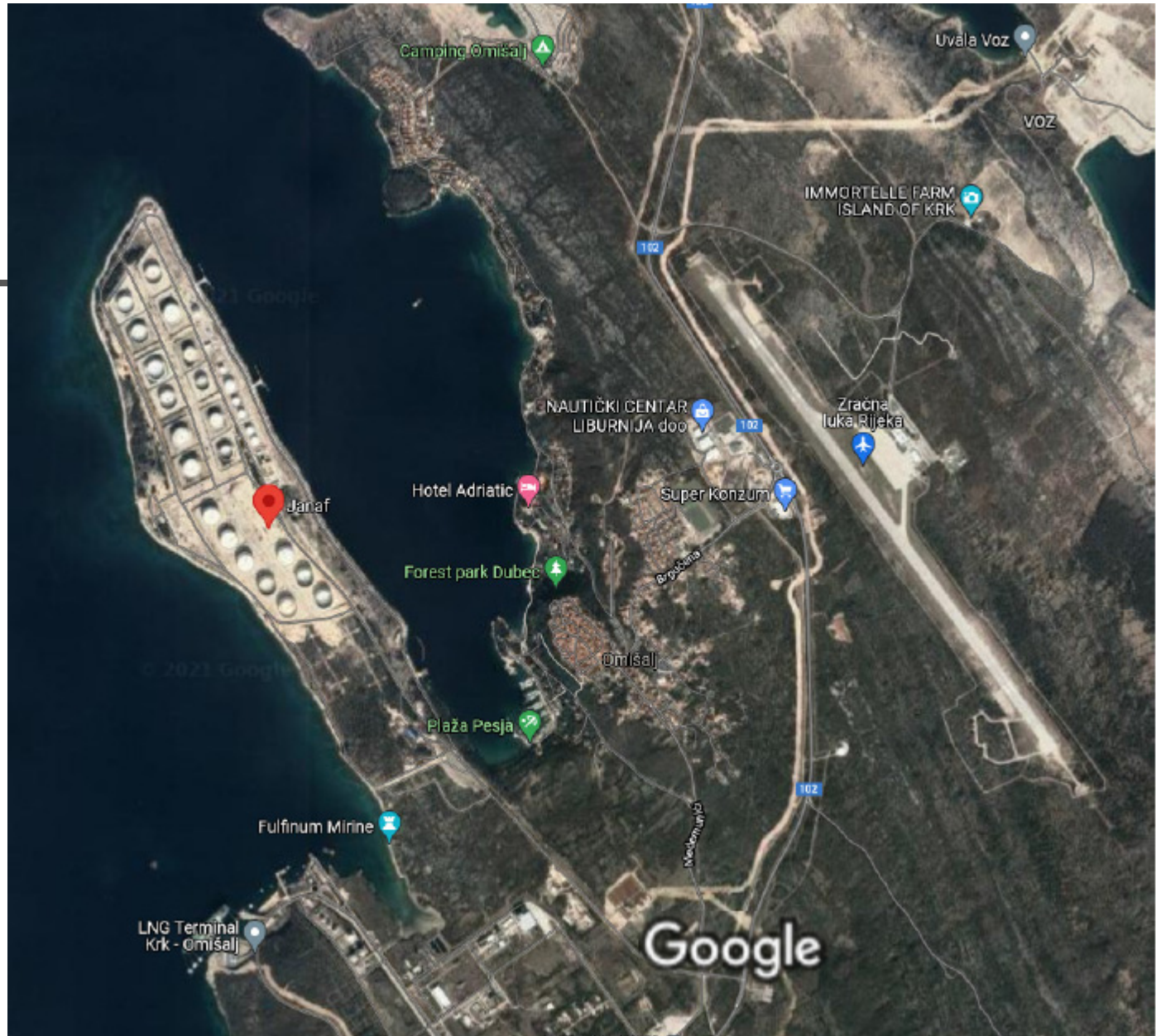
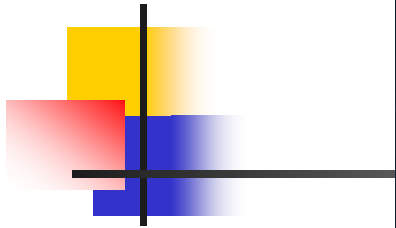


Liquefied Natural Gas
Regasification Vessel



GBS-Gravity Base Structure





LNG terminal u Omišlju na otoku Krku. U funkciji od 1. siječnja 2021.

PRISTAN

je armiranobetonski element na kojemu su smještene visokotlačne pretakačke ruke, stepenice za pristup brodu, monitori za gašenje i druga pomoćna oprema

**OSLANJAČKE
UTVRDICE**

su armiranobetonski elementi na kojima se nalaze brzo-otpuštajuće kuke pomoću kojih je FSRU brod privezan na terminal

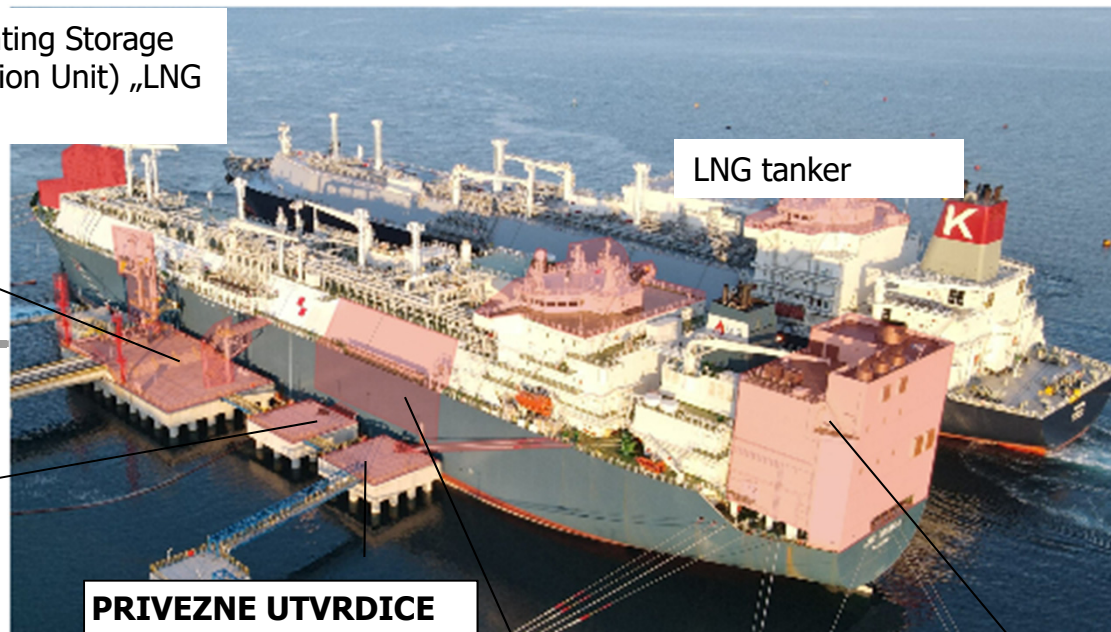
**ODAŠILJAČKO –
ČISTAČKA
STANICA**

za čišćenje visokotlačnog priključnog plinovoda preko kojeg je terminal za UPP povezan na plinski transportni sustav Republike Hrvatske

UPRAVNA ZGRADA

iz koje se nadzire i upravlja UPP terminalom 24/7/365

FSRU (Floating Storage Regasification Unit) „LNG CROATIA“



LNG tanker

PRIVEZNE UTVRDIČE

su armiranobetonski elementi brzo-otpuštajuće kuke pomoću kojih su FSRU brod i brod za prijevoz UPP-a privezani na terminal.

**UPP
SPREMNICI**

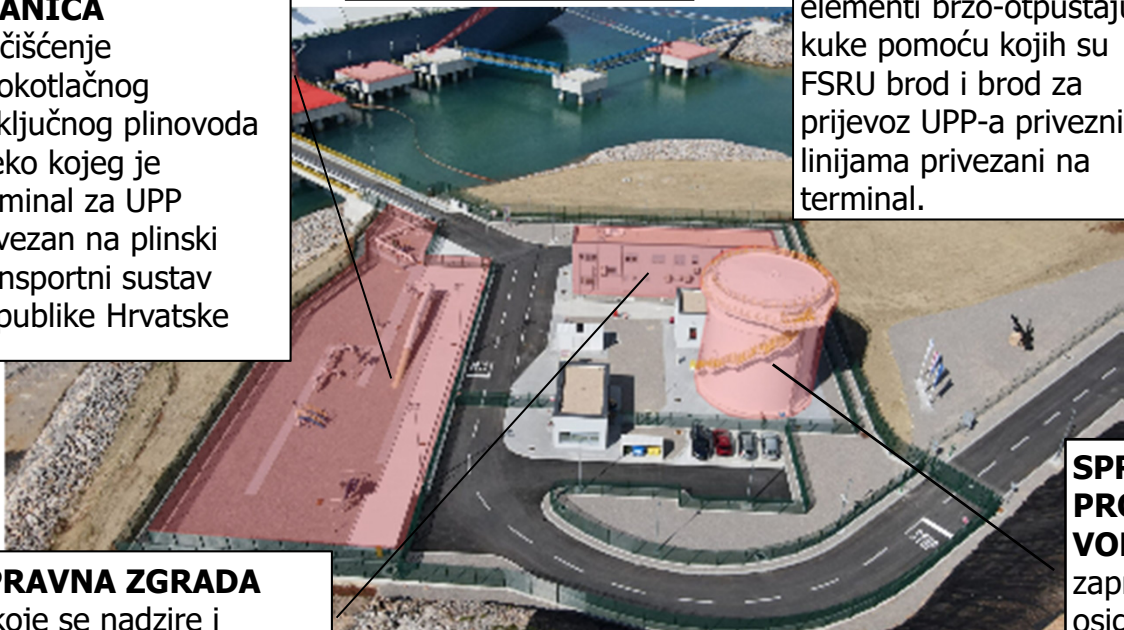
(četiri) ukupne zapremine 140206 m³ u kojima se skladišti pretovareni UPP

**MODUL ZA
PROIZVODNJU
ELEKTRIČNE
ENERGIJE**

koji služi za proizvodnju električne energije i napajanje potrošača na FSRU brodu i kopnenog dijela terminala

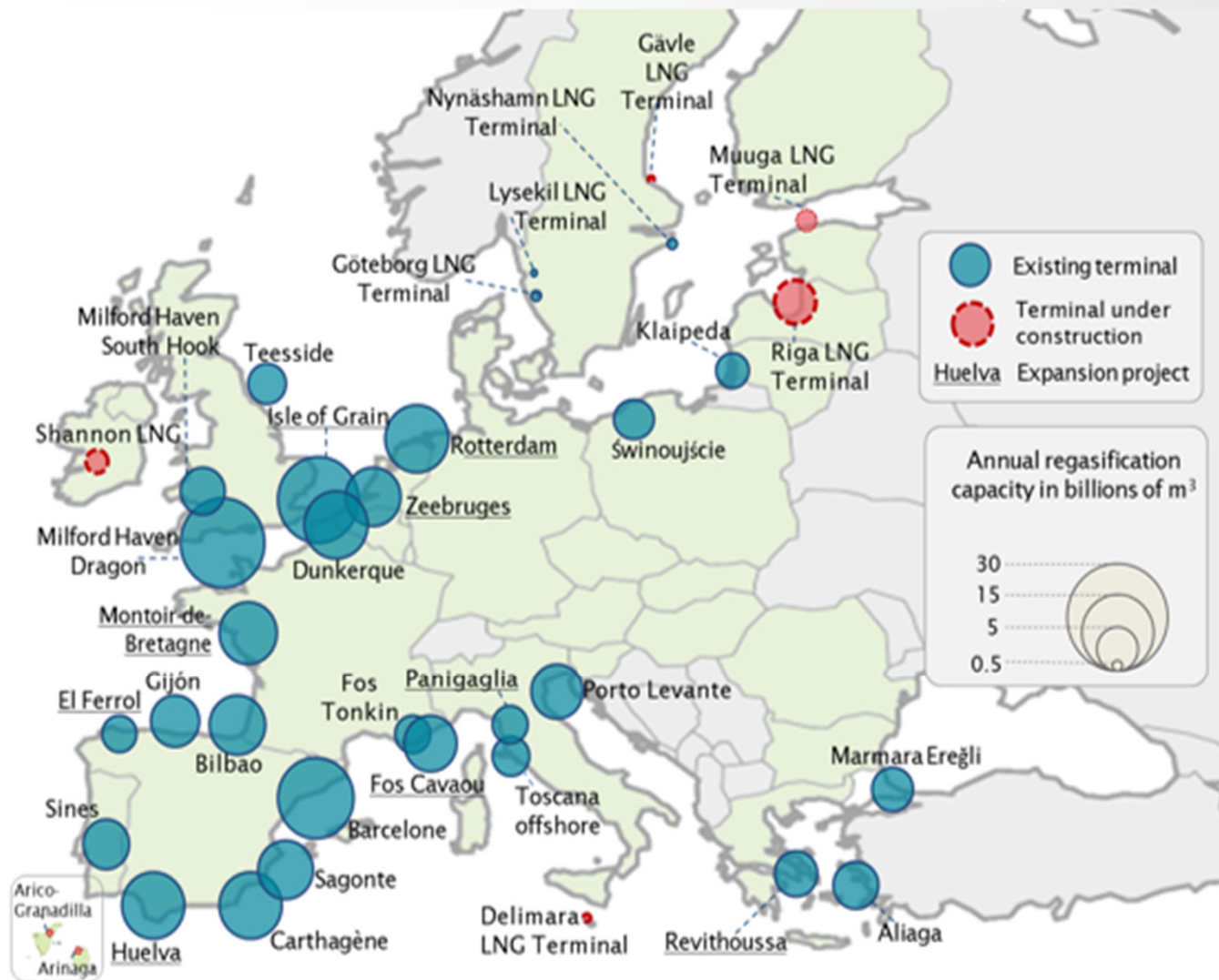
**SPREMIK
PROTUPOŽARNE
VODE**

zapremine 1.600m³ osigurava vodu za protupožarnu zaštitu terminala



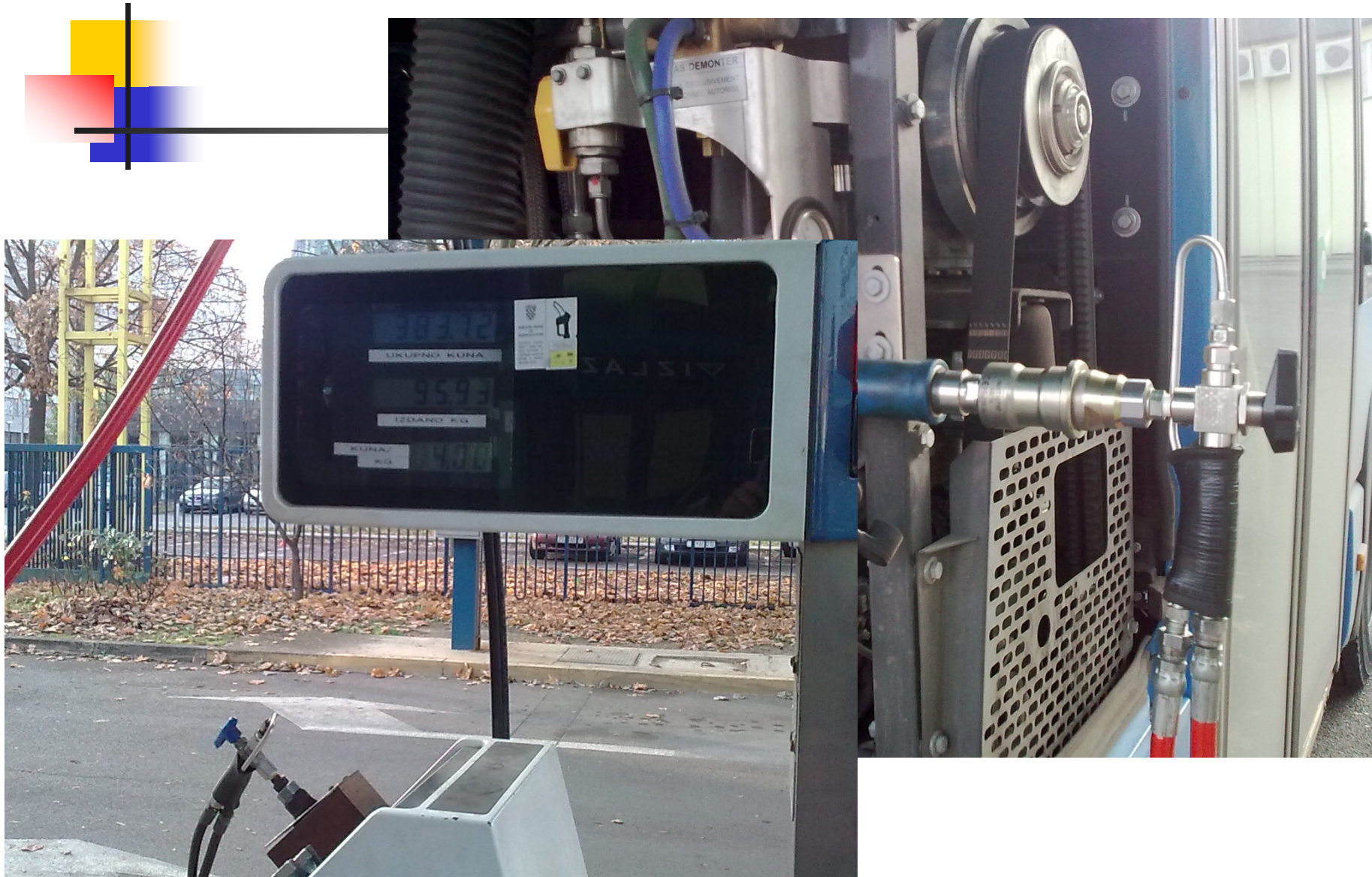
Infrastructures

Existing and planned LNG terminals in Europe

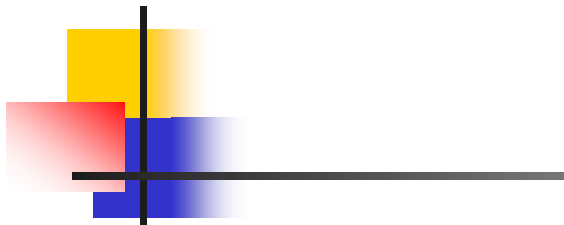


Source : GIIGNL (2016), GLE (2015)





Motor s unutrašnjim
izgaranjem



Pregradnja benzinskog
motora