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Policy Institute

ENERGY MARKET REVIEW

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ELECTRICITY MARKET REVIEW

- In the first and second quarters of 2022 power generation increased by 27.9% and 35.3%,respectively, compared to the same periods in 2021.
- There was an increase in electricity consumption by 13% and 9.9% in the first and the second quarter, respectively, of 2022 on annual basis.
- In the first and the second quarters of the year, the electricity imports substantially decreased (-17% and -53%, respectively), while exports increased compared to the previous year (+123% and 88%,respectively).
- In the first and the second quarters of 2022, the HHI for generation decreased compared to the corresponding period of the last year.
- The HHI for consumption decreased in the first quarter and increased in the second quarter of the year.

NATURAL GAS SUPPLY

- There was an increase in natural gas supply in the first (+14.2%) and the second (+29.9%) quarters of 2022, relative to 2021.
- Unsurprisingly, all of the natural gas supplied to the market was imported from Azerbaijan and Russia, with Azerbaijan holding the highest share in the total supply.
- There was an increase in natural gas import prices in the first and second quarters of 2022, relative to 2021.
- The HHI index for the retail market of the natural gas rose above highly concentrated market in both quarters after the drop in the last quarters, but it was less concentrated than in the corresponding period of the previous year.
- The wholesale market of the natural gas remained highly concentrated in both quarters, more concentrated than in the corresponding period of the previous year.

OIL PRODUCT SUPPLY

- In the first and the second quarters of 2022, the total supply of oil products increased by +21.8% and +1%, respectively.
- The volume of petroleum import increased in the first and the second quarters of the year, while export decreased in the first and increased in the second quarter.
- The diesel imports increased in the first and decreased in the second quarter of the year.
- In both quarters, most of the Georgian petroleum imports came from Bulgaria, Romania, and Russia,
- In both quarters, the majority of the diesel imports came from Azerbaijan, Russia, Turkmenistan, and
- Unsurprisingly, import prices on petroleum and diesel significantly increased in the first and the second quarters of the year.

ABBREVIATION USED

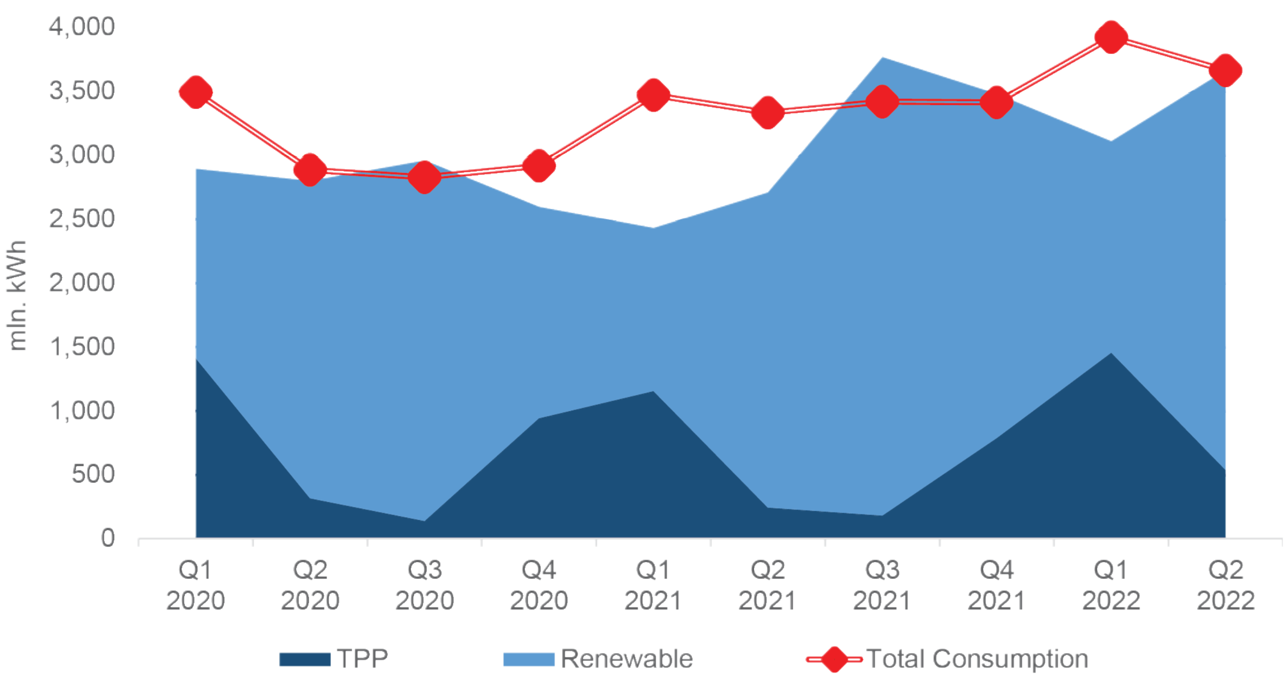
Mln	million
Thous	thousands
kWh	kilowatt-hour
HPP	Hydro Power Plant
WPP	Wind Power Plant
TPP	Thermal Power Plant
HHI	Hirschman-Herfindahl Index

I GENERATION – CONSUMPTION – TRADE

In the first and the second quarters of 2022, Georgian power plants generated 3,107 mln. and 3,663 mln. kWh of electricity, respectively (Figure 1). This represents a 27.9% and 35.3% increase in total generation compared to the corresponding periods of the previous year (in 2021, the total generation in Q1 was 2,429 mln. kWh and 2,708 mln. kWh in Q2). On an annual basis, the increase in generation in the first quarter of 2022 was derived from a 26.1% and 30.1% increase in thermal and hydro power generation, respectively, more than offsetting the 5.2% decrease in wind power generation. The increase in production in the second quarter is related to the 120.2% and 27.3% increase in thermal and hydro power generation, more than offsetting the 12% decrease in wind power generation.

In the first and second quarters of 2022, electricity consumption on the local market amounted to 3,920 mln. (Q1) and 3,660 mln. kWh (Q2) (+13% and +9.9% compared to the first and second quarters of 2021, respectively) (Figure 1). Total power consumption exceeded generation by 813 mln.kWh in the first quarter of the year and generation exceeded consumption in the second by 4 mln.kWh. In percentage terms, in Q1 there was a generation deficit amounting to 26.2% of total generation and in Q2 there was generation surplus 0.1% of total generation, respectively. In 2021, total consumption exceeded generation in the first quarter by 1040 mln.[1] kWh, around 42.8% of the total generation, and the difference between total generation and consumption resulted in a shortage in the second quarter of 623 mln. kWh, around 18.7% of the total generation.

FIGURE 1 | ELECTRICITY CONSUMPTION AND GENERATION



Source: Electricity System Commercial Operator (ESCO)

Electricity was largely generated from hydropower plants (HPPs), both in the first and the second quarters of 2022. Hydropower generation amounted to 1,638 mln. (52.7% of the total) and 3,107 mln. kWh (84.8% of the total), respectively (Figure 3), while thermal power (TPP) generation reached 1453 mln. (46.7% of the total) and 534 mln. kWh (14.6% of the total) (Figure 4). The remainder was

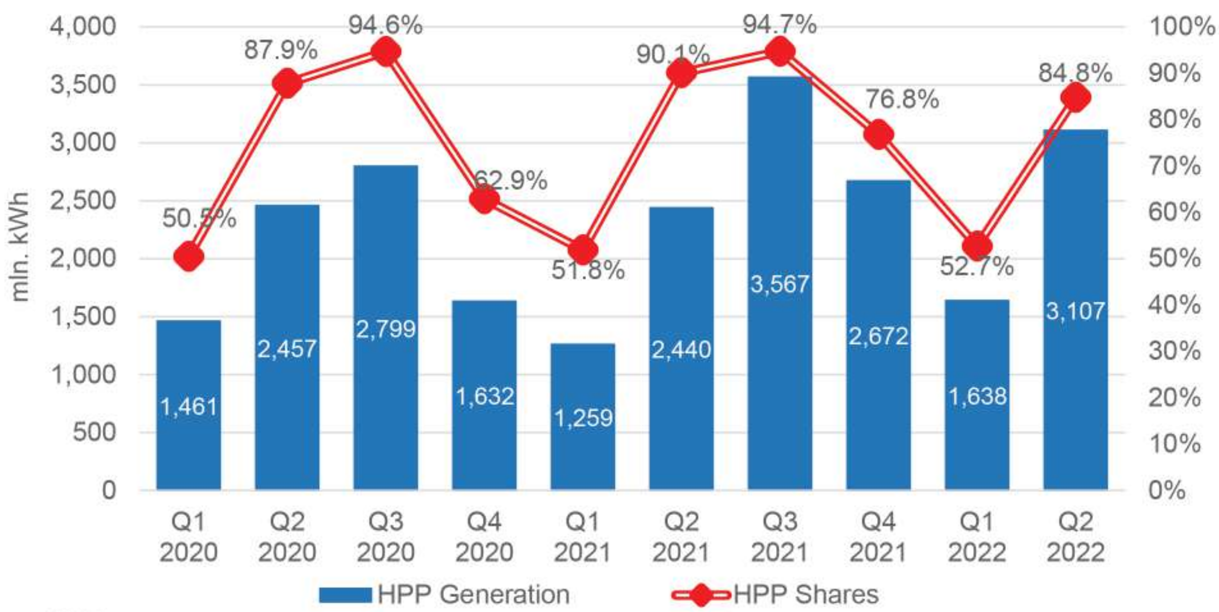
[1] Enguri HPP was closed for three month (from the end of January to April) that caused decreased generation.

generated by wind power plants (WPP) and amounted to 17 mln. (0.5% of the total) and 22 mln. kWh (0.6% of the total) in the first and the second quarters of the year (Figure 5).

FIGURE 2 | ELECTRICITY GENERATION BY SOURCE

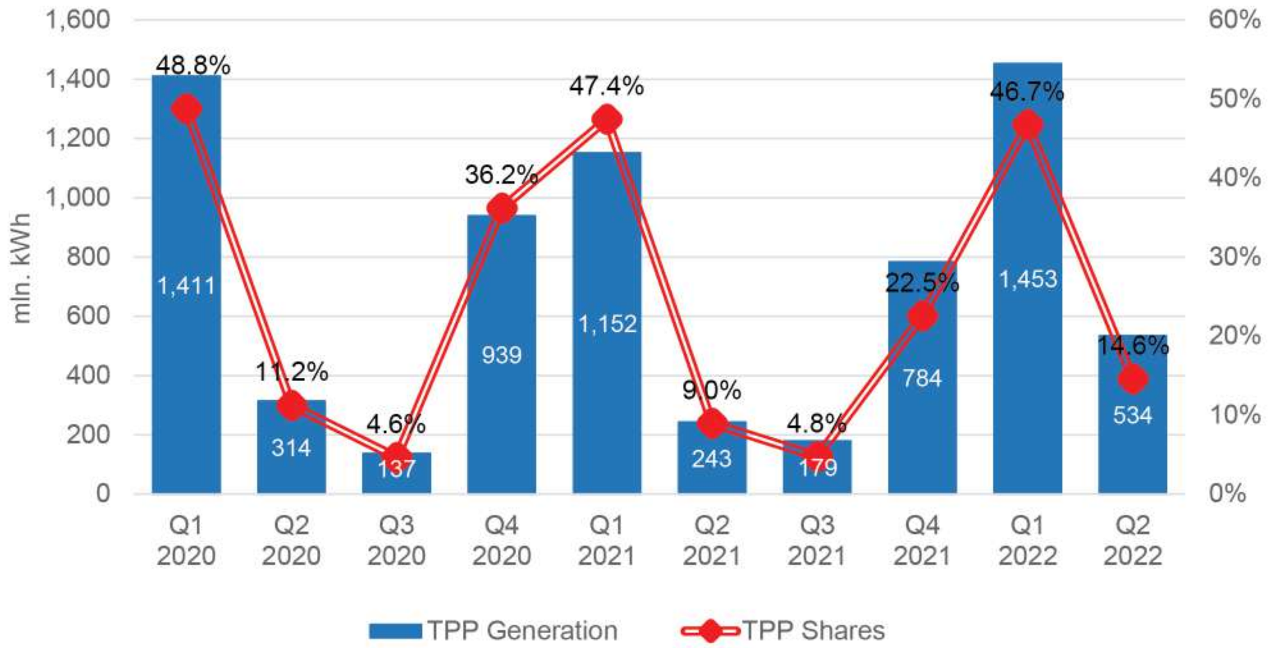
Source: ESCO

FIGURE 3 | WPP GENERATION AND SHARE IN TOTAL GENERATION



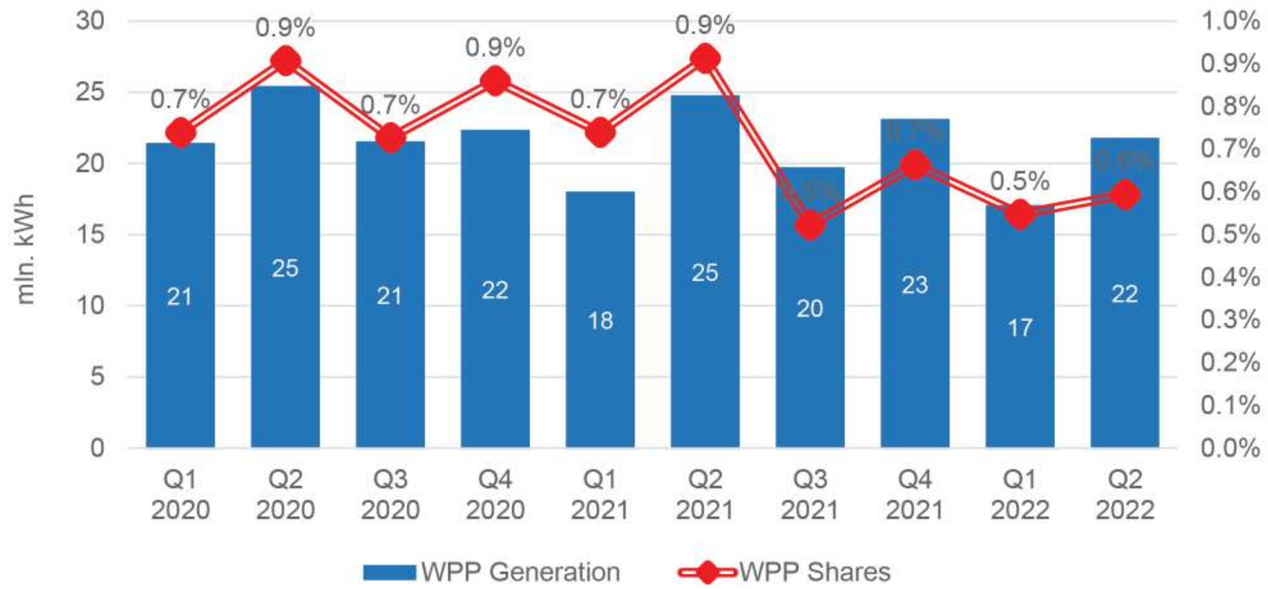
Source: ESCO

FIGURE 4 | TPP GENERATION AND SHARE IN TOTAL GENERATION



Source: ESCO

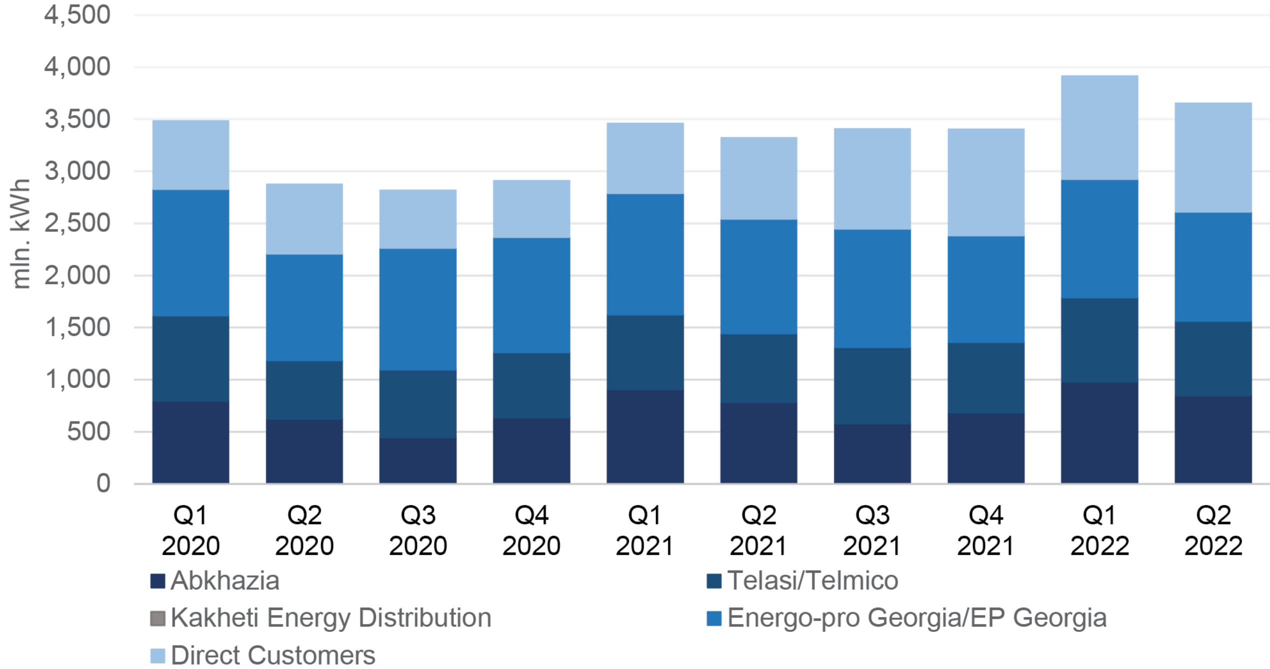
FIGURE 5 | WPP GENERATION AND SHARE IN TOTAL GENERATION



Source: ESCO

The total demand for electricity came from: Energo-Pro Georgia/EP Georgia (29% – 1,138 mln. kWh (Q1) and 28.7% – 1,050 mln. kWh (Q2)); Abkhazia (24.9% – 978 mln. kWh (Q1) and 23.1% – 846 mln. kWh (Q2)); Telasi/Telmico (20.6% – 809 mln. kWh (Q1) and 19.5% – 715 mln. kWh (Q2)); and direct customers (25.3% – 992 mln. kWh (Q1) and 28.5% – 1,044 mln. kWh (Q2)) (Figure 6). In the first quarter of 2022 demand from Abkhazia, Telasi/Telmico, and direct customers increased by 8.2%, 12.2%, and 47.2%, respectively, while it decreased from Energo-Pro Georgia/EP Georgia by 2.2% annually. In the second quarter, demand from Abkhazia, Telasi/Telmico, and direct customers increased by 8%, 8.3%, and 34%, respectively, although demand from Energo-Pro Georgia/EP Georgia decreased by 4.6%.[2]

FIGURE 6 | ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMER



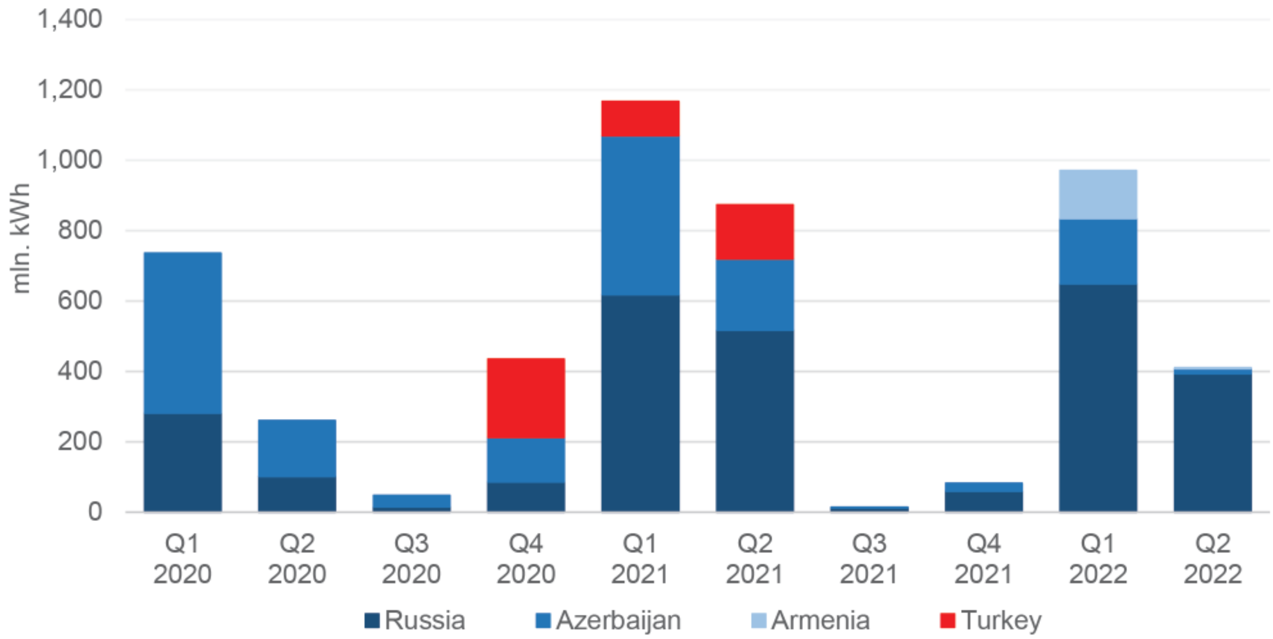
Source: ESCO

In the first and the second quarters of 2022, Georgia imported 971 mln and 411 mln. of electricity, respectively (compared to 1,167 mln and 873 mln. in 2021); 19.1% and 3.6% of which originated from Azerbaijan, 66.9% and 95.8% from Russia,[3] and 14% and 0.6% from Armenia, respectively (Figure 7). During the same periods, Georgia exported 3 mln. and 270 mln. kWh (compared to 1 and 143 mln. kWh of export, respectively, in 2021); 99.96% of which was exported to Turkey and 0.04% to Azerbaijan in Q1 and 80.6% was exported to Turkey, 3.3% to Azerbaijan, 16.1% went to Armenia, 0.01% went to Russia in Q2 (Figure 8). In the first and second quarters of 2022, there were 557 mln. and 262 mln. kWh in electricity transit, out of which 100% went from Azerbaijan to Turkey in Q1, and 67.9% went from Russia to Turkey, 32.1% from Armenia to Turkey in Q2.

[2] Since 1st of July 2021, after adoption of a new electricity market model concept, operations of distribution and final supply have been distangled, thus three different groups of players appeared on the market, Distribution Licensees – responsible for distribution activities and covering losses in the distribution network – Universal Service Suppliers – responsible for providing electricity to residential sector and small enterprises and Public Service Organizations – responsible for providing electricity to medium and large enterprises upon the written agreement. Currently, Energo-pro Georgia and Telasi continue their distribution activieis, while EP Georgia Supply and Tbilisi Electricity Supply Company have been saparated from them and play the role of both Universal Service Suppliers and Public Service Organizations.

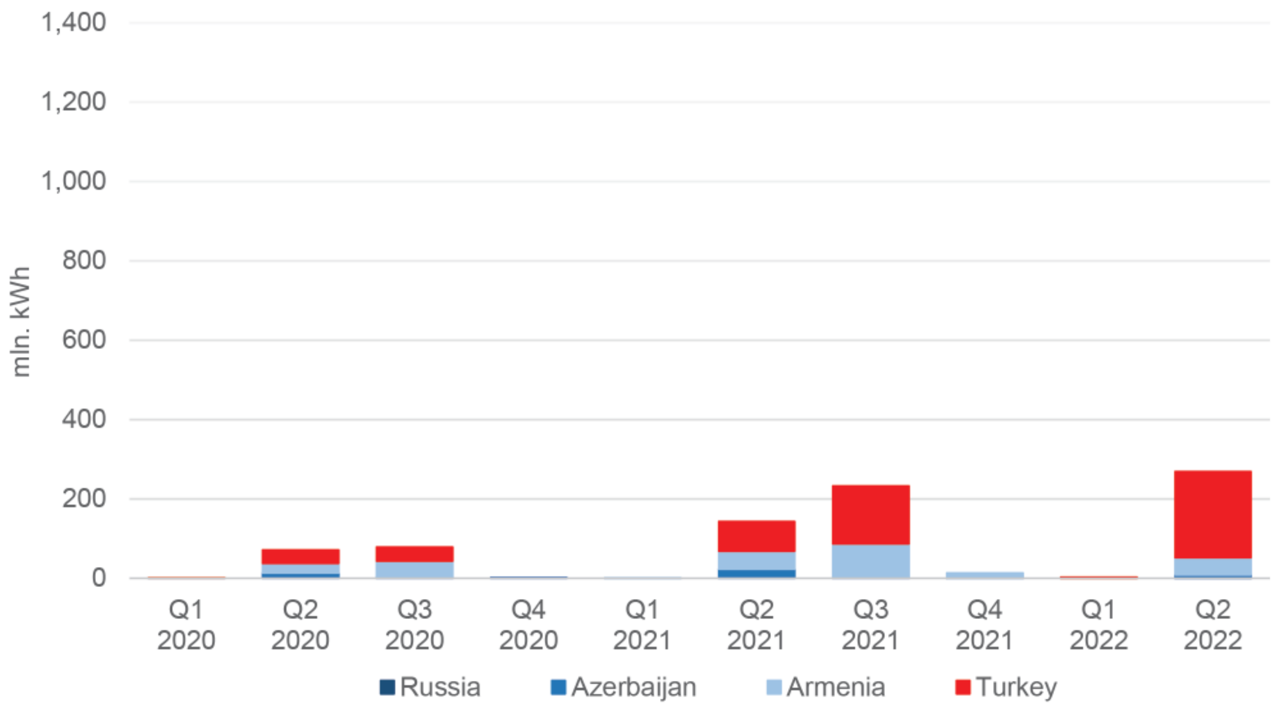
[3] Russian import was mostly determined by the fact that the most important HPP, Enguri HPP, was going through rehabilitation process during the larger part of the first half of the year (January-April), and this is why import from Russia was needed to satisfy the demand from Abkhazia.

FIGURE 7 | ELECTRICITY IMPORTS



Source: ESCO

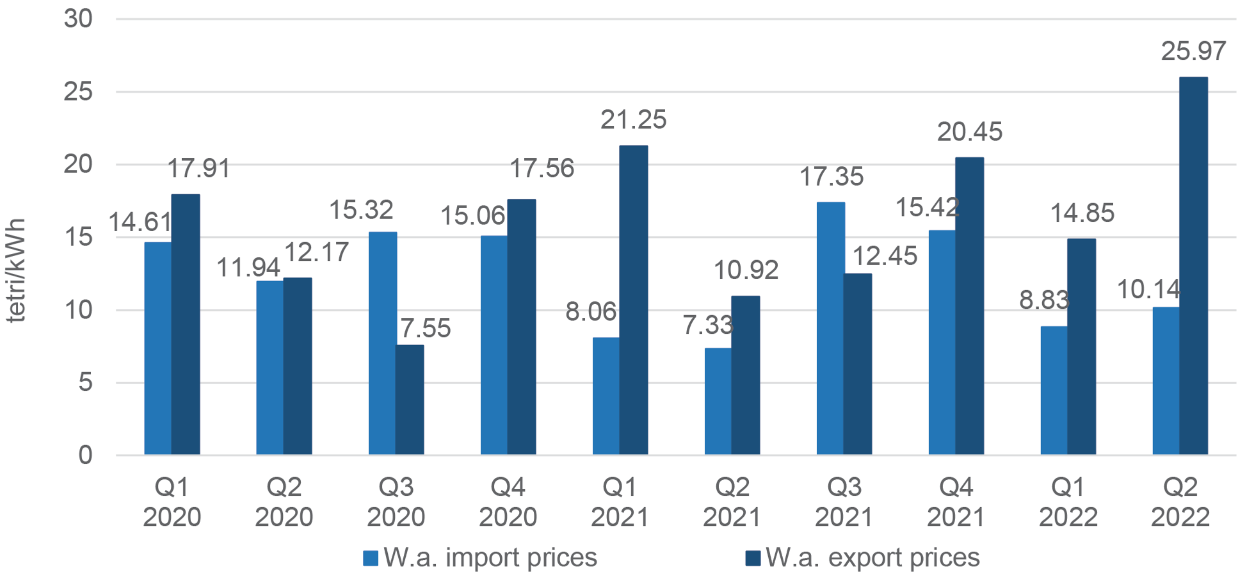
FIGURE 8 | ELECTRICITY EXPORTS



Source: ESCO

The weighted average electricity import price in the first and second quarters of 2022, on an annual basis, increased by 18.2% and 46.4% in USD, respectively, while in GEL, the prices in both quarters increased by 9.6% and 38.2%, (from 2.45 ¢ or 8.06 tetri per kWh (Q1) and 2.18 ¢ or 7.33 tetri per kWh (Q2) in 2021, to 2.89 ¢ or 8.83 tetri per kWh and 3.2 ¢ or 10.14 tetri per kWh in 2022, respectively). The annual weighted average electricity export price in the first quarter of 2022 increased by 16.4% in USD and by 8.7% in GEL (from 6.45 ¢ or 21.25 tetri per kWh in the first quarter of 2021 to 7.50 ¢ or 23.11 tetri per kWh by 2022) (Figure 10). While the export price in the second quarter of 2022 increased by 171.1% in USD and by 137.9% in GEL (from 3.23 ¢ or 10.92 tetri per kWh in the second quarter of 2021 to 8.74 ¢ or 25.97 tetri per kWh by 2022).

FIGURE 9 | ELECTRICITY IMPORT AND EXPORT PRICES

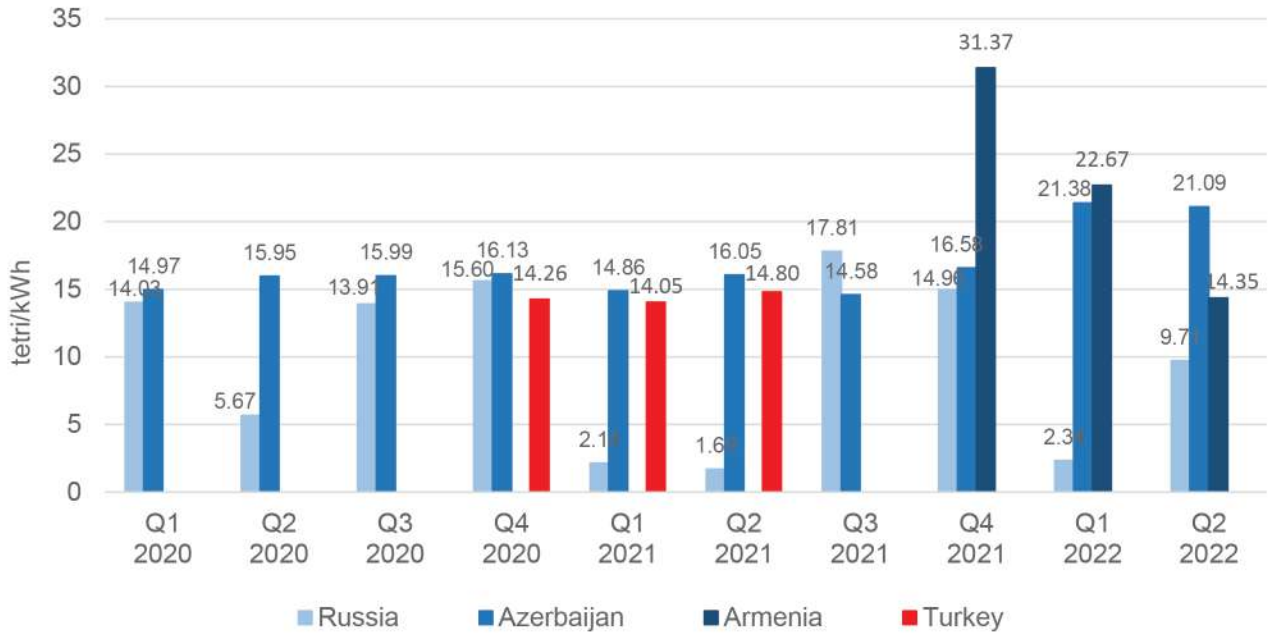


Source: ESCO/: National Statistics Office of Georgia (Geostat)

Import prices from Russia in the first quarter of the year stood at 0.76 ¢ or 2.34 tetri per kWh,[4] while they were 6.99 ¢ or 21.38 tetri per kWh for imports from Azerbaijan, and 7.45 ¢ or 22.67 tetri per kWh from Armenia. In the second quarter, the Russian price amounted to 3.05 ¢ or 9.71 tetri per kWh, while the Azerbaijan price - to 6.86 ¢ or 21.09 tetri per kWh, and the Armenian price - to 4.43 ¢ or 14.35 tetri per kWh (Figure 10).

[4] Russia was supplying electricity to Abkhazia at these prices.

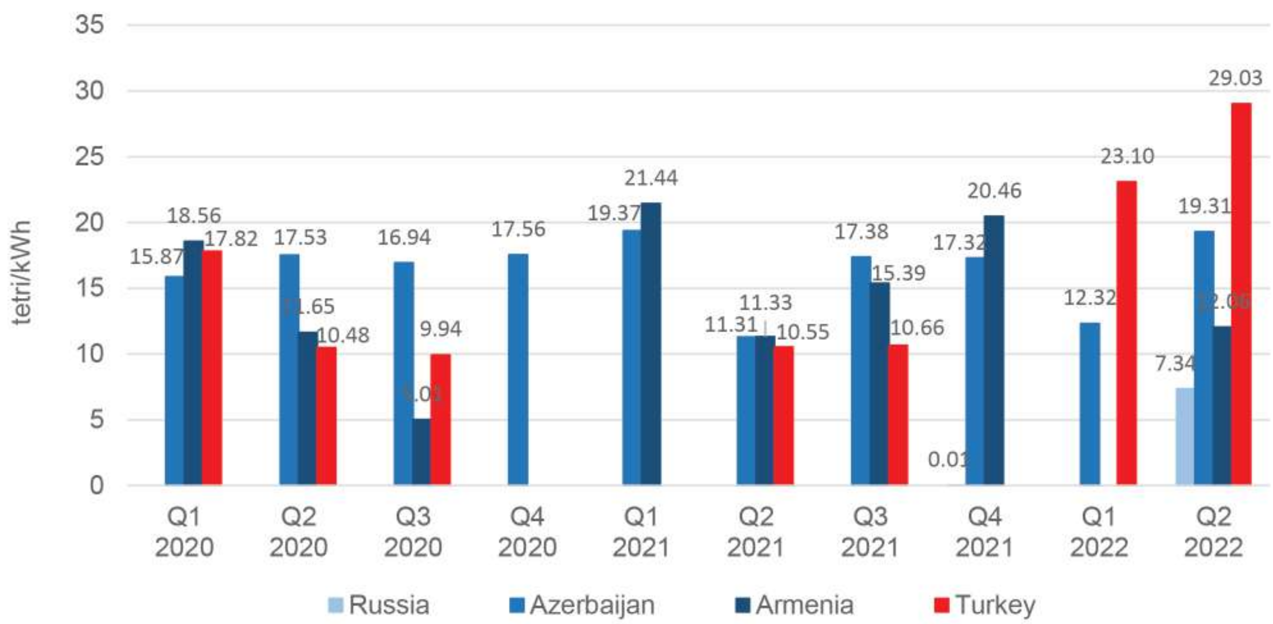
FIGURE 10 | ELECTRICITY IMPORT PRICES BY COUNTRY



Source: ESCO/Geostat

In the first quarter, export prices to Azerbaijan and Turkey stood at 4 ¢ or 12.32 tetri, and 7.50 ¢ or 23.10 tetri per kWh, respectively. Whereas, in the second quarter, the price of exports to Armenia and Turkey, amounted to 4.01 ¢ or 12.06 tetri, and 9.77 ¢ or 29.03 tetri, as for Azerbaijan and Russia, prices were 6.50 ¢ or 19.31 tetri, and 2.27 ¢ or 7.34 tetri, respectively (Figure 11).

FIGURE 11 | EXPORT PRICES BY COUNTRY

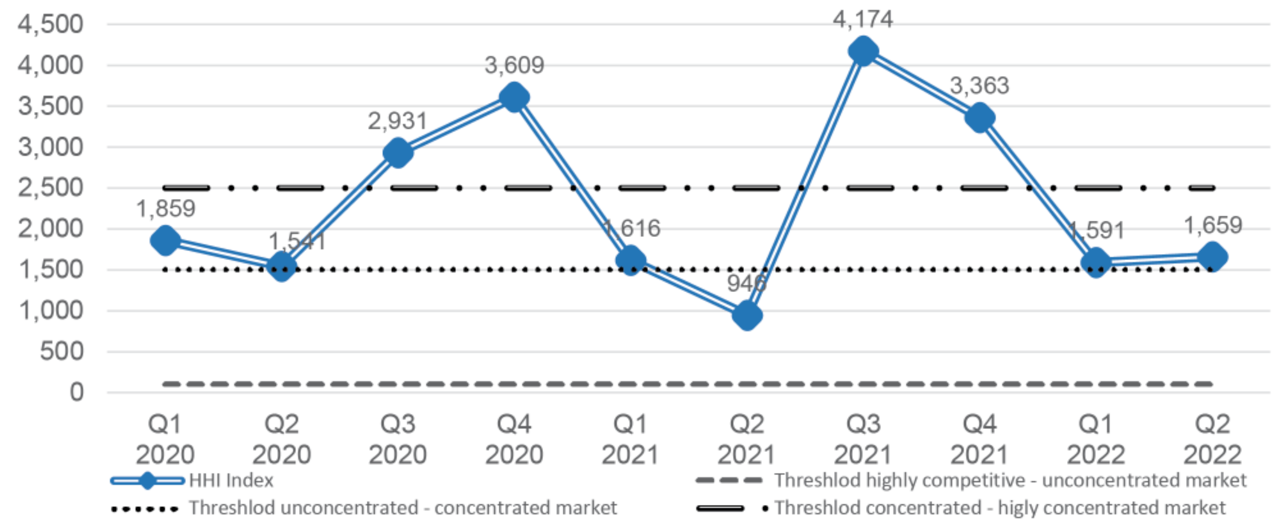


Source: ESCO/Geostat

ELECTRICITY MARKET CONCENTRATION

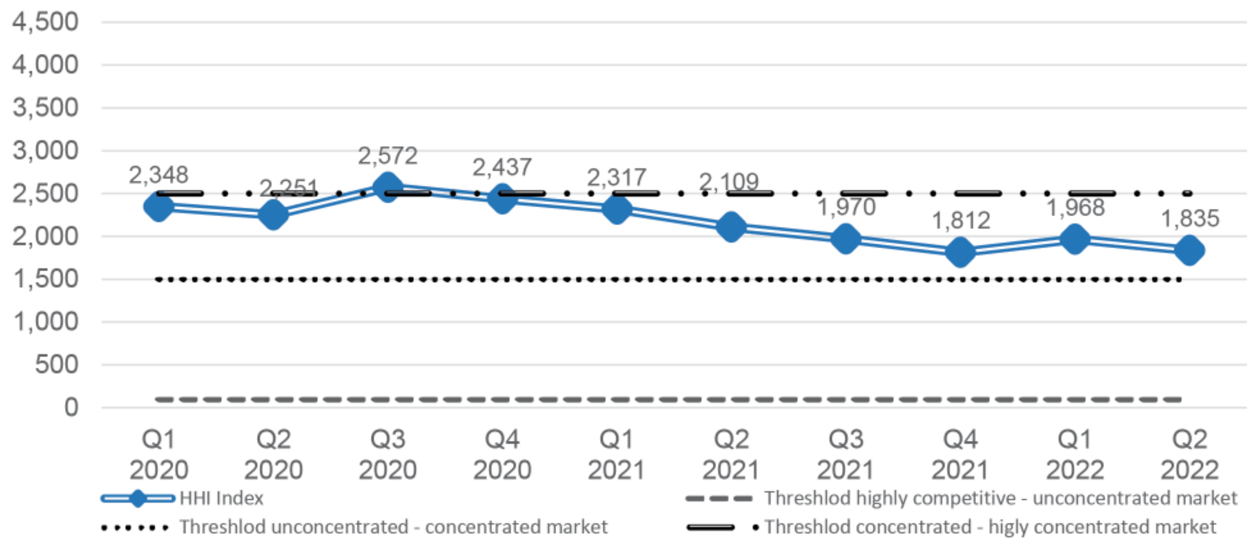
The Hirschman-Herfindahl Index (HHI) of market concentration is utilized to evaluate how competitive the generation and consumption segments of the market have been over the year. In the first and second quarters of 2022, the Georgian electricity generation market was between threshold for highly concentrated and concentrated markets, with HHI values of 1,591 and 1,659, respectively (Figure 12). The level of the first quarter was lower than in 2021, with a HHI value of 1,616, while the level of the second quarter was higher than in 2021, with a HHI value of 946. In the consumer segment for the same period, the consumption indexes decreased in their values but remained between the thresholds for a highly concentrated and concentrated markets (compared to the 2021 levels – 2,317 and 2,109) in the first quarter of the year, with a HHI value of 1,968, and in the second quarter of the year to a HHI value of 1,835 (Figure 13).

FIGURE 12 | HIRSCHMAN-HERFINDAHL INDEX FOR POWER GENERATION



Source: ESCO

FIGURE 13 | HIRSCHMAN-HERFINDAHL INDEX FOR POWER CONSUMPTION

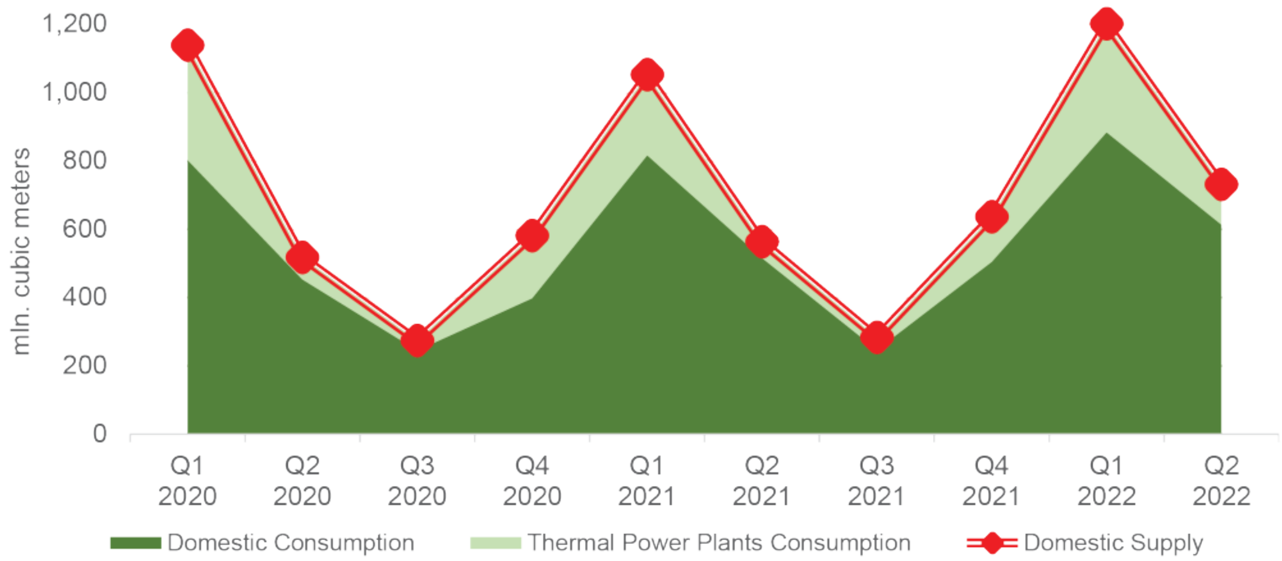


Source: ESCO

NATURAL GAS SUPPLY: CONSUMPTION – TRADE

In the first and the second quarters of 2022, the total supply of natural gas was, respectively, 1,201 and 731 mln. cubic meters (a 14.2% and 29.9% increase, from 1,052 million and 563 million cubic meters in the corresponding periods of 2021), of which 318 mln. and 118 mln. cubic meters (26.4% and 16.1% of total supply) were consumed by thermal power plants (a 34.8% and 150% increase – from 236 mln. and 47 mln. cubic meters in 2021 corresponding quarters). The remainder was supplied to the domestic market (Figure 14).

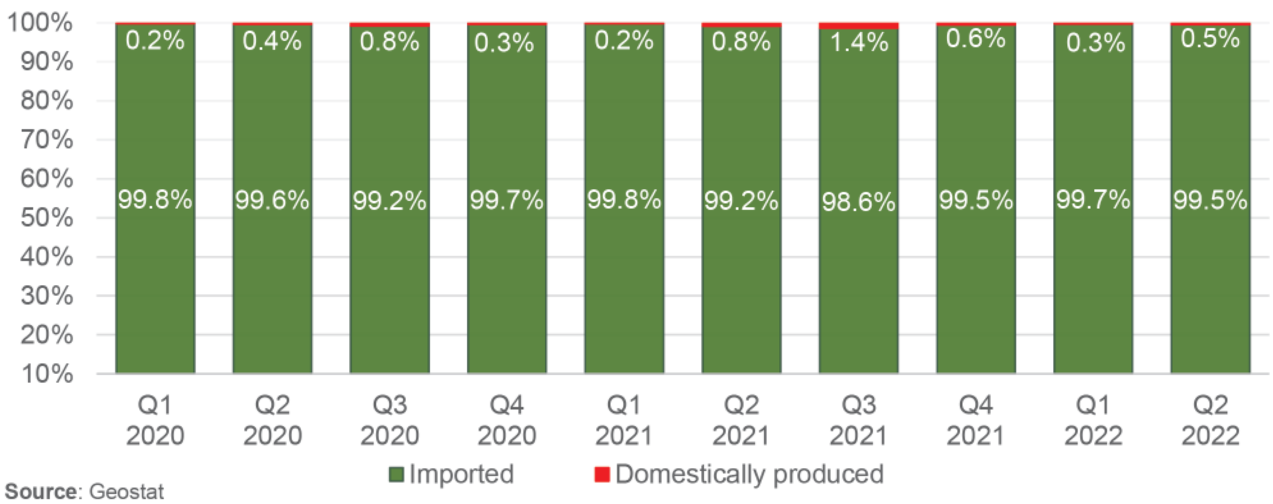
FIGURE 14 | TOTAL SUPPLY AND CONSUMPTION OF NATURAL GAS



Source: Geostat

Within these same periods of 2022, 99.7% (Q1) and 99.5% (Q2) of natural gas were imported, while the remaining amounts were produced domestically (Figure 15).

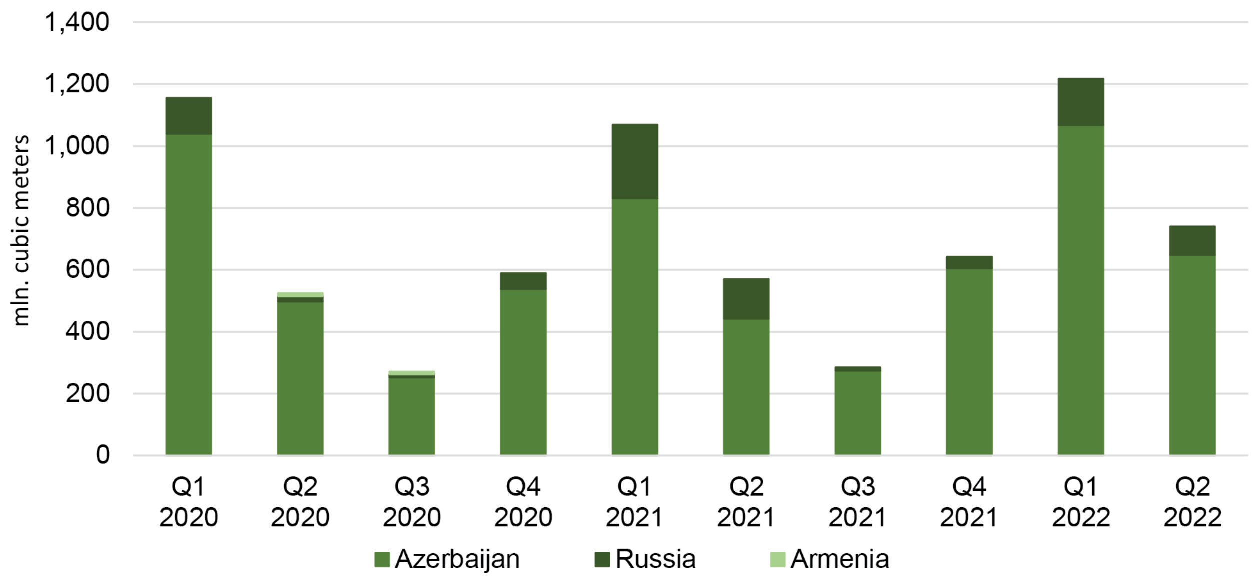
FIGURE 15 | SHARE OF DOMESTICALLY PRODUCED AND IMPORTED GAS



Source: Geostat

In the first and the second quarters of 2022, Georgia imported 1217 and 740 mln. cubic meters of natural gas, respectively (a 13.8% and 29.8% increase, from 1069 mln. and 570 mln. cubic meters since the corresponding periods of 2021). 87.8% (Q1) and 87.5% (Q2) of the imports came from Azerbaijan, while an additional 12.2% (Q1) and 12.5% (Q2) came from Russia (Figure 16).

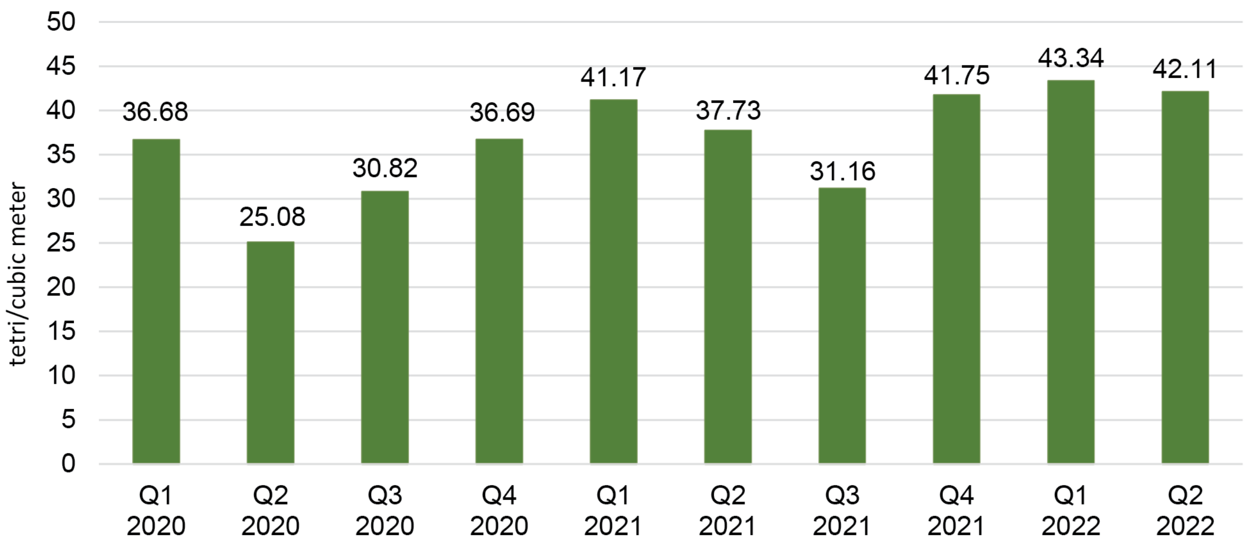
FIGURE 16 | NATURAL GAS IMPORTS BY COUNTRY



Source: Georgian National Energy and Water Supply Regulatory Commission (GNERC)

The weighted average natural gas import price in USD increased by 13.3% in the first and by 18.6% in the second quarter of the year on an annual basis. The GEL price increased by 5.3% and 11.6% in the first and second quarters of the year (from 12.49 ¢ or 41.17 tetri per cubic meter (Q1) and 11.20 ¢ or 37.73 tetri per cubic meter (Q2) in 2021, to 14.14 ¢ or 43.34 tetri per cubic meter and 13.29 ¢ or 42.11 tetri per cubic meter in 2022) (Figure 17).

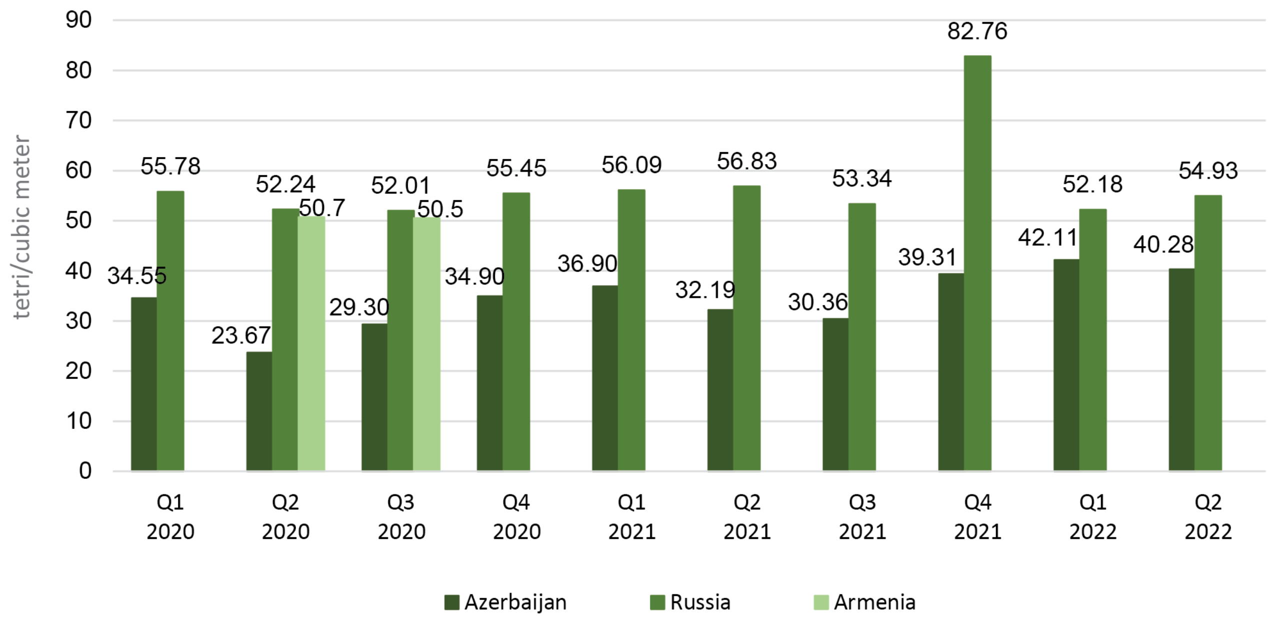
FIGURE 17 | NATURAL GAS IMPORT PRICES



Source: GNERC

In the first quarter of the year, import prices from Russia stood at 17 ¢ – 52.18 tetri – per cubic meter, against 13.75 ¢ – 42.11 tetri – per cubic meter for the gas imported from Azerbaijan. In the second quarter, the Russian price amounted to 17 ¢ – 54.93 tetri – per cubic meter, while the Azerbaijani price amounted to 12.76 ¢ – 40.28 tetri – per cubic meter (Figure 18).

FIGURE 18 | NATURAL GAS IMPORTS

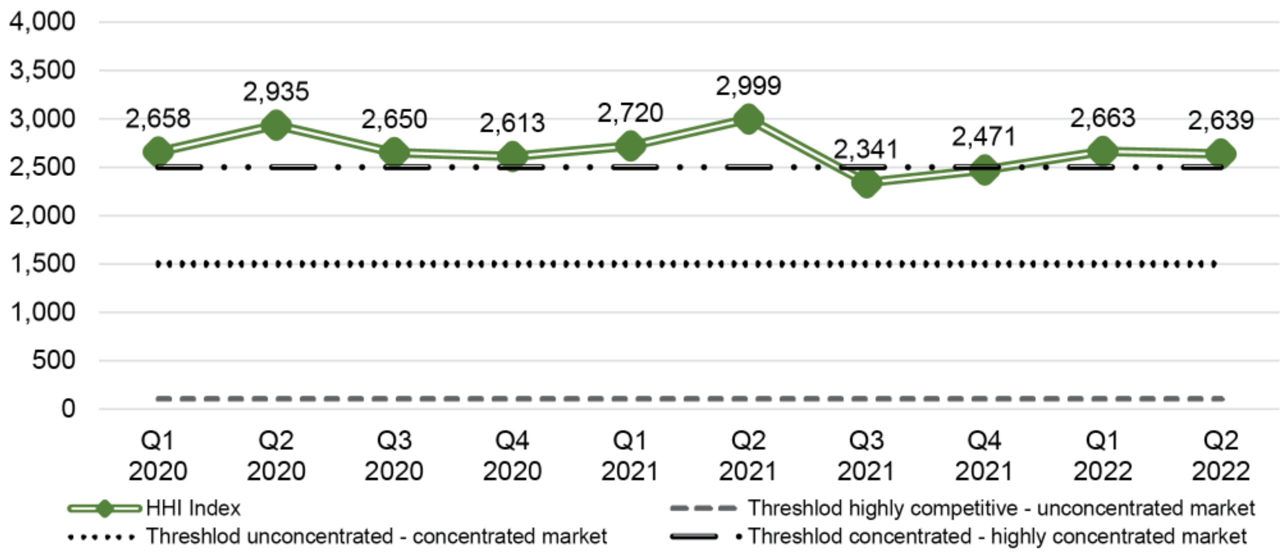


Source: GNERC

NATURAL GAS MARKET CONCENTRATION

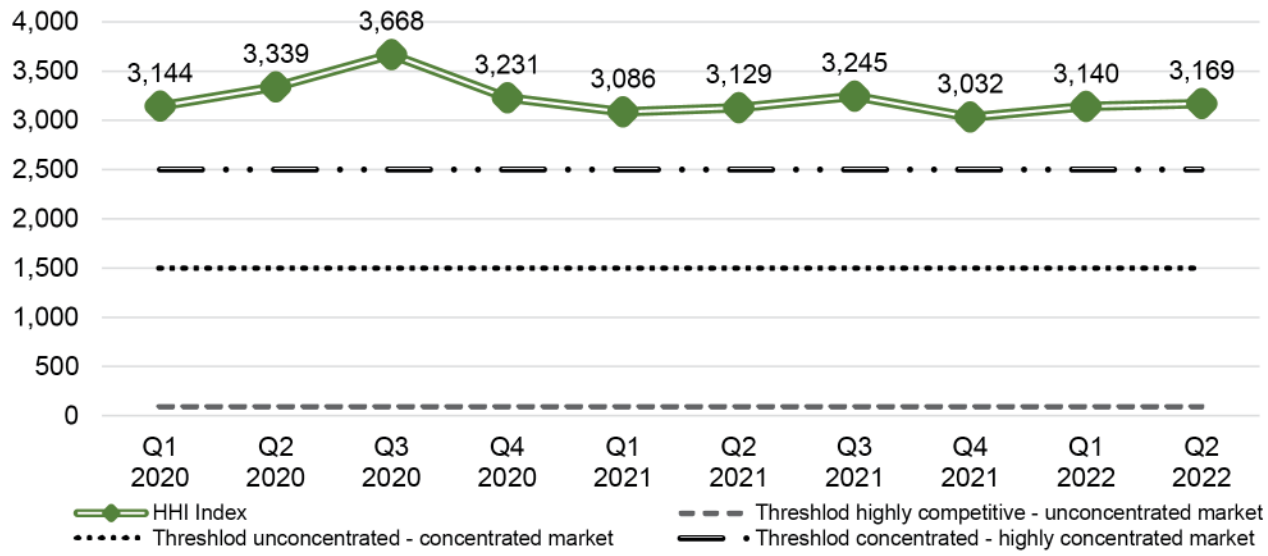
The Hirschman-Herfindahl Index (HHI) of market concentration is utilized to evaluate how competitive the retail and wholesale markets of natural gas have been over the year. In the first and second quarters of 2022, the retail market rose above the highly concentrated market threshold after the drop in the last quarterts, with HHI values of 2,663 and 2,639, respectively (Figure 19). Q1 and Q2 values were lower than that for the first and second quarters of 2021, with HHI values of 2,720 and 2,999. In the wholesale segment of the market, for the same period, the indexes kept significantly above the threshold for a highly concentrated market, with HHI values of 3,140 and 3,169, which were slightly higher then HHI values for the corresponding 2021 levels (the values for the first and second quarters of 2021 were 3,086 and 3,129) (Figure 20).

FIGURE 19 | HIRSCHMAN-HERFINDAHL INDEX FOR THE RETAIL MARKETS



Source: GNERC

FIGURE 20 | HIRSCHMAN-HERFINDAHL INDEX FOR THE WHOLESALE MARKETS

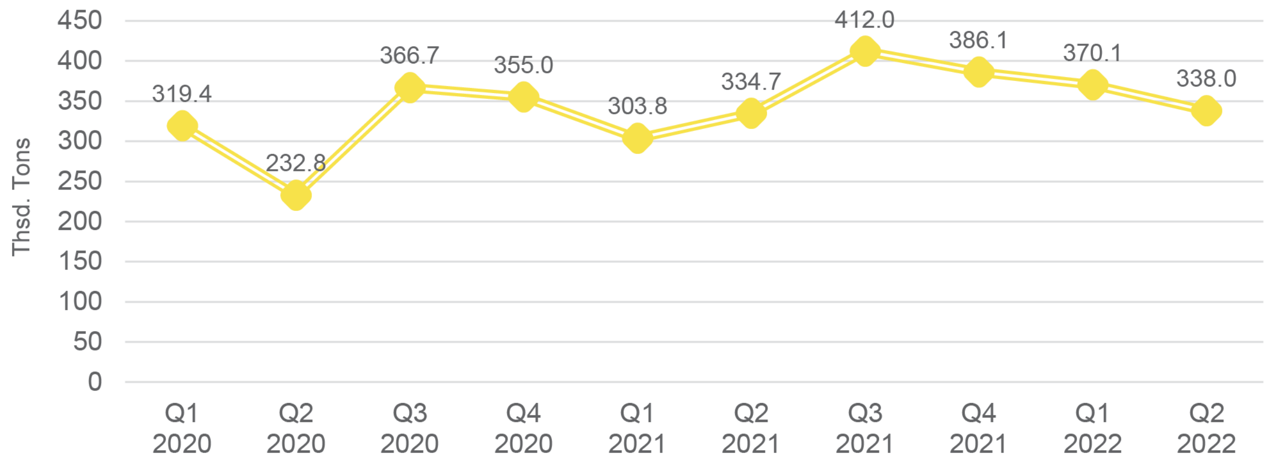


Source: GNERC

OIL PRODUCT SUPPLY: CONSUMPTION – TRADE

In the first and second quarters of 2022, the total supply of oil products was 370.1 and 338 thsd. tons, respectively (+21.8% and +1% compared to 2021) (Figure 21).

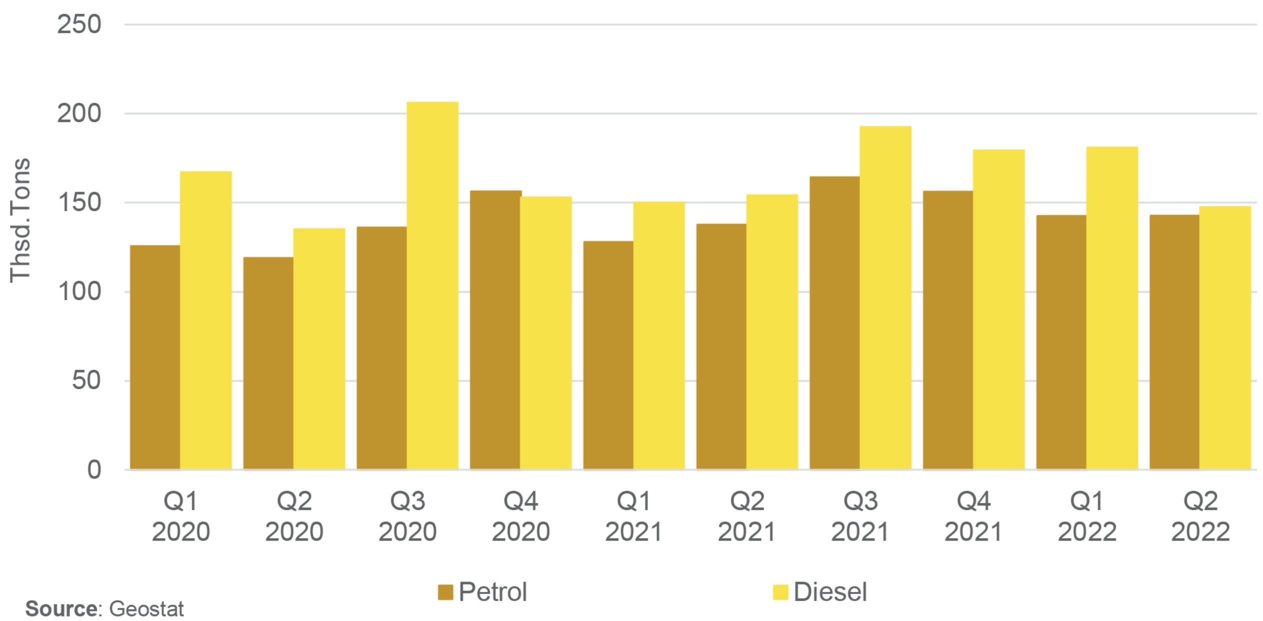
FIGURE 21 | TOTAL SUPPLY OF OIL PRODUCTS



Source: Geostat

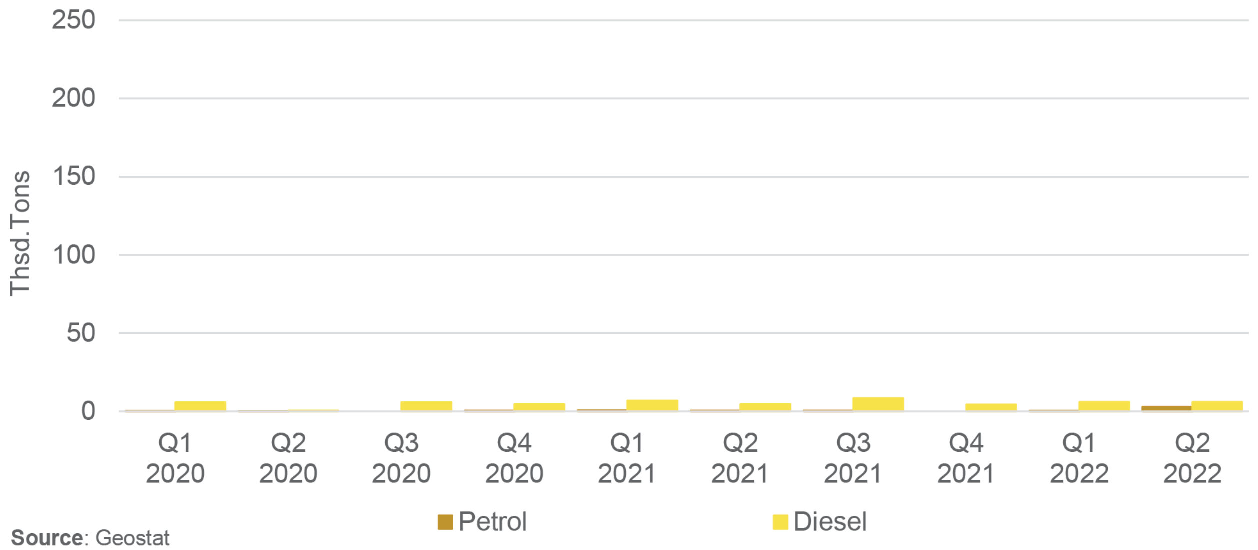
In the first two quarters of 2022, 142.46 and 142.74 thsd. tons of petrol (+11.3% and +3.7% compared to the corresponding period in 2021), and 180.95 and 147.65 thsd. tons of diesel were imported (+20.5% and -4.3% compared to 2021), respectively (Figure 22). In the same period, petrol exports amounted to 0.32 and 3.04 thsd. tons (compared to 0.79 and 0.5 thsd. tons of exports, respectively, in 2021), while diesel exports were 6.01 and 5.97 thsd. tons (-13.2% and +31.5% compared to 2021) (Figure 23).

FIGURE 22 | IMPORT OF PETROLEUM AND DIESEL



Source: Geostat

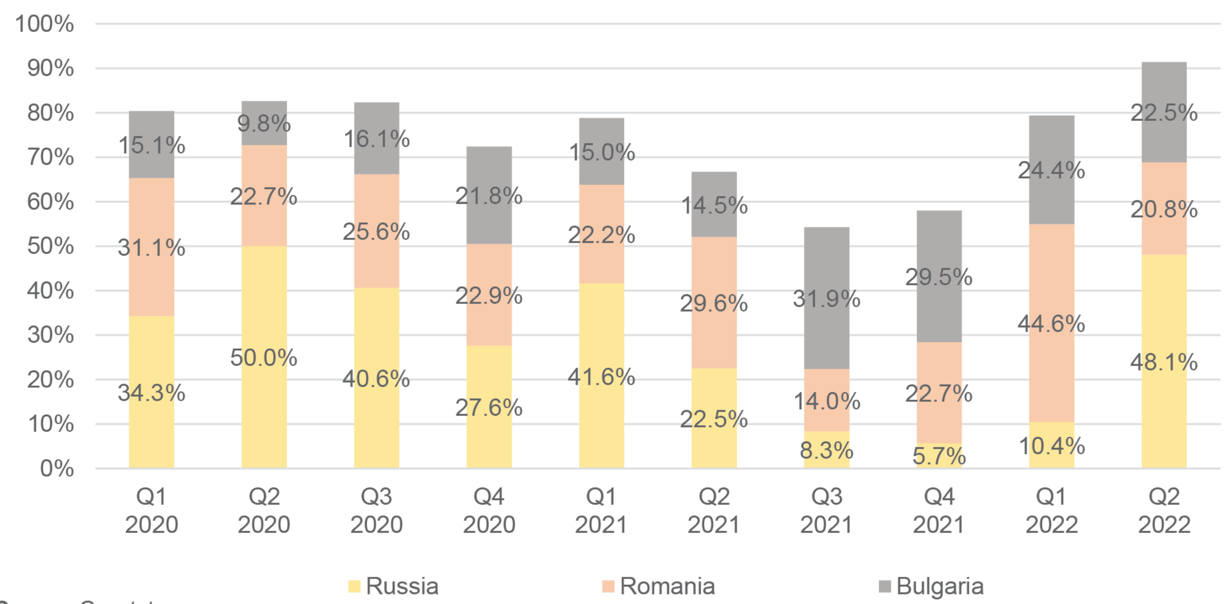
FIGURE 23 | EXPORT OF PETROLEUM AND DIESEL



Source: Geostat

In the first quarter of 2022, Georgian petroleum imports came from twelve countries. However, 79.4% of total imports were provided by three major import countries: Romania (44.6%), Bulgaria (24.4%), and Russia (10.4%). In the second quarter of the year, Georgia imported from fifteen countries. However, 91.4% came from Russia (48.1%), Bulgaria (22.5%), and Romania (20.8%) (Figure 24).

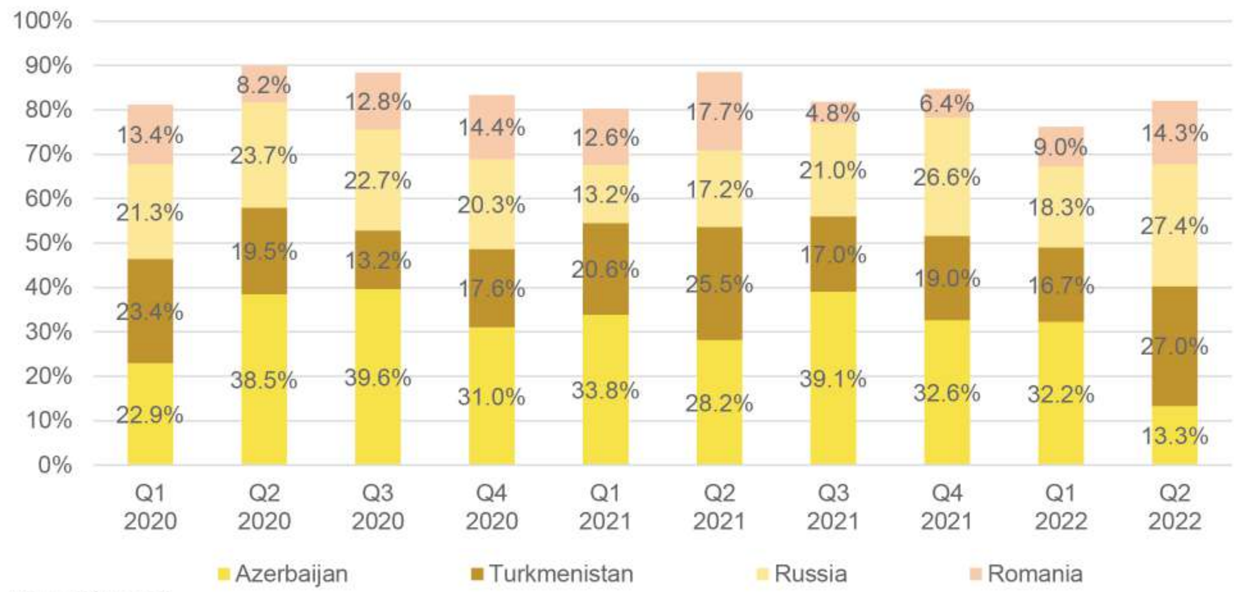
FIGURE 24 | SHARE OF COUNTRIES IN TOTAL PETROLEUM IMPORTS



Source: Geostat

In the first quarter of 2022, Georgian diesel imports came from fourty-two countries. However, 76.2% of total imports were provided by four major import countries: Azerbaijan (32.2%), Russia (18.3%), Turkmenistan (16.7%), and Romania (9%). In the second quarter of the year, Georgia imported from forty-three countries. However, 82% came from Russia (27.4%), Turkmenistan (27%), Romania (14.3%), and Azerbaijan (13.3%). (Figure 25).

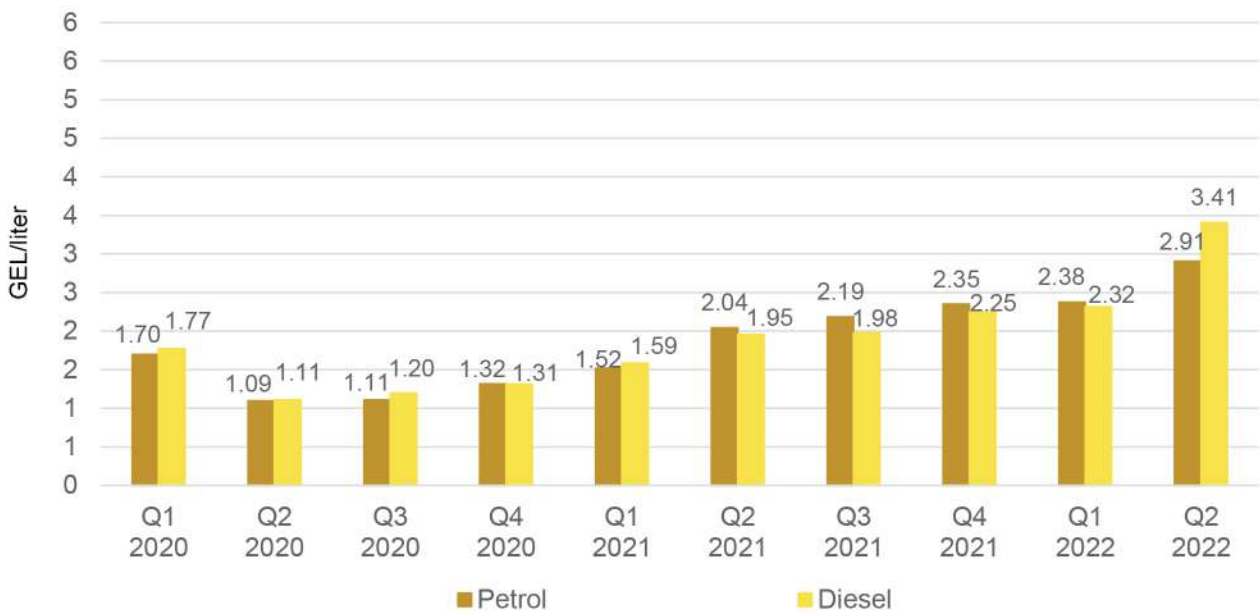
FIGURE 25 | SHARE OF COUNTRIES IN TOTAL DIESEL IMPORTS



Source: Geostat

The weighted average petroleum import prices in USD increased by 68.7% and 56.2% in the first and second quarters of 2022, on an annual basis, while the prices in GEL increased by 56.5% and 42.3%, respectively (from 46 ¢ – 1.52 GEL – and 60 ¢ – 2.04 GEL – per liter in the first and second quarters of 2021, respectively, to 78 ¢ – 2.38 GEL – and 94 ¢ – 2.91 GEL – per liter in 2022). The weighted average diesel import prices in USD increased by 57.2% and 92.4% in the first and second quarters of 2022, on an annual basis, whereas the prices in GEL increased by 46% and 74.5% in the first and second quarters (from 48 ¢ – 1.59 GEL – and 58 ¢ – 1.95 GEL – per liter in the first and second quarters of 2021, respectively, to 76 ¢ – 2.32 GEL – and 111 ¢ – 3.41 GEL – per liter in 2022) (Figure 26).

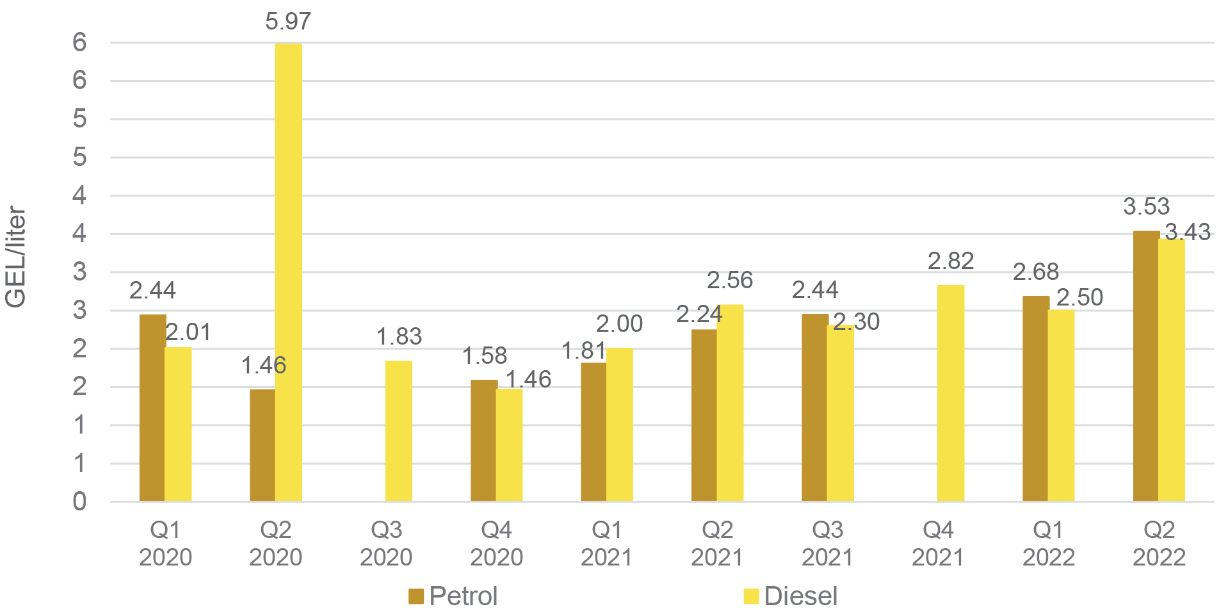
FIGURE 26 | WEIGHTED AVERAGE IMPORT PRICE OF PETROLEUM AND DIESEL



Source: Geostat

Considering petroleum export prices, the weighted average price in USD increased by 62.5% and 76.6% in the first and second quarters of 2022, on an annual basis, while the prices in GEL increased by 48.3% and 57.6%, respectively (from 55 ¢ – 1.81 GEL – and 67 ¢ – 2.24 GEL – per liter in the first and second quarters of 2021, respectively, to 89 ¢ – 2.68 GEL – and 118 ¢ – 3.53 GEL – per liter in 2022). The weighted average diesel export price in USD increased by 34.2% and 48.3% in the first and second quarter of 2022, on an annual basis, while the prices in GEL increased by 25.2% and by 33.6%, respectively (from 61 ¢ – 2 GEL – and 76 ¢ – 2.56 GEL – per liter in the first and second quarters of 2021, to 81 ¢ – 2.5 GEL – and 112 ¢ – 3.43 GEL – per liter in 2022) (Figure 27).

FIGURE 27 | WEIGHTED AVERAGE EXPORT PRICE OF PETROLEUM AND DIESEL



Source: Geostat