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## Natural Gas Crisis: Turkey's Wake-up Call

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The prospect of war in Ukraine has intensified the energy crisis in Europe and around the world. The price of Brent crude touched USD 94 per barrel, a seven year high, before falling to around USD 92 due to positive news regarding the Iran nuclear deal.<sup>1</sup> Goldman Sachs expects the figure to rise above USD 100 this year, projecting an upwards trend during 2023 as well.<sup>2</sup>

Though oil prices are traditionally the go-to metric when dealing with energy crises, natural gas has also attracted significant attention during the current crisis. This is especially true in Europe, where the bloc finds itself in a geopolitical conflict with Russia which supplies around 35% of its natural gas.<sup>3</sup> Wholesale natural gas prices in Europe had already increased by more than 400% over the course of 2021. Although the prices fell in December due to LNG inflows, the current crisis in Ukraine not only lead to a new price increase but also brought about questions over supply security. The risk of Russia disrupting the flow of natural gas to Europe, albeit very small, exists nevertheless. European officials have been engaging with other potential suppliers such as Azerbaijan, Qatar and the US as a precaution for the worst-case scenario.<sup>4</sup>

Natural gas prices have been thought to be correlated closely with oil prices. Indeed, all fossil-fuel commodities are experiencing prices surges at the moment. Moreover, disruptions in natural gas markets have usually been localized phenomena due to the pipeline-driven, regionalized markets. Are there, then, generalizations that can be drawn from the current natural gas outlook in Europe? Are there any lessons for Turkey here?

Though gas demand (in addition to demand in other energy sources) normally increases seasonally in response to heating and cooling demand, this winter has revealed how a 'near-perfect storm' where the simultaneous impact of multiple negative factors can strain energy systems in Europe and Turkey. Some of these, such as the surge in industrial energy demand as part of the post-covid recovery, can be thought of as transitory conditions. However, there are also signs that the volatility in energy markets will be a feature of the green energy transition.<sup>5</sup>

Aside from its industrial and heating uses, natural gas is projected to occupy a greater role in power generation during the transition. In the period where coal is phased out but

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- 2 Business, Matt Egan, CNN. 'Oil Prices Will Surge to \$100 This Year, Goldman Sachs Warns'. CNN. Accessed 8 February 2022. <https://www.cnn.com/2022/01/18/energy/oil-prices/index.html>.
- 3 'Factbox: What Are Europe's Options in Case of Russian Gas Disruption? | Reuters'. Accessed 8 February 2022. <https://www.reuters.com/business/energy/what-are-europes-options-case-russian-gas-disruption-2022-01-27/>.
- 4 'EU Seeks to Curb Gas Costs If Ukraine Crisis Hits Energy Supplies | Financial Times'. Accessed 8 February 2022. <https://www.ft.com/content/907c85e0-7cbe-4eea-a725-db601895a84e>.
- 5 Bordoff, Jason, and Meghan L. O'Sullivan. 'Green Upheaval', 24 January 2022. <https://www.foreignaffairs.com/articles/world/2021-11-30/geopolitics-energy-green-upheaval>.

renewables are not yet deployed in their full capacity, natural gas will be one way to compensate for when generation from cleaner sources are interrupted. This is due to natural gas emitting half the amount of CO<sub>2</sub> compared to coal, and the existence of carbon capture technologies suitable for gas-powered plants.<sup>6</sup> The trend is somewhat visible in the EU; between 2000-2007, net increase in power capacity was the greatest for natural gas, followed by wind, whereas coal, oil and nuclear recorded net decreases.<sup>7</sup> Moreover, since 2007, the share of coal and oil continued to decline in EU gross available energy, accompanied by an increase in renewables. Meanwhile, the share of natural gas remained more or less constant.<sup>8</sup> The EU is currently debating on categorizing investments in natural gas as green investments.<sup>9</sup> A similar trend is present in Turkey. The country has recently declared its net-zero target. Coal generation dropped for three consecutive years<sup>10</sup>, and the government included no new coal capacity expansion in its 2022 presidential program.<sup>11</sup> Non-hydro renewables have received significant investment in recent years, yet hydropower still remains the most prominent renewable source for the country. Interestingly, there is a trend where whenever droughts cause a drop in hydropower generation, the loss is substituted by an increase in natural gas imports used for electricity generation.<sup>12</sup>

In 2021, Turkey's natural gas consumption is estimated to have reached to an all-time high of 60 bcm<sup>13</sup>, an increase of around 43.5% compared to ten years ago.<sup>14</sup> Like the European case, Turkey faced extraordinary conditions at the end of January 2022 where the disruption of supplies from

Iran lead to the throttling (and temporary halt) of supply to industrial users and power plants.<sup>15</sup> High spot LNG prices, an extraordinary cold spell, and the drought that left Turkey's hydroelectric dam reservoirs undersupplied had already intensified the tight energy market, which, after this incident faced supply shortages.<sup>16</sup> Such vulnerabilities were identified in our previous blog post from October 2021, and the theorized shock in gas and electricity prices have taken place<sup>17</sup>, prompting reactions by businesses and the public.<sup>18</sup>

Turkey's energy demand will continue to increase. Given its energy transition ambitions, it may soon find itself facing greater vulnerabilities like the European countries do today. In light of this, the vulnerabilities in Turkey's natural gas ecosystem should be identified and overcome. There is no guarantee that the adverse circumstances which shaped the January 2022 shortage will not repeat. Volatile fossil fuel prices may be here to stay, and until nuclear and non-hydro renewables are fully implemented, there may be times where drought and supplier-induced problems occur simultaneously. The recent shortage should be treated as a wake-up call in this respect.

Some straightforward measures to de-risk Turkey's natural gas supply security include taking advantage of newly discovered domestic sources, and further diversifying suppliers which has in fact taken place in recent years to some extent.<sup>19</sup> An important consideration here should be to evaluate the dependability of suppliers. The disruption of Iranian supply was not unprecedented; indeed, Turkey and Iran had to resort to the International Court of Arbitration for

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- 6 Neumann, Anne, Jae Edmonds, David Emberson, Steven A Gabriel, Franziska Holz, DIW Berlin, Per Ivar Karstad, et al. 'THE ROLE OF NATURAL GAS IN EUROPE TOWARDS 2050', n.d., 48.
- 7 'The EU Energy Mix'. Accessed 8 February 2022. <https://www.wind-energy-the-facts.org/the-eu-energy-mix-7.html>.
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- 9 'E.U. Plans to Include Natural Gas and Nuclear in Green Energy Taxonomy - The Washington Post'. Accessed 8 February 2022. <https://www.washingtonpost.com/world/2022/02/02/green-energy-gas-nuclear-taxonomy/>.
- 10 Ember. 'Turkey Electricity Review 2022'. Accessed 8 February 2022. <https://ember-climate.org/project/turkey-electricity-review-2022/>.
- 11 '2022 YILI CUMHURBASKANLIGI YILLIK PROGRAMI\_ENERJİ SEKTÖRÜ ÖZETİ.Pdf'. Elder, 2022. [https://www.elder.org.tr/Content/eder/gi/2022%20YILI%20CUMHURBASKANLIGI%20YILLIK%20PROGRAMI\\_ENERJİ%20SEKTÖRÜ%20ÖZETİ.pdf](https://www.elder.org.tr/Content/eder/gi/2022%20YILI%20CUMHURBASKANLIGI%20YILLIK%20PROGRAMI_ENERJİ%20SEKTÖRÜ%20ÖZETİ.pdf).
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- 13 'Türkiye Kaynak Çeşitlendirmesiyle Doğal Gaz Tedarikinde İstikrarı Hedefliyor'. Accessed 8 February 2022. <https://www.aa.com.tr/tr/ekonomi/turkiye-kaynak-cesitlendirmesiyle-dogal-gaz-tedarikinde-istikrari-hedefliyor/2473724>.
- 14 Statista. 'Turkey: Natural Gas Consumption 2020'. Accessed 8 February 2022. <https://www.statista.com/statistics/703684/natural-gas-consumption-turkey/>.
- 15 Gazetesi, Dünya. 'Doğal gaz krizi büyüyor: Sanayiciye 3 günlük elektrik şoku'. Text. <https://www.dunya.com/ekonomi/dogal-gaz-krizi-buyuy-or-sanayiciye-3-gunluk-elektrik-soku-haberi-646628>. Dünya Gazetesi, 22 January 2022. <https://www.dunya.com/ekonomi/dogal-gaz-krizi-buyuy-or-sanayiciye-3-gunluk-elektrik-soku-haberi-646628>.
- 16 BBC News Türkçe. 'Sanayide doğalgaz kesintisi üretimi nasıl etkiliyor?' Accessed 8 February 2022. <https://www.bbc.com/turkce/haberler-turkiye-60124891>.
- 17 Edam. 'A Cold Winter: Turkey and the Global Natural Gas Shortage', 6 October 2021. <https://edam.org.tr/en/a-cold-winter/>.
- 18 English, Duvar. 'Skyrocketing utility bills leave consumers desperate in Turkey'. Text. <https://www.duvarenglish.com/skyrocketing-utility-bills-leave-consumers-desperate-in-turkey-news-59418>. Duvar English, 4 November 2021. <https://www.duvarenglish.com/skyrocketing-utility-bills-leave-consumers-desperate-in-turkey-news-59418>.
- 19 'Turkey 2021 - Energy Policy Review'. IEA, 2021.

similar disputes before.<sup>20</sup> Another partner, Nigeria, is facing rising geopolitical risks, and the waters around the country has become extremely dangerous.<sup>21</sup> In fact, a Turkish container ship was attacked by pirates 180 miles off the coast of Lagos, a major Nigerian port.<sup>22</sup>

Turkey also finds itself in opposing camps with Russia, which still occupies the largest share in Turkish gas imports, in the Ukrainian confrontation. How this conflict will turn out, and more specifically how it will impact the energy ties between Russia, European countries and Turkey will shed light on the configuration of energy geopolitics in the coming period. Disruption of the natural gas supply to Europe is likely in case of armed conflict. Russia may halt the flow going through pipelines that cross Ukraine, and the regulatory approval of the Nord Stream 2 pipeline by German authorities is being used by NATO as potential leverage over Russia. However, further interruptions are considered unlikely due to mutually destructive economic consequences.<sup>23</sup> It is also uncertain how Turkey would be affected in this case as Russia's Gazprom signed a four-year supply agreement with Turkey in January 2022.<sup>24</sup> It should be taken into account that sanctions on Iran did not prevent Turkey from buying gas from Iran, though it is hard to say what the exact terms of new sanctions would be for Russia if it goes to war.

Experts and institutions such as the IEA also recommend an overhaul of the Turkish grid and energy markets to better optimize them for the increasing demand and transitioning generation preferences. Two common themes in such recommendations are the further liberalization of the gas markets and transparency with respect to operational data.<sup>25</sup>

Additionally, emergency procedures should be established and implemented with transparency in times of crisis.<sup>26</sup>

In short, a revamped and clear gas policy should be developed by the government to address the needs and vulnerabilities that will be central to Turkey's energy transition. Of course, such a policy needs to exist under the framework of an overarching long-term green energy strategy whose goal is to ultimately phase out natural gas too. After all, a myopic policy in this respect would not answer sufficiently to Turkey's green energy ambitions. Official intention is expressed in the Eleventh Development Plan regarding the substitution of imported gas with domestic resources such as gasifiable coal and clean energy.<sup>27</sup> This can be elaborated further to be the basis of the long-term gas phaseout. The most important consideration here is securing lines of funding for the green transition. Germany and China are examples of the results that can be achieved by governments prioritization of renewables.<sup>28</sup> Accordingly, government-led investment is also part of the policy agenda in the US<sup>29</sup> and the EU.<sup>30</sup> The EU's push for creating a system for green investment may be an opportunity for Turkey as the bloc's external financing mechanisms were updated to make emissions reduction a high priority.<sup>31</sup> Turkey is already taking steps align itself with the European Green Deal.<sup>32</sup> If supported by an elaborate energy strategy backed up by political will, Turkey may plot a path through its energy transition, overcome medium-term volatility and reach net-zero status.

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- 22 Deutsche Welle (www.dw.com). 'Nijerya'da Türk konteyner gemisine korsan saldırısı | DW | 24.01.2021'. DW.COM. Accessed 8 February 2022. <https://www.dw.com/tr/nijeryada-t%C3%BCrk-konteyner-gemisine-korsan-sald%C4%B1r%C4%B1s%C4%B1/a-56328247>.
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