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ENERGY MARKET REVIEW

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ELECTRICITY MARKET REVIEW

- In the third quarter of 2022 power generation increased by 11.4% and decreased by 3.5% in the fourth quarter compared to the same periods in 2021.
- There was an increase in electricity consumption of 0.6% in the third quarter and decrease by 4.6% in the fourth quarter of 2022 on an annual basis.
- In the third quarter of the year, the electricity imports substantially decreased (-95%) and increased in the fourth
- by 70%, while exports increased compared to the previous year (+160% and 574%, respectively).
- In the third and the fourth quarters of 2022, the HHI for generation decreased compared to the corresponding periods of the last year.
- The HHI for consumption increased in the third and the fourth quarters of 2022 compared to the corresponding periods of the last year.

NATURAL GAS SUPPLY

- There was an increase in natural gas supply in the third (+17.4%) and the fourth (+5.8%) 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 price in the third and decrease in the fourth quarter of 2022, relative to 2021.
- The HHI index for the retail market of natural gas fell below the highly concentrated market in both quarters, and it was less concentrated than in the corresponding period of the previous year.
- The wholesale market for natural gas remained highly concentrated in both quarters, more concentrated than in the corresponding period of the previous year

NATURAL GAS SUPPLY

- In the third and the fourth quarters of 2021, the total supply of oil products increased.
- The volume of petroleum trade increased in the third and slightly decreased in the fourth quarter of the year, while diesel imports decreased in the third and increased in the fourth quarter of the year.
- In both quarters, most of the Georgian petroleum imports came from Bulgaria, Romania, and Russia, while the majority of the diesel imports came from Azerbaijan, Russia, Turkmenistan, and Romania.
- Unsurprisingly, import prices on petroleum and diesel significantly increased in the third and the fourth quarters of the year.
- The price of reexported diesel also increased in the third and fourth quarters of the year

OIL PRODUCT SUPPLY

- In the third quarter of 2022, the total supply of oil products decreased by 5.4% and increased by 6.5% in the fourth quarter.Unsurprisingly, all of the natural gas supplied to the market was imported from Azerbaijan and Russia, with Azerbaijan
- The volume of petroleum imports decreased in the third and increased in the fourth quarter of the year, while exports increased in both quarters.
- The diesel imports increased in the third and decreased in the fourth quarter of the year, while exports decreased in the third and increased in the fourth quarter of 2022.
- 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 Romania.
- Unsurprisingly, import prices on petroleum and diesel significantly increased in the third and the fourth quarters of the year.

ABBREVIATION USED

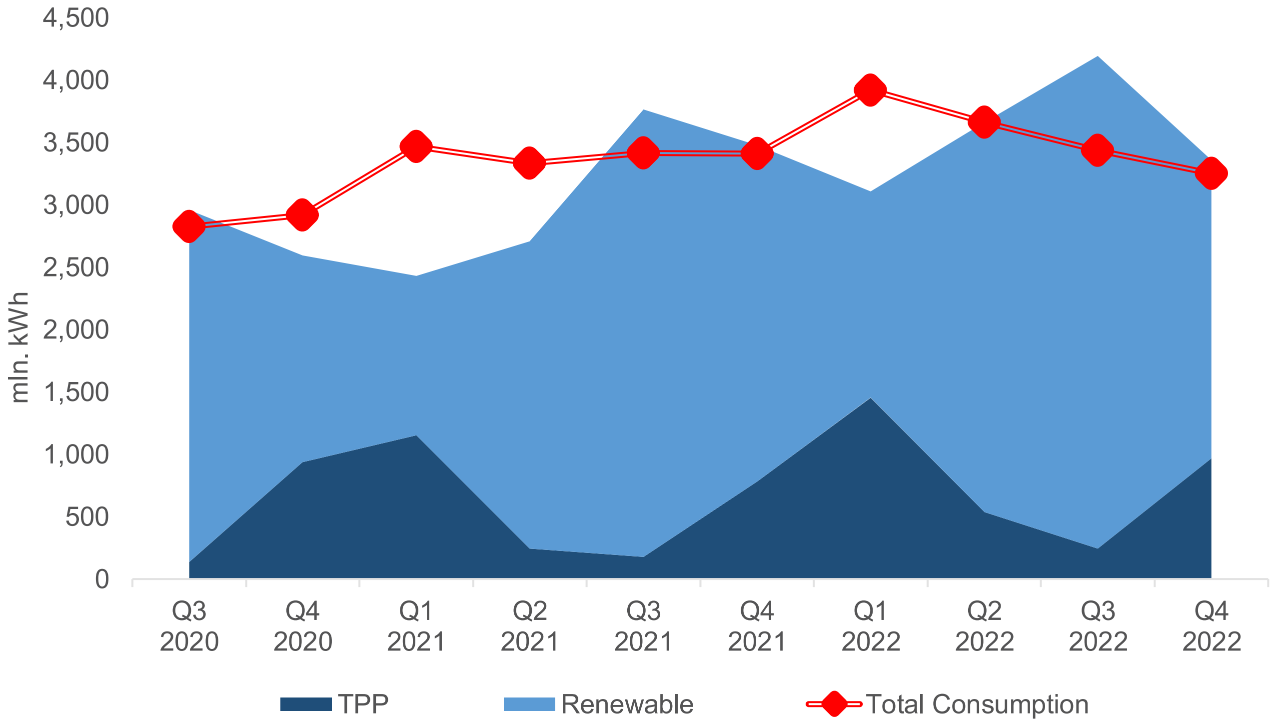
Mln – million
kWh – kilowatt-hour
HPP – Hydro Power Plant
WPP – Wind Power Plant
TPP – Thermal Power Plant
HHI - Hirschmann-Herfindahl Index
Telmico - Tbilisi Electricity Supply Company
Ep Georgia - Ep Georgia Supply
Geostat – National Statistics Office of Georgia
ESCO - Electricity System Commercial Operator

GENERATION – CONSUMPTION – TRADE

In the third and the fourth quarters of 2022, Georgian power plants generated 4,193 mln. and 3,359 mln. kWh of electricity, respectively (Figure 1). This represents a +11.4% and -3.5% change in total generation compared to the corresponding periods of the previous year (in 2021, the total generation in Q3 was 3,766 mln. kWh and 3,479 mln. kWh in Q4). On an annual basis, the increase in generation in the third quarter of 2022 was derived from a 36.4%, 18.5% and 10.1% increase in thermal, wind and hydro power generation, respectively. The decrease in production in the fourth quarter is related to the 0.8% and 11.3% decrease in wind and hydro power generation, more than offsetting the 23.3% increase in thermal power generation.

In the third and fourth quarters of 2022, electricity consumption on the local market amounted to 3,434 mln. (Q3) and 3,253 mln. kWh (Q4) (+0.6% and -4.6% compared to the third and fourth quarters of 2021, respectively) (Figure 1). Total power generation exceeded consumption by 759 mln.kWh in the third quarter of the year and by 106 mln.kWh in the fourth quarter. In percentage terms, in Q3 there was a generation surplus amounting to 18.1% of total generation and 3.2% of total generation in Q4, respectively. In 2021, total generation exceeded consumption in the third quarter by 351 mln. kWh, around 9.3% of the total generation, and the difference between total generation and consumption resulted in a surplus in the fourth quarter of 69 mln. kWh, around 2% of the total generation.

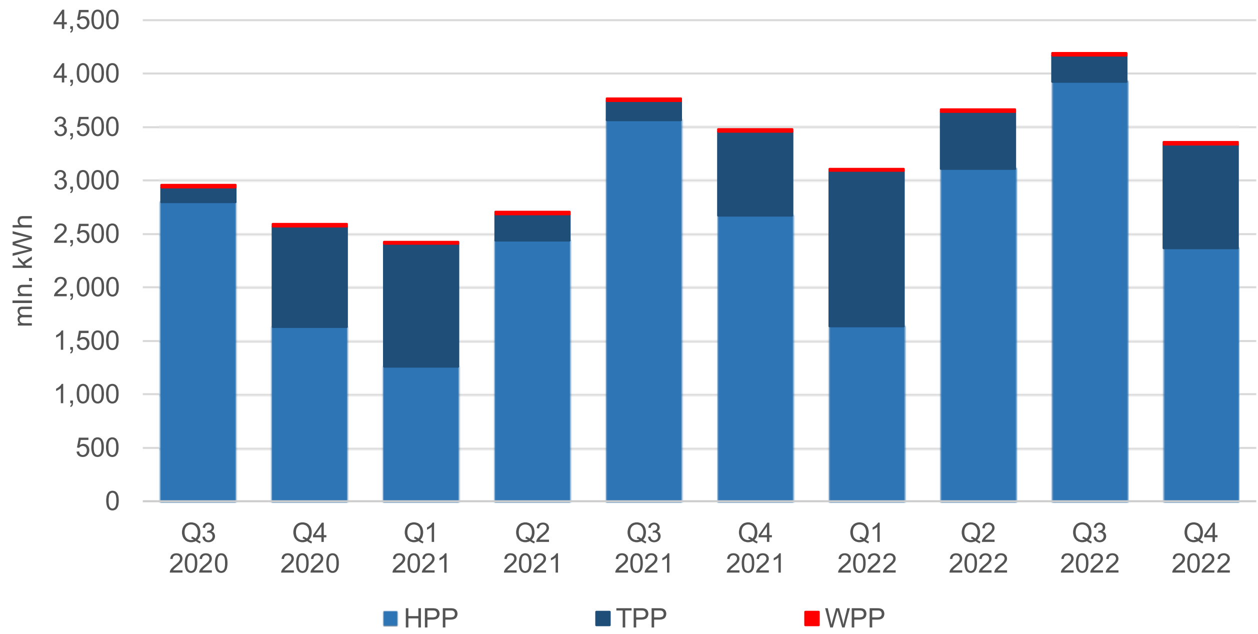
FIGURE 1 | ELECTRICITY CONSUMPTION AND GENERATION



Source: Electricity System Commercial Operator (ESCO)

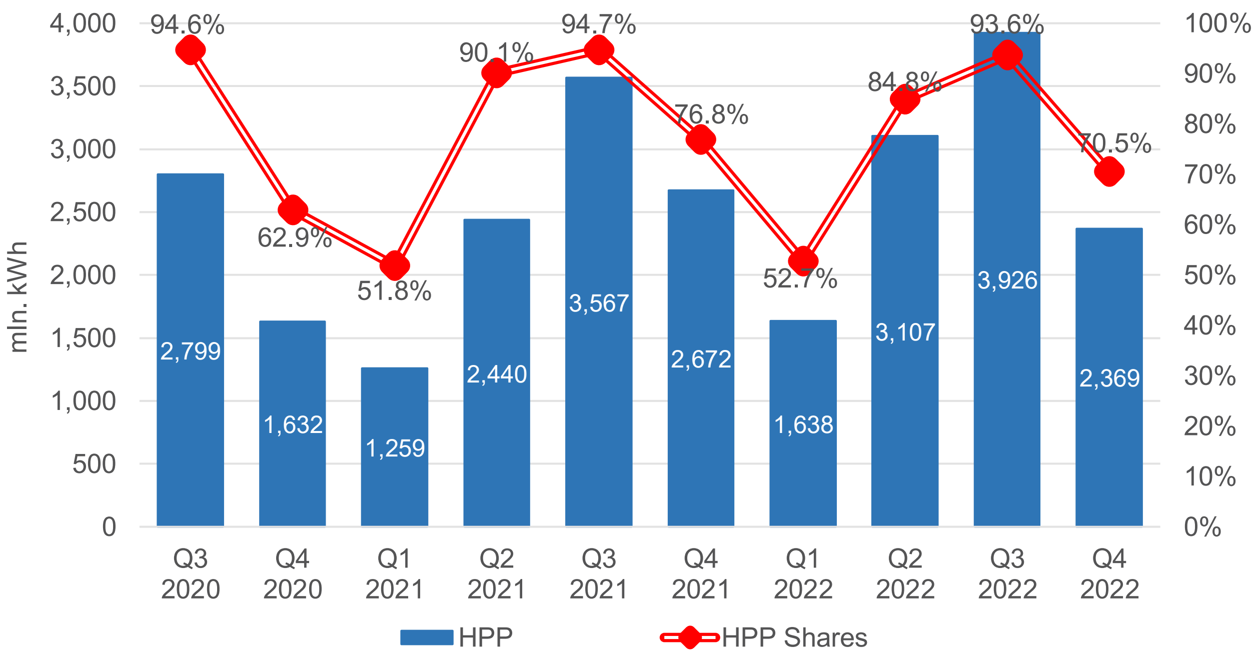
Electricity was largely generated from hydropower plants (HPPs), both in the third and the fourth quarters of 2022. Hydropower generation amounted to 3,949 mln. (93.6% of the total) and 2,392 mln. kWh (70.5% of the total), respectively (Figure 3), while thermal power (TPP) generation reached 244 mln. (5.8% of the total) and 967 mln. kWh (28.8% of the total) (Figure 4). The remainder was generated by wind power plants (WPP) and amounted to 23.3 mln. (0.6% of the total) and 22.9 mln. kWh (0.7% of the total) in the third and the fourth quarters of the year (Figure 5).

FIGURE 2 | ELECTRICITY GENERATION BY SOURCE



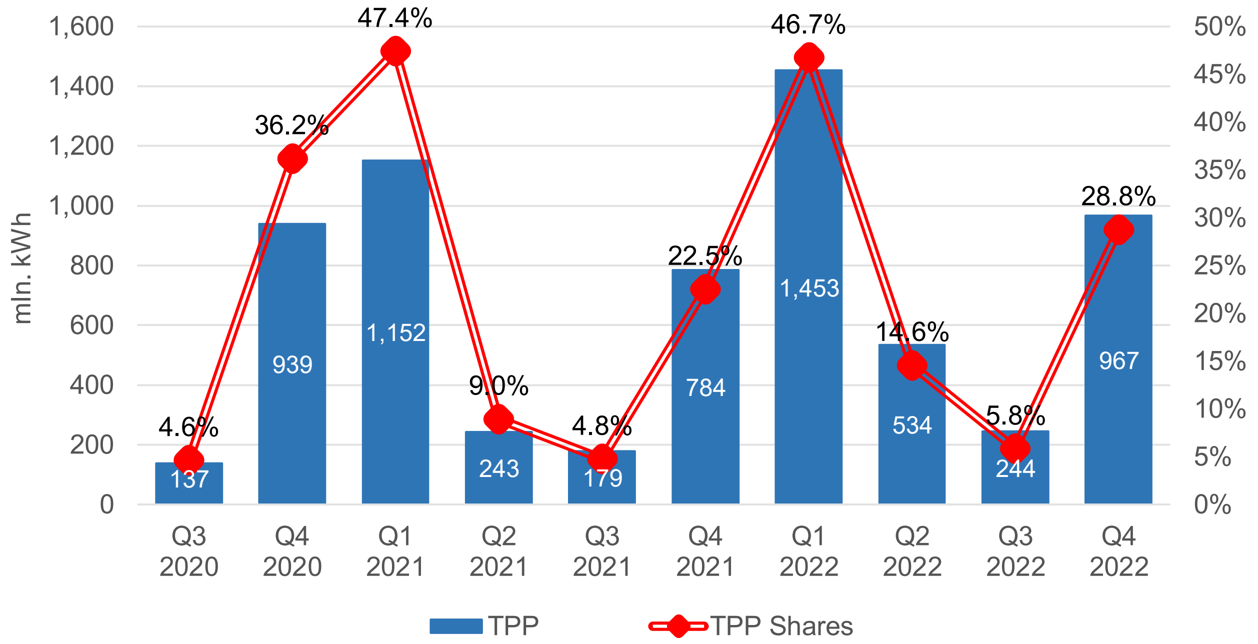
Source: ESCO

FIGURE 3 | HPP GENERATION AND SHARE IN TOTAL GENERATION



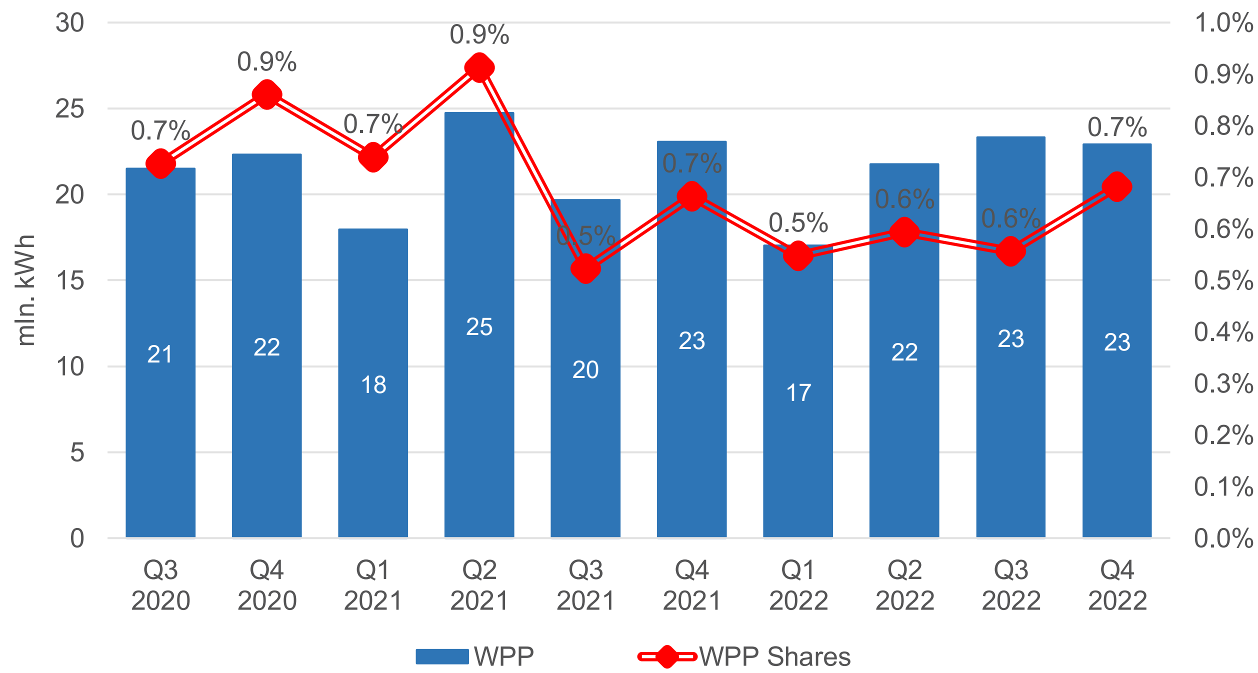
Source: ESCO

FIGURE 4 | TPP GENERATION AND SHARE IN TOTAL GENERATION



Source: ESCO

FIGURE 5 | WPP GENERATION AND SHARE IN TOTAL GENERATION

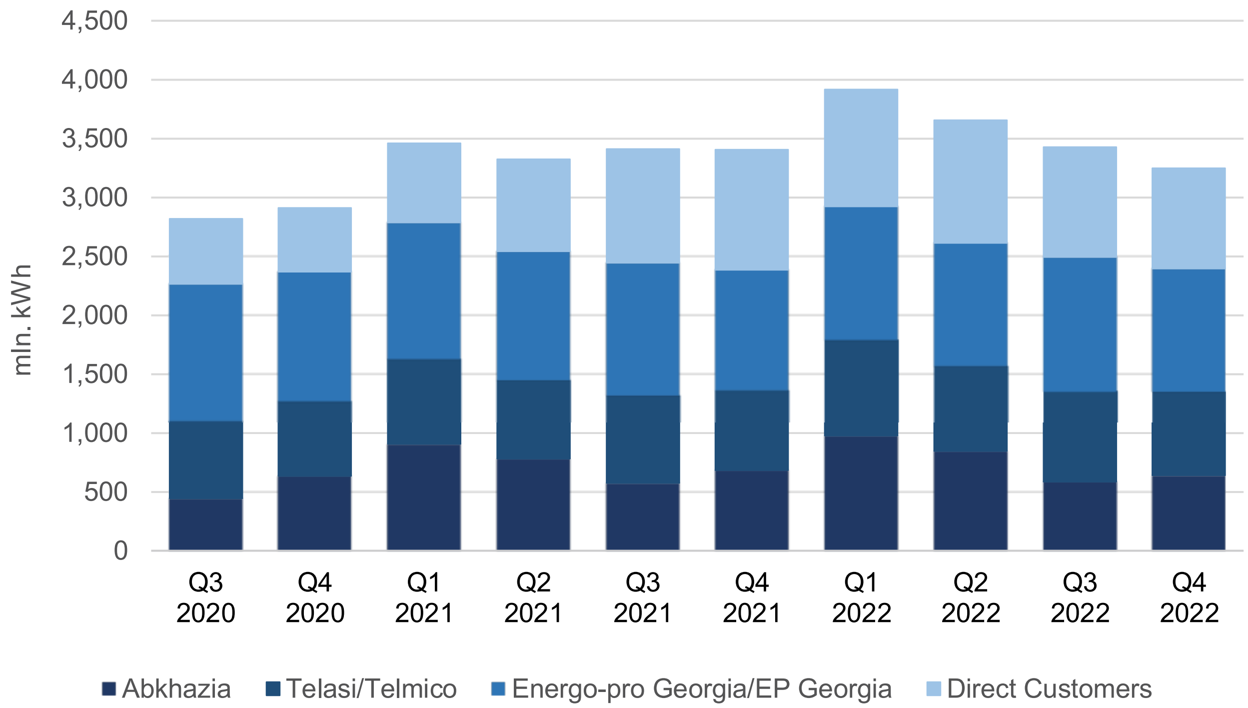


Source: ESCO

The total demand for electricity came from: Energo-Pro Georgia/EP Georgia (33.3% – 1,144 mln. kWh (Q3) and 32.2% – 1,049 mln. kWh (Q4)); Abkhazia (17.1% – 587 mln. kWh (Q3) and 19.7% – 641 mln. kWh (Q4)); Telasi/Telmico (22.3% – 765 mln. kWh (Q3) and 21.7% – 707 mln. kWh (Q4)); and direct customers (27.2% – 935 mln. kWh (Q3) and 26.2% – 852 mln. kWh (Q4)) (Figure 6). In the third quarter of 2022 demand from Abkhazia, Telasi/Telmico, and Energo-Pro Georgia/EP Georgia increased by 1.9%, 4%, and 0.7%, respectively, while it decreased from direct customers by -2.9% annually. In the fourth quarter, demand from Telasi/Telmico and Energo-Pro Georgia/EP

Georgia increased by 4.6% and 2.4%, respectively, although demand from direct customers and Abkhazia, decreased by 16.7% and 6.3%, respectively.[1]

FIGURE 6 | ELECTRICITY CONSUMPTION BY TYPE OF CUSTOMER

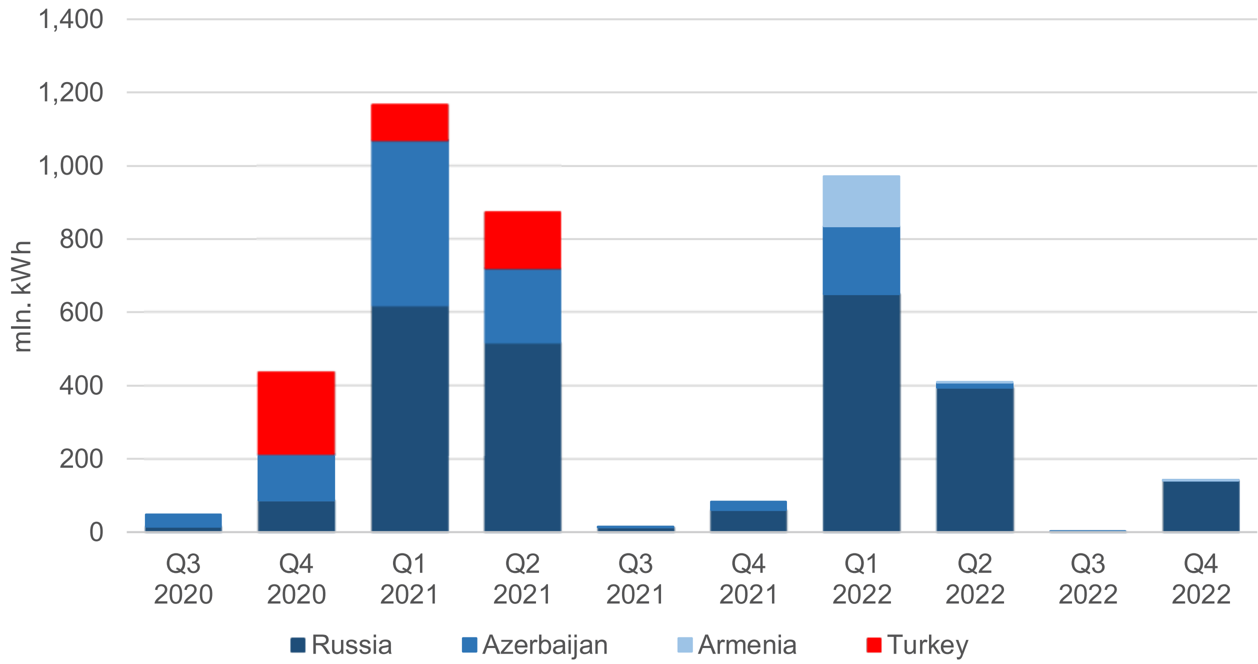


Source: ESCO

In the third and the fourth quarters of 2022, Georgia imported 0.7 mln and 141 mln. of electricity, respectively (compared to 14 mln and 83 mln. in 2021); 80% and 99.7% of which originated from Russia, 20% and 0.2% from Azerbaijan, and 0% and 0.1% from Armenia, respectively (Figure 7). During the same periods, Georgia exported 605 mln. and 94 mln. kWh (compared to 233 and 14 mln. kWh of export, respectively, in 2021); 91% of which was exported to Turkey, 9% to Armenia and insignificant amount to Russia and Azerbaijan in Q3 and 96.7% was exported to Turkey and 3.3% to Armenia in Q4 (Figure 8). In the third and fourth quarters of 2022, there were 779 mln. and 1,249 mln. kWh in electricity transit, out of which 97.3% went from Azerbaijan to Turkey and 2.7% from Russia to Turkey in Q3, and 88.6% went from Azerbaijan to Turkey, 5.6% from Russia to Turkey and 5.8% from Armenia to Turkey in Q4.

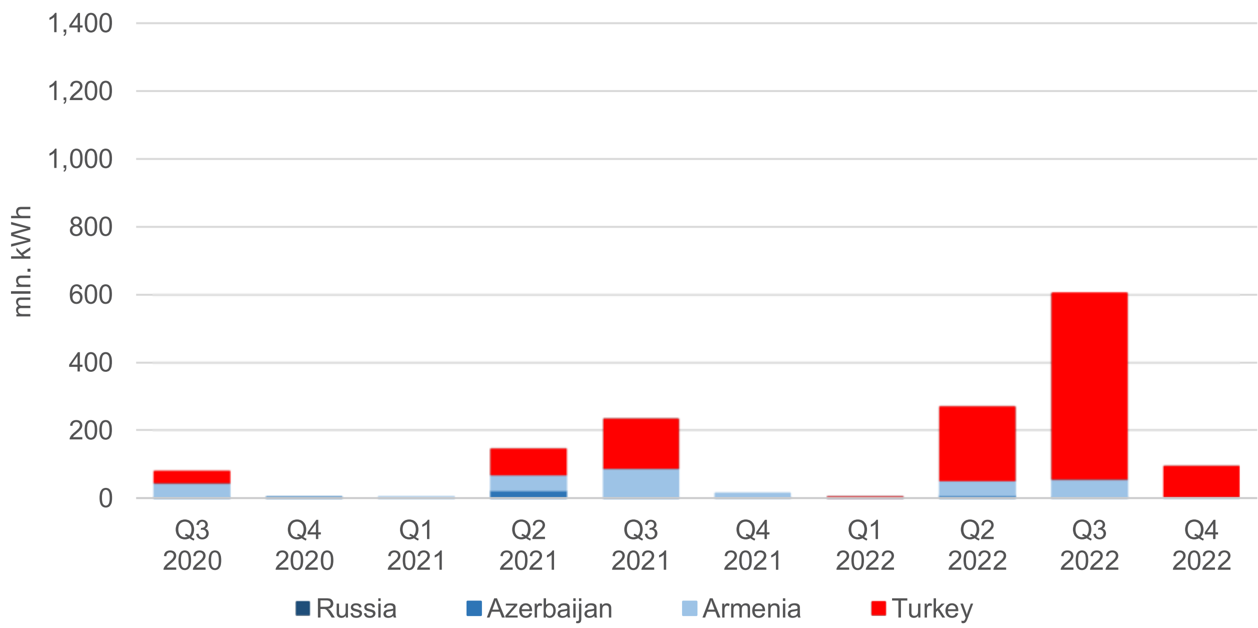
[1] Since 1st of July 2021, after adoption of a new electricity market model concept, operations of distribution and final supply have been distangled, thus three different groups of players appeared on the market, Distribution Licensees – responsible for distribution activities and covering losses in 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.

FIGURE 7 | ELECTRICITY IMPORTS



Source: ESCO

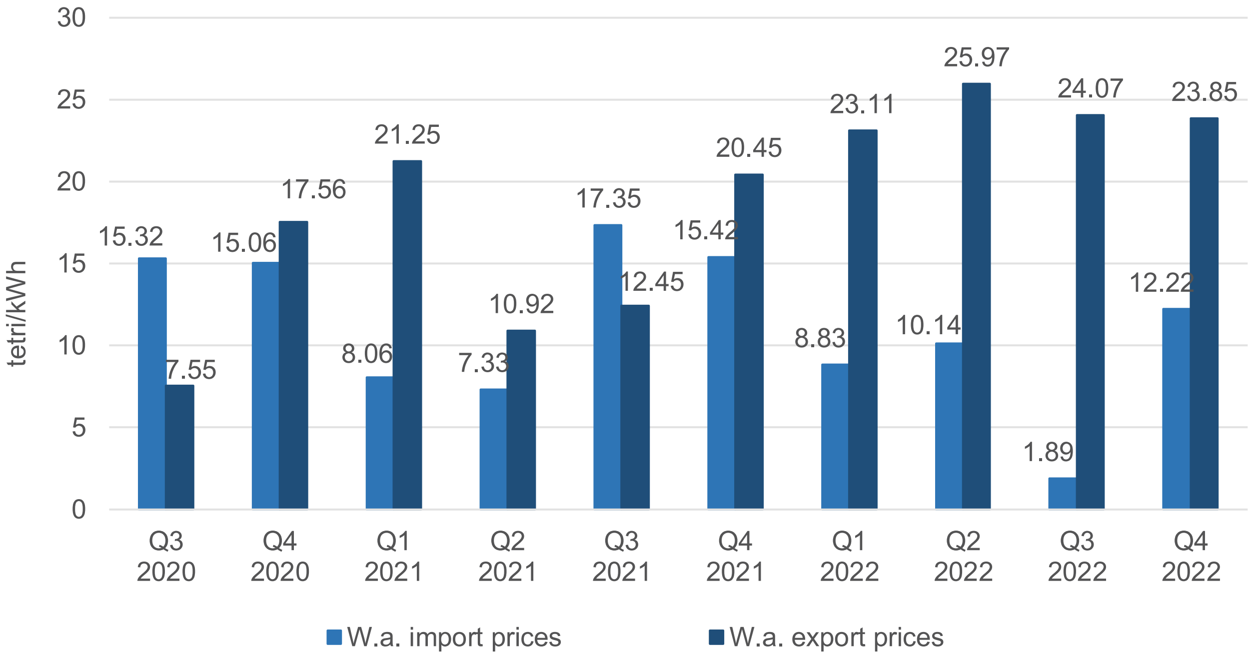
FIGURE 8 | ELECTRICITY EXPORTS



Source: ESCO

The weighted average electricity import price in the third and fourth quarters of 2022, on an annual basis, decreased by 88.4% and 10.7% in USD, respectively, while in GEL, the prices in both quarters decreased by 89.1% and 20.7%, (from 5.53 ¢ or 17.35 tetri per kWh (Q3) and 4.91 ¢ or 15.42 tetri per kWh (Q4) in 2021, to 0.64 ¢ or 1.89 tetri per kWh (Q3) and 4.39 ¢ or 12.22 tetri per kWh (Q4) in 2022, respectively). The annual weighted average electricity export price in the third quarter of 2022 increased by 110.5% in USD and by 93.3% in GEL (from 3.94 ¢ or 12.45 tetri per kWh in the third quarter of 2021 to 8.30 ¢ or 24.07 tetri per kWh by 2022) (Figure 10). While the export price in the fourth quarter of 2022 increased by 28.4% in USD and by 16.6% in GEL (from 6.52 ¢ or 20.45 tetri per kWh in the fourth quarter of 2021 to 8.37 ¢ or 23.85 tetri per kWh by 2022).

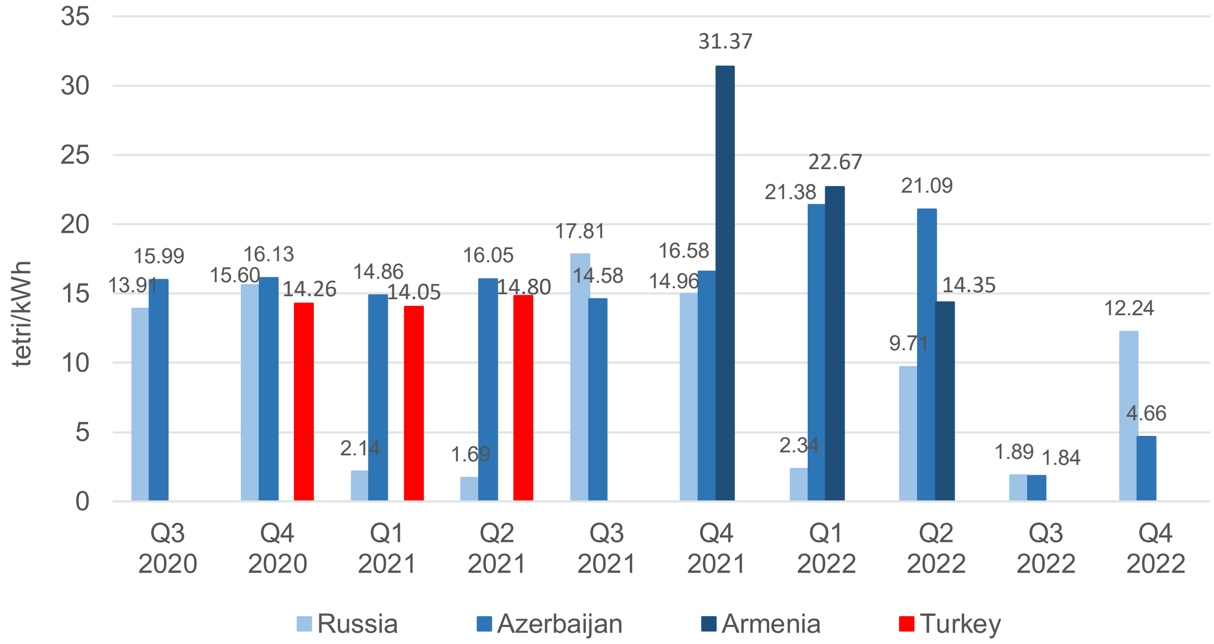
FIGURE 9 | ELECTRICITY IMPORT AND EXPORT PRICES



Source: ESCO

Import prices from Russia in the third quarter of the year stood at 0.64 ¢ or 1.89 tetri per kWh, while they were 0.65 ¢ or 1.84 tetri per kWh for imports from Azerbaijan. In the fourth quarter, the Russian price amounted to 4.40 ¢ or 12.24 tetri per kWh, while the Azerbaijan price - to 1.69 ¢ or 4.66 tetri per kWh (Figure 10).

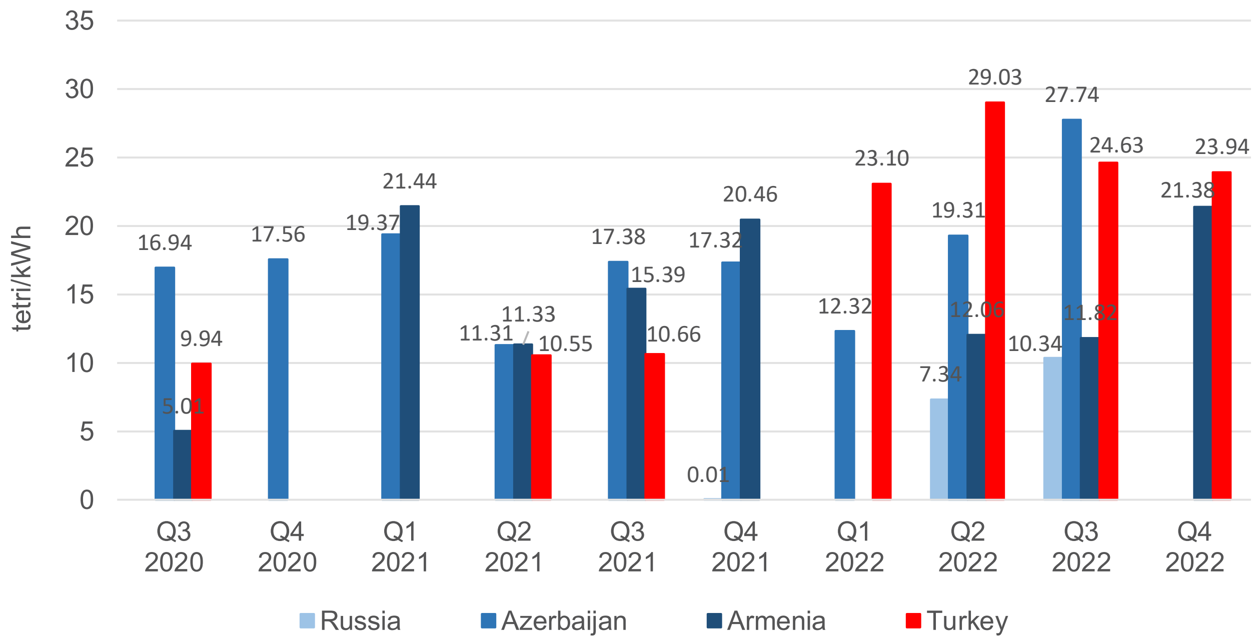
FIGURE 10 | ELECTRICITY IMPORT PRICES BY COUNTRY



Source: ESCO

In the third quarter, export prices to Azerbaijan and Turkey stood at 9.74 ¢ or 27.74 tetri, and 8.46 ¢ or 24.63 tetri per kWh, as for Russia and Armenia were 3.50 ¢ or 10.34 tetri and 4 ¢ or 11.82 tetri, respectively. Whereas, in the fourth quarter, the price of exports to Armenia and Turkey, amounted to 7.50 ¢ or 21.38 tetri and 8.40 ¢ or 23.94 tetri (Figure 11).

FIGURE 11 | EXPORT PRICES BY COUNTRY

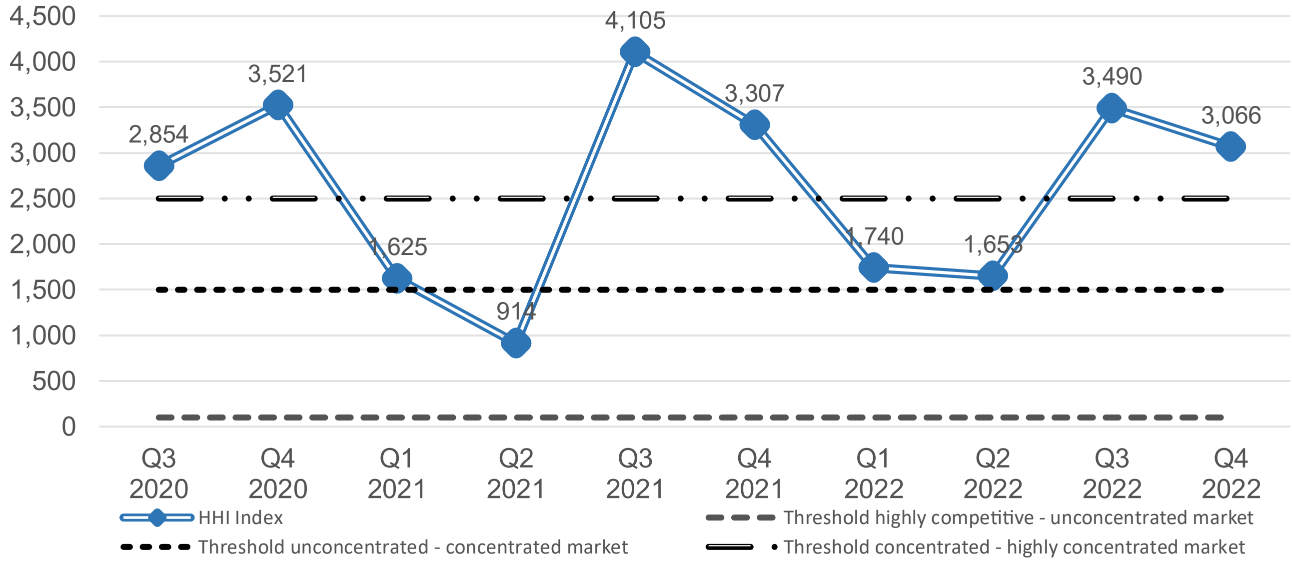


Source: ESCO

ELECTRICITY MARKET CONCENTRATION

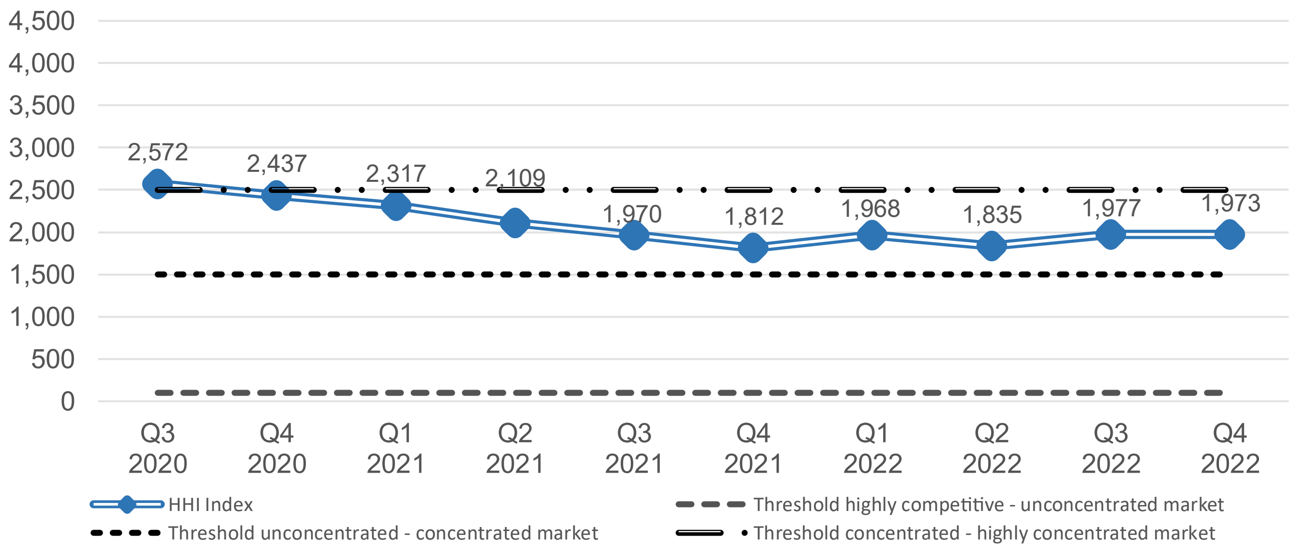
The Hirschman-Herfindahl Index (HHI) of market concentration is utilized to evaluate how competitive the generation and consumption segments of the market have been over the year. In the third and fourth quarters of 2022, the Georgian electricity generation market rised above the threshold for highly concentrated market, with HHI values of 3,490 and 3,066, respectively (Figure 12). The level of the third quarter was lower than in 2021, with a HHI value of 4,105, and the level of the fourth quarter was lower than in 2021 as well, with a HHI value of 3,307. In the consumer segment for the same period, the consumption indexes increased in their values but remained between the thresholds for a highly concentrated and concentrated markets (compared to the 2021 levels – 1,970 and 1,812) in the third quarter of the year, with a HHI value of 1,977, and in the fourth quarter of the year to a HHI value of 1,973 (Figure 13).

FIGURE 12 | HIRSCHMAN-HERFINDAHL INDEX FOR POWER GENERATION



Source: ESCO

FIGURE 13 | HIRSCHMAN-HERFINDAHL INDEX FOR POWER CONSUMPTION

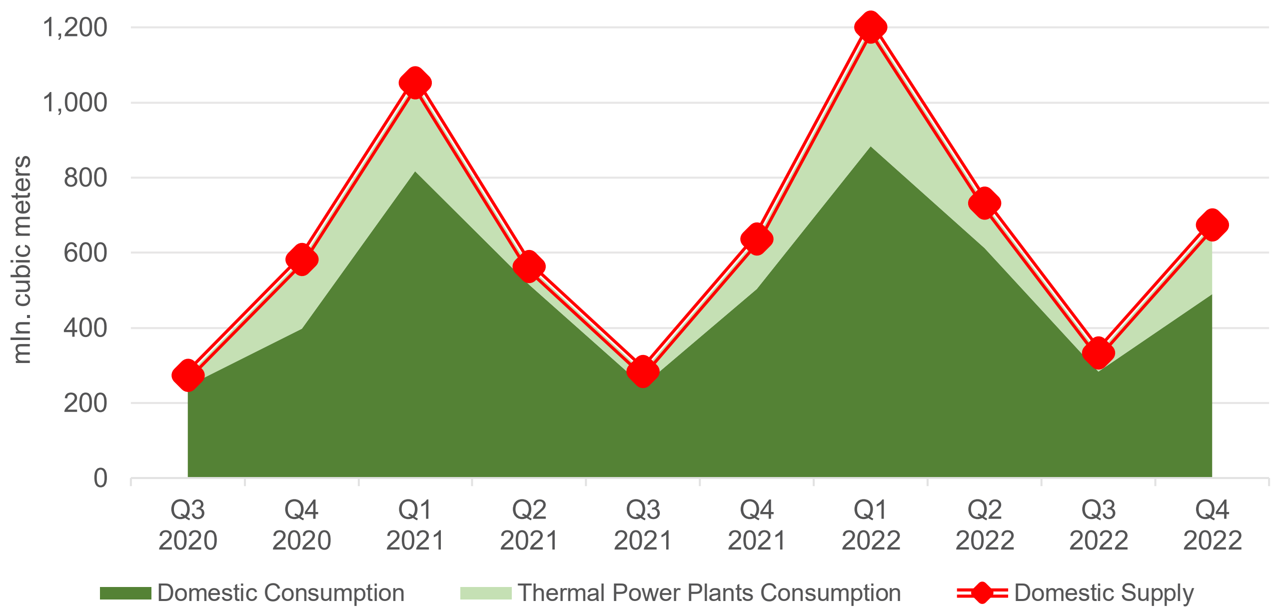


Source: ESCO

NATURAL GAS SUPPLY: CONSUMPTION – TRADE

In the third and the fourth quarters of 2022, the total supply of natural gas was, respectively, 333 and 674 mln. cubic meters (a 17.4% and 5.8% increase, from 284 million and 637 million cubic meters in the corresponding periods of 2021), of which 50 mln. and 184 mln. cubic meters (14.9% and 27.3% of total supply) were consumed by thermal power plants (a 33.7% and 38.4% increase – from 37 mln. and 133 mln. cubic meters in 2021 corresponding quarters). The remainder was supplied to the domestic market (Figure 14).

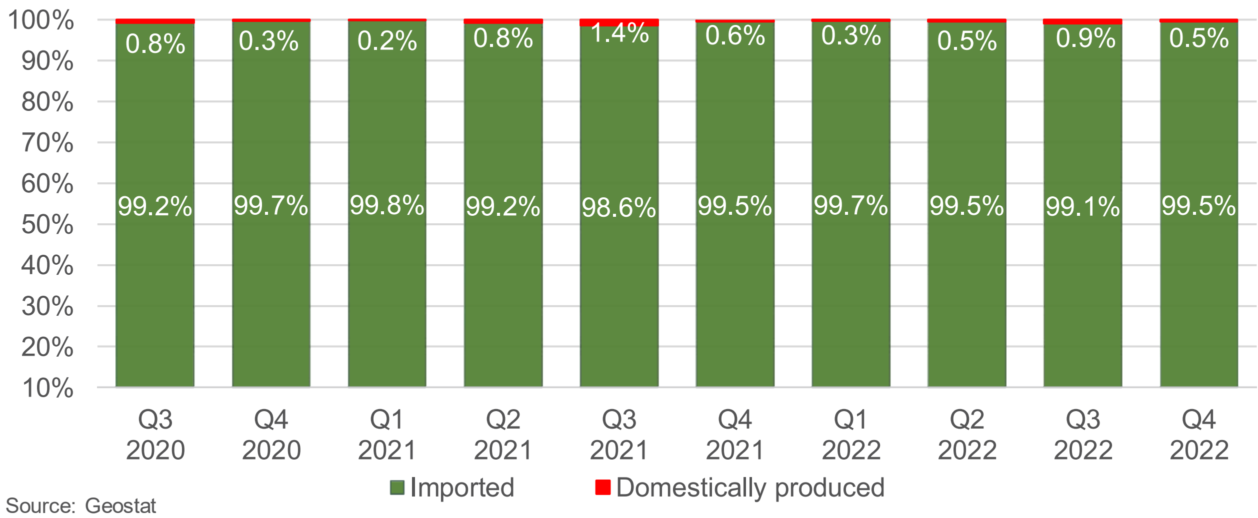
FIGURE 14 | TOTAL SUPPLY AND CONSUMPTION OF NATURAL GAS



Source: Geostat

Within these same periods of 2022, 99.1% (Q3) and 99.5% (Q4) of natural gas were imported, while the remaining amounts were produced domestically (Figure 15).

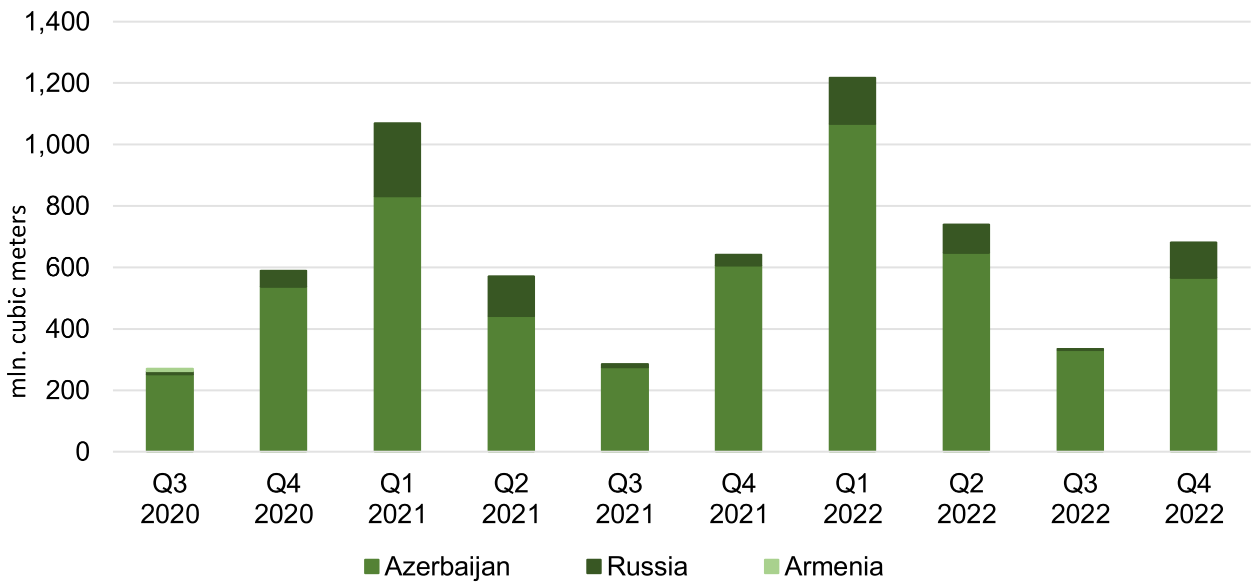
FIGURE 15 | SHARE OF DOMESTICALLY PRODUCED AND IMPORTED GAS



Source: Geostat

In the third and the fourth quarters of 2022, Georgia imported 335 and 682 mln. cubic meters of natural gas, respectively (a 18% and 6.3% increase, from 284 mln. and 642 mln. cubic meters since the corresponding periods of 2021). 98.4% (Q3) and 83% (Q4) of the imports came from Azerbaijan, while an additional 1.6% (Q3) and 17% (Q4) came from Russia (Figure 16).

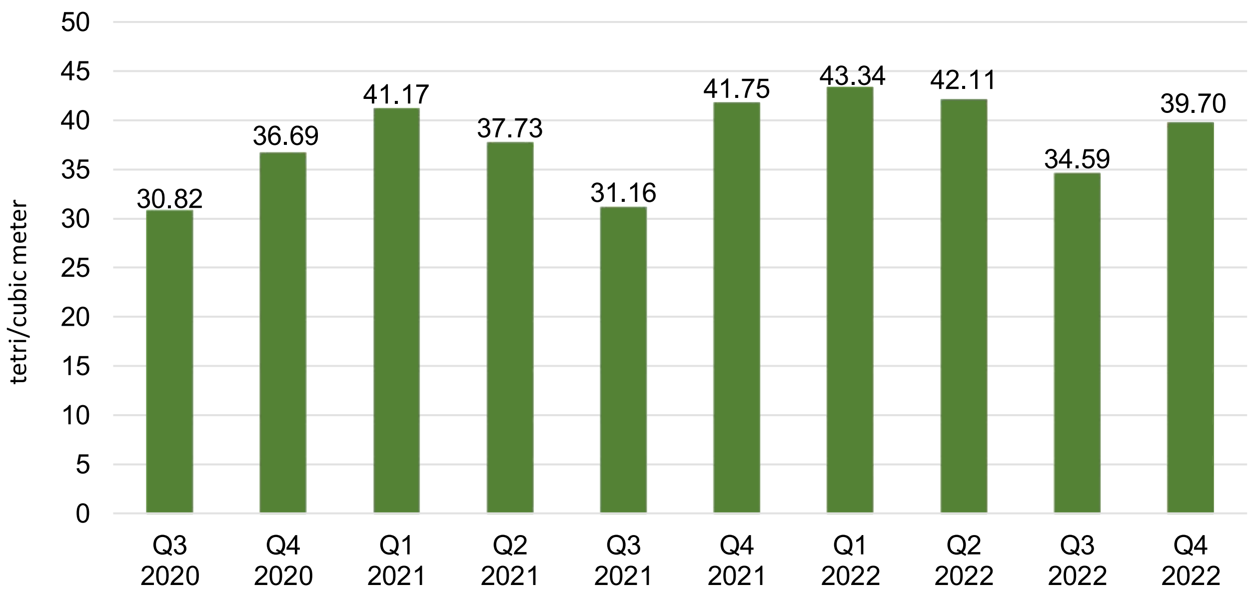
FIGURE 16 | NATURAL GAS IMPORTS BY COUNTRY



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

The weighted average natural gas import price in USD increased by 22.5% in the third and by 7.6% in the fourth quarter of the year on an annual basis. The GEL price increased by 11% in the third and decreased by 4.9% in the fourth quarters of the year (from 9.94 ¢ or 31.16 tetri per cubic meter (Q3) and 13.32 ¢ or 41.75 tetri per cubic meter (Q4) in 2021, to 12.18 ¢ or 34.59 tetri per cubic meter and 14.33 ¢ or 39.70 tetri per cubic meter in 2022) (Figure 17).

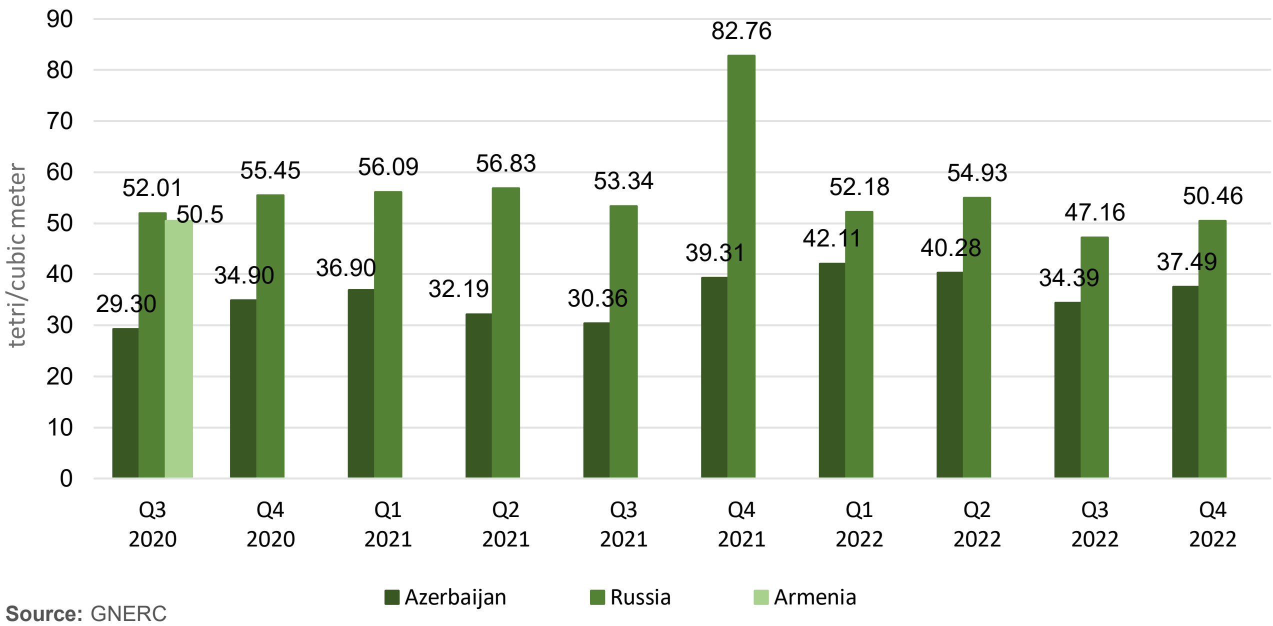
FIGURE 17 | NATURAL GAS IMPORT PRICES



Source: GNERC

In the third quarter of the year, import prices from Russia stood at 17 ¢ – 47.16 tetri – per cubic meter, against 12.10 ¢ – 34.39 tetri – per cubic meter for the gas imported from Azerbaijan. In the fourth quarter, the Russian price amounted to 18.48 ¢ – 50.46 tetri – per cubic meter, while the Azerbaijani price amounted to 13.48 ¢ – 37.49 tetri – per cubic meter (Figure 18).

FIGURE 18 | NATURAL GAS IMPORTS

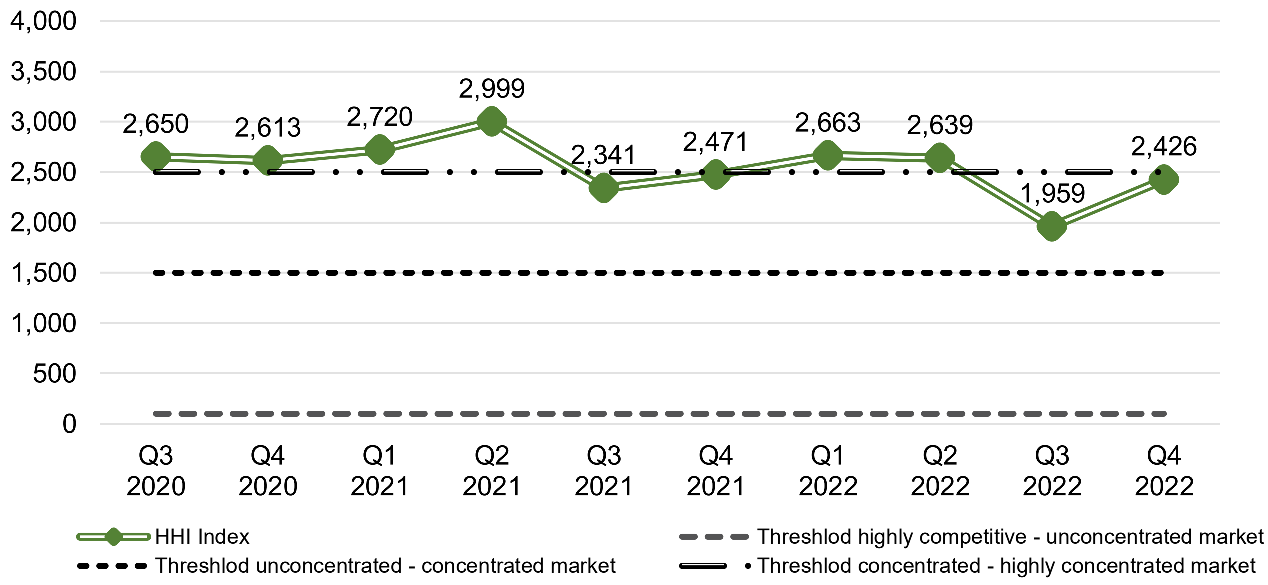


Source: GNERC

NATURAL GAS MARKET CONCENTRATION

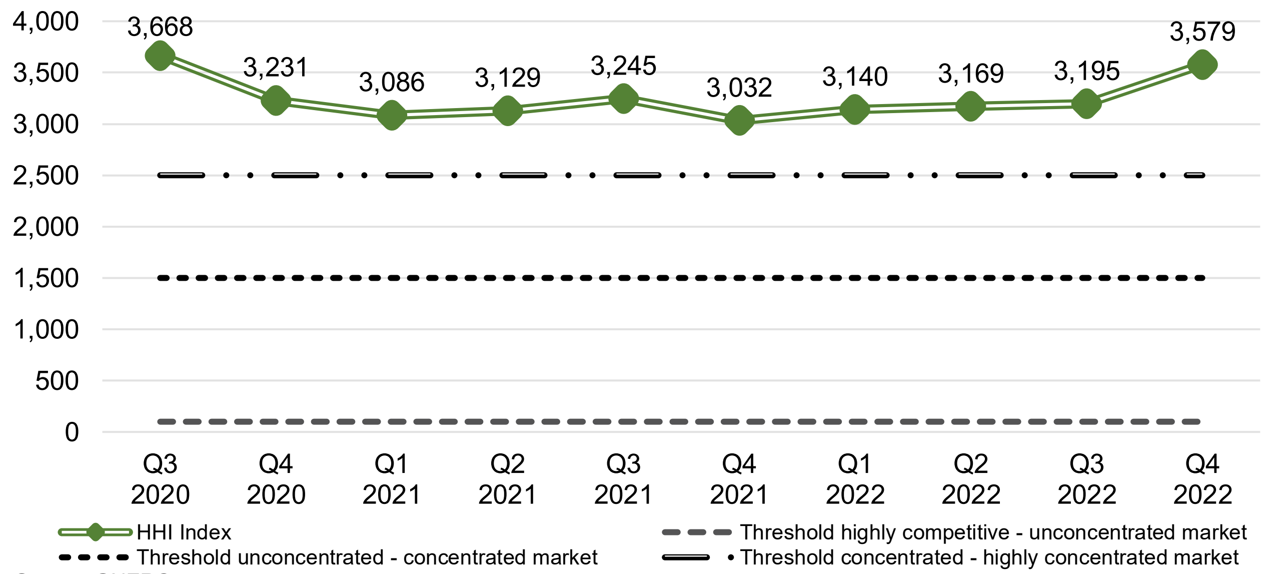
The Hirschman-Herfindahl Index (HHI) of market concentration is utilized to evaluate how competitive the retail and wholesale markets of natural gas have been over the year. In the third and fourth quarters of 2022, the retail market fell below the highly concentrated market threshold, with HHI values of 1,959 and 2,426, respectively (Figure 19). Q3 and Q4 values were lower than that for the third and fourth quarters of 2021, with HHI values of 2,341 and 2,471. 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 3,195 and 3,579, which were higher then HHI values for the corresponding 2021 levels (the values for the third and fourth quarters of 2021 were 3,129 and 3,245) (Figure 20).

FIGURE 19 | HIRSCHMAN-HERFINDAHL INDEX FOR THE RETAIL MARKETS



Source: GNERC

FIGURE 20 | HIRSCHMAN-HERFINDAHL INDEX FOR THE WHOLESALE MARKETS

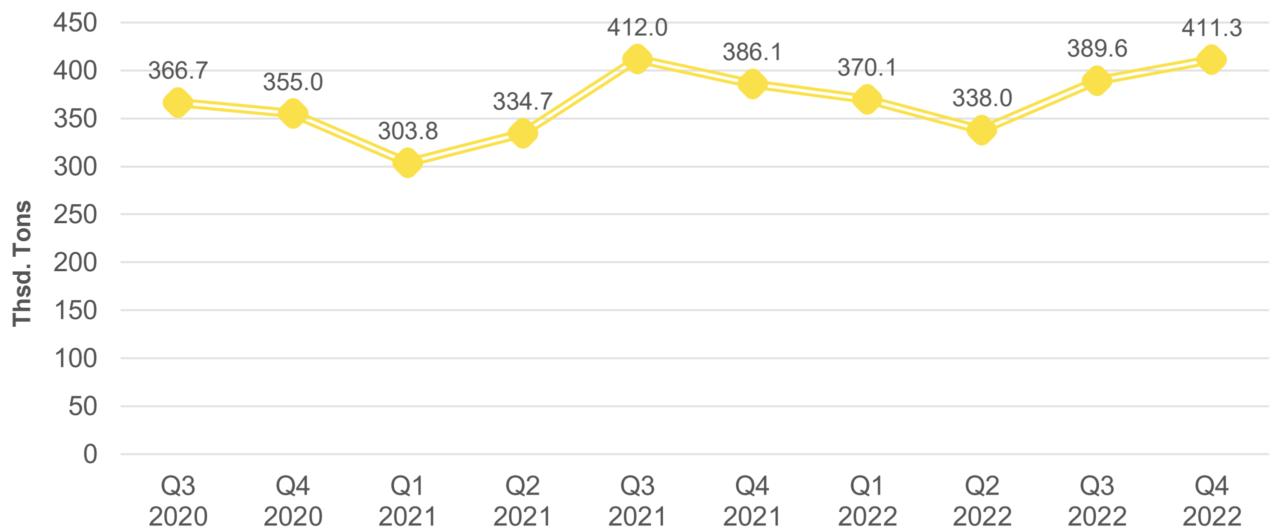


Source: GNERC

OIL PRODUCT SUPPLY: CONSUMPTION – TRADE

In the third and fourth quarters of 2022, the total supply of oil products was 389.6 and 411.3 thsd. tons, respectively (-5.4% and +6.5% compared to 2021) (Figure 21).

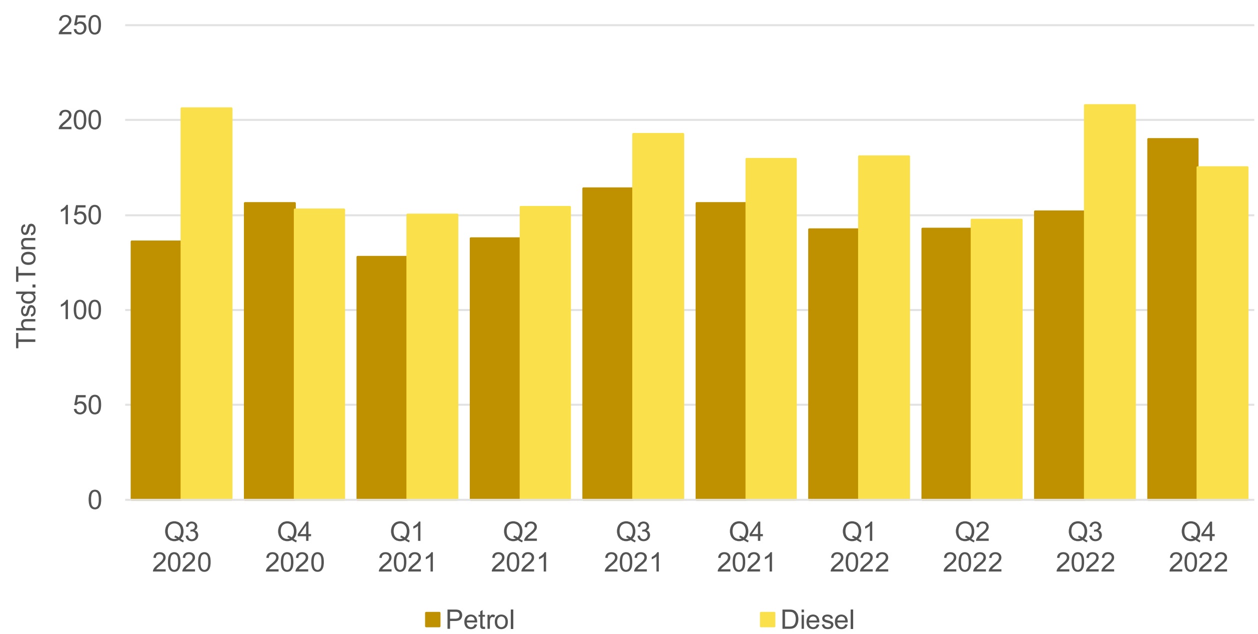
FIGURE 21 | TOTAL SUPPLY OF OIL PRODUCTS



Source: Geostat

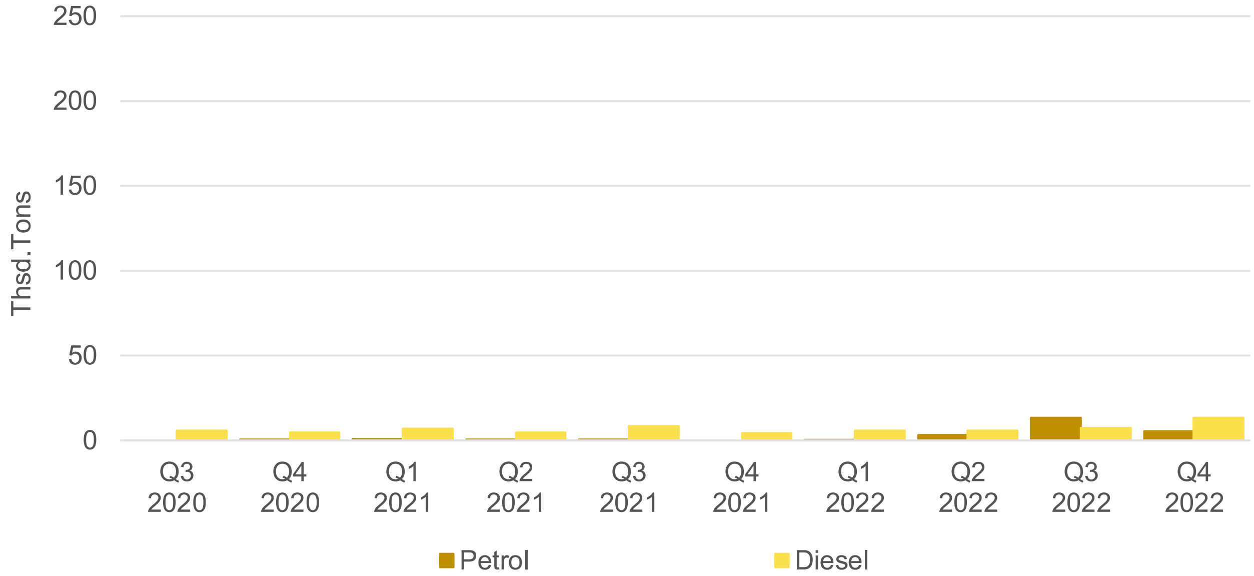
In the last two quarters of 2022, 152.03 and 189.88 thsd. tons of petrol (-7.4% and +21.5% compared to the corresponding period in 2021), and 207.98 and 175.21 thsd. tons of diesel were imported (+8% and -2.4% compared to 2021), respectively (Figure 22). In the same period, petrol exports amounted to 13.32 and 5.33 thsd. tons (compared to 0.32 and 3.04 thsd. tons of exports, respectively, in 2021), while diesel exports were 7.24 and 13.52 thsd. tons (-14.1% and +205.3% compared to 2021) (Figure 23).

FIGURE 22 | IMPORT OF PETROLEUM AND DIESEL



Source: Geostat

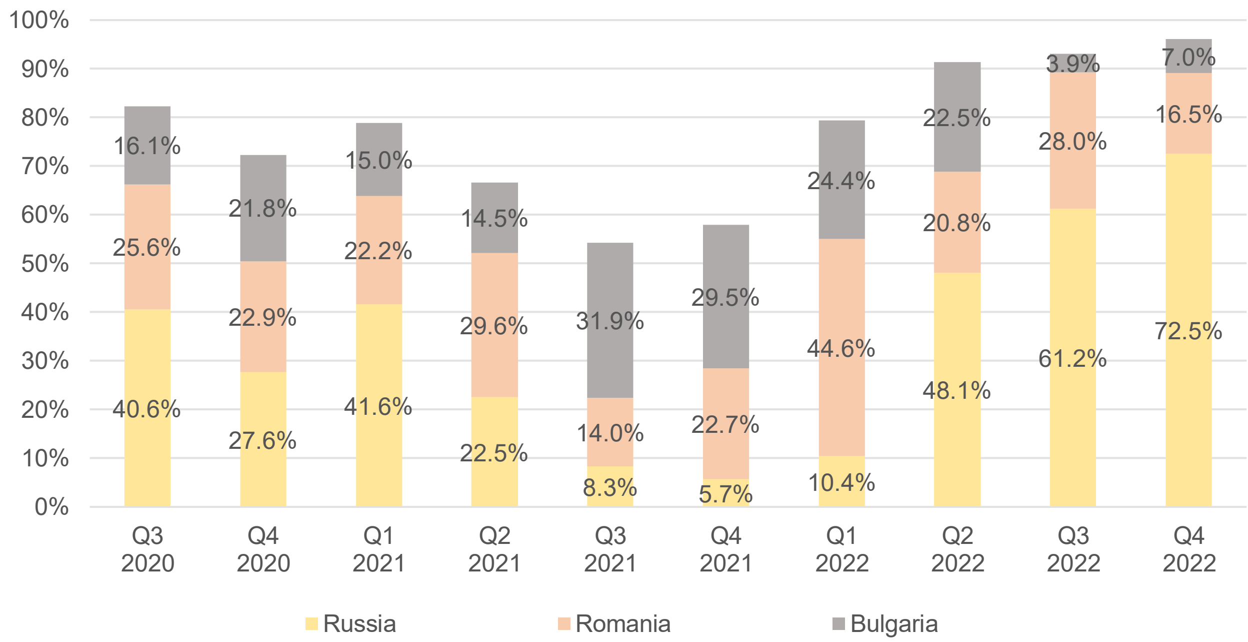
FIGURE 23 | EXPORT OF PETROLEUM AND DIESEL



Source: Geostat

In the third quarter of 2022, Georgian petroleum imports came from fifteen countries. However, 93.1% of total imports were provided by three major import countries: Russia (61.2%), Romania (28%), and Bulgaria (3.9%). In the fourth quarter of the year, Georgia imported from eighteen countries. However, 96% came from Russia (72.5%), Romania (16.5%), and Bulgaria (7%) (Figure 24).

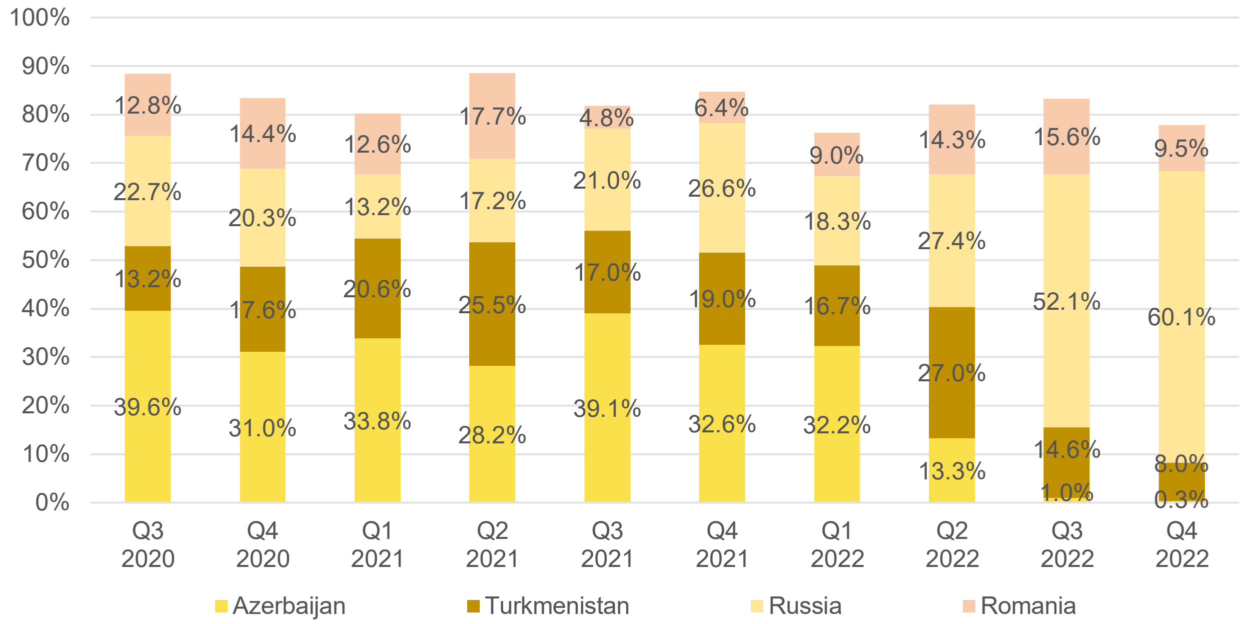
FIGURE 24 | SHARE OF COUNTRIES IN TOTAL PETROLEUM IMPORTS



Source: Geostat

In the third quarter of 2022, Georgian diesel imports came from thirty-nine countries. However, 83.3% of total imports were provided by four major import countries: Russia (52.1%), Romania (15.6%), Turkmenistan (14.6%), and Azerbaijan (1%). In the fourth quarter of the year, Georgia imported from forty countries. However, 77.9% came from Russia (60.1%), Romania (9.5%), Turkmenistan (8%), and Azerbaijan (0.3%) (Figure 25).

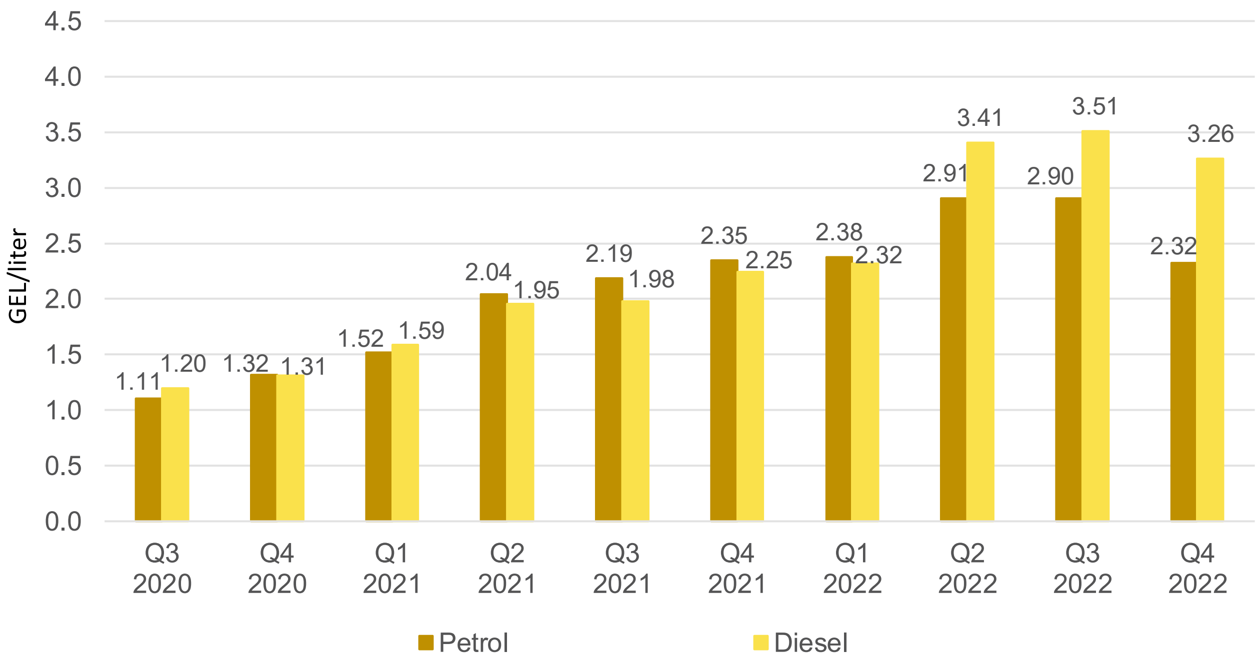
FIGURE 25 | SHARE OF COUNTRIES IN TOTAL DIESEL IMPORTS



Source: Geostat

The weighted average petroleum import prices in USD increased by 45.7% and 10.8% in the third and fourth quarters of 2022, on an annual basis, while the prices in GEL increased by 32.8% in Q3 and decreased by 1.1% in Q4, respectively (from 70 ¢ – 2.19 GEL – and 75 ¢ – 2.35 GEL – per liter in the third and fourth quarters of 2021, respectively, to 102 ¢ – 2.90 GEL – and 83 ¢ – 2.32 GEL – per liter in 2022). The weighted average diesel import prices in USD increased by 95.1% and 62.7% in the third and fourth quarters of 2022, on an annual basis, whereas the prices in GEL increased by 77.1% and 45.4% in the third and fourth quarters (from 63 ¢ – 1.98 GEL – and 72 ¢ – 2.25 GEL – per liter in the third and fourth quarters of 2021, respectively, to 123 ¢ – 3.51 GEL – and 117 ¢ – 3.26 GEL – per liter in 2022) (Figure 26).

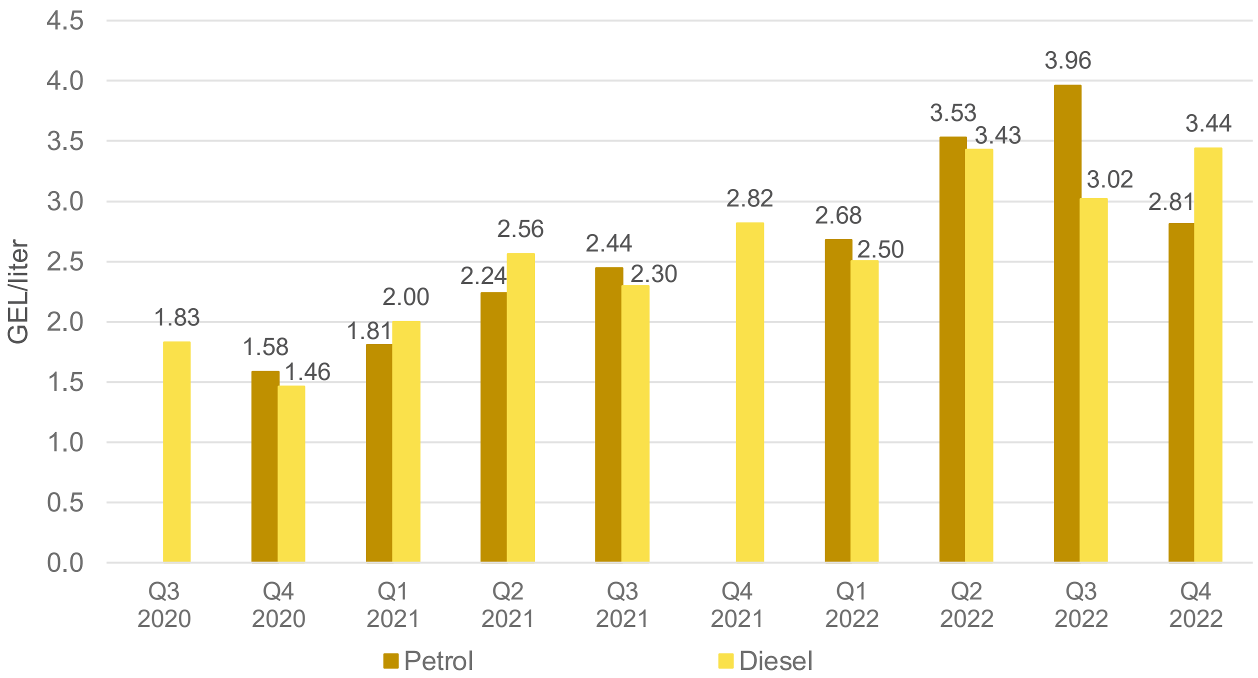
FIGURE 26 | WEIGHTED AVERAGE IMPORT PRICE OF PETROLEUM AND DIESEL



Source: Geostat

Considering petroleum export prices, the weighted average price in USD increased by 76.7% in the third quarter of 2022, on an annual basis, while the prices in GEL increased by 62% (from 78 ¢ – 2.44 GEL per liter in the third quarter of 2021, to 137 ¢ – 3.96 GEL per liter in 2022). In the fourth quarter of 2021 there was no export, so the dinamics of the prices in Q4 can not be assessed (in Q4 of 2022 prices were 101 ¢ or 2.81 GEL). The weighted average diesel export price in USD increased by 44.6% and 37.4% in the third and fourth quarter of 2022, on an annual basis, while the prices in GEL increased by 31.3% and by 22%, respectively (from 74 ¢ – 2.30 GEL – and 90 ¢ – 2.82 GEL – per liter in the third and fourth quarters of 2021, to 106 ¢ – 3.02 GEL – and 124 ¢ – 3.44 GEL – per liter in 2022) (Figure 27).

FIGURE 27 | WEIGHTED AVERAGE EXPORT PRICE OF PETROLEUM AND DIESEL



Source: Geostat