

## **Dutch TTF Overview, Outlook, and Trade**

### **Background**

The Dutch Title Transfer Facility (TTF) is a virtual trading point attached to the Dutch Gas Network, which represents all entry and exit points in the network and where titles to gas from within the network can be transferred virtually between buyers and sellers at these points. TTF's location between large consumer nations and positive Dutch govt. legislation has led TTF traded volumes to exceed 14x the Dutch gas use and become the most liquid exchange in the region. (So, it's barely dependent on domestic Dutch supply or demand.) As this occurred, it emerged as a proxy for (particularly, continental) European gas prices and thus the market trades it in line with that view, for both hedging and speculation; it also often acts as a price reference for other EU hubs/VTPs and long-term contracts.

### **Recent price context: rise on supply cuts & storage-building, decline on over-bookings & warm weather**

As it became increasingly clear that Russia would completely cut off gas flows through some major pipelines (NS, Yamal-Europe) - though Turkstream (via TR) and Sudzha (via UA) remain operating - the EC recommended that EU countries rapidly build storages through any means necessary ahead of the Winter to prevent shortage. The majority of these bookings happened through LNG, which is basically costlier than pipeline gas due to tanker transportation and regasification costs (LNG = liquified natural gas; with non-pipeline transport of gas, it has to be liquified and put on tankers, then regassified at processing facilities in order to be unloaded, sent through pipelines, and then used). Thus, prices for TTF rose rapidly under this shift in physical costs and due to large storage-building demand all coming online at once. This was done under the assumption that Winter temperatures would fall in line with the median. However, warmer weather across Europe has delayed the start of the heating season by over a month (little was used in October), so storages were left full and unable to accommodate gas coming in towards the end of October, worsened by LNG processing (regasification) facilities reaching capacity. This has led to the sharp drop in gas prices we've seen recently.

### **Spot/short-end (Winter 22/23) dynamics:**

#### **(1) Recovery from oversupply**

Demand is likely to remain low within the next couple weeks before gradually picking up as storages draw down with colder weather as the heating season begins. Forward-looking reports on colder weather would support FM prices, but by now the market has already priced in the fact that weather should normalise (and, though I think it will be colder than expected, this isn't something to trade on in of itself). Further out, I don't think that demand this Winter will be as intense as it was when countries were building up storages, additionally supported to a minor degree by industrial shut-downs that should intensify as the Winter progresses.

On the supply side, the story about Russian cuts has waned, though one can expect Gazprom's legal disputes regarding the Sudzha to be a developing story. Turkstream seems the safest pipeline, which has been used to re-route flows into Europe; undisrupted gas flows to Turkey have propped up foreign investment and industrial production, but the Turkish government's pressure on Russia may continue to deteriorate relations (see Erdogan using Turkish ships to force Putin back into the grain deal) and provide a risk to these flows. If Russia can reroute enough flows to China or others, then this becomes a distinct possibility, though it's one that Putin would probably like to delay until later next year to retain optionality.

#### **(2) EC regulations/activity**

The EC has discussed measures such as a dynamic, regionalised price cap on TTF/gas used for electricity production in order to suppress upward price spikes through this Winter (EU electricity prices are often

determined by the highest-cost method, so if gas for electricity is very expensive, then electricity is also very expensive; and there is also the issue of leakages across markets that can threaten pricing stability). Many countries agree (12 out of the 15 conventionally required for something like this), but, in particular, Germany has opposed this measure and some have said that consensus will be required. The EC has also moved towards joint purchasing of supplies, which increases purchasing power and keeps prices lower. Some form of these measures will definitely pass before year-end, but, in particular, the price cap and related measures will be higher in level than current prices in order to avert growing demand; prices should still fundamentally reflect any severe imbalances.

### **(3) Extent of demand-destruction/reduction**

Gas demand in Europe comes from  $\frac{1}{4}$  power generation,  $\frac{1}{4}$  industry, and  $\frac{1}{2}$  residential and services (predominantly heating). Optimism about the extent of demand reduction (15% required according to the EC) is over-exaggerated, since the heating season hasn't really started yet; but the current EU plan includes provisions for mandatory emergency reductions this winter, which can be triggered to bridge the gap, even if highly unpopular. Given this sort of provision, paired with the measures in (2), it seems likely that demand will be contained enough to prevent the type of prices we've seen earlier this year from materialising this Winter. This doesn't imply that it will be easy to reach the 15% target, and the latter half of Winter prices should be higher.

## **Middle-curve (Summer 23) dynamics:**

### **(1) Restocking ahead of Winter 23/24**

EU officials have admitted that the solid majority of gas in storage for this Winter is Russian gas (after all, flows were only cut towards the end of the storage-building phase) and LNG provided a pathway for covering up for the remaining portion. We already see the bottlenecks in this process with approx. 60 LNG tankers waiting offshore to be regassified; while this is happening at a time when storages are at 94%, it's not an issue, but if this happens when they are 15% next year, the market is due to react viciously. Only two facilities are due to come online next year (small ones in Greece and Cyprus), with the only real alternative being floating LNG facilities (tankers converted to be able to regasify LNG) and few will be online by Summer 23 (Germany commissioned 2 by Winter 22/23 and 5 by year-end 23). Also, there is the risk of further Russian cuts during this time via Sudzha/Turkstream (as discussed earlier), which Putin is likely delaying for greater effect next Summer. Given that the post-Russian-cut storage-building phase this year showed the most intense price rises, I expect this to be similar next year, but to start much earlier - barring any EC price-caps or other interventions (the EC would wait to announce extending them, if they end up choosing to do that).

### **(2) Winter demand expectations**

I think it's worth noting that demand for Winter 23/24 should be markedly lower than Winter 22/23, since much manufacturing, industrial production, and gas-intensive sector output should fall significantly this Winter and through next year. Given the at least medium-term (if not long-term) outlook on systematically much higher gas and electricity prices in Europe, many of these sectors become no longer viable to maintain in Europe (like German industry) and companies will likely permanently close facilities and seek to offshore them to Turkey and others. Economic risk should be more severe here than expected, which hurts gas demand, though likely not enough to override supply risks.

### **(3) Development of Ukraine conflict/EU sanctions**

Given the dynamics of the conflict, at this point it's unlikely that it will come to an end next year. The more important downside risk to prices here is the possibility of government changes in Europe due to cost-of-living

issues, which support some reconciliation with Russia, either through active public pressure through demonstrations or through the election of new governments. In Germany, for example, both the further left and right are calling out this policy and other European governments have already been reshuffled (Bulgaria, Estonia, Italy, UK, etc.). However, I find this unlikely to become a major market concern in the near-term.

### **Far-curve (Winter 23/24) dynamics:**

If restocking presents a large issue during Summer 23, we can expect prices to be even higher in Winter 23/24 because storages won't be full, unlike this Winter, and bottlenecks in LNG processing and non-Russian pipeline flows will become upward pressures that likely overshadow contractionary pressures on demand (even reducing industry and power generation by  $\frac{1}{4}$  - a large amount - only translates into about 12% reduction overall, which is less than even this Winter's targets, and heating can only be reduced so much naturally due to an economic contraction). Structural reforms to gas markets that the EC may adopt in the interim (discussed in short-end section) may seek to prevent prices from rising too much, but absent much stricter measures that will greatly reduce the functioning and liquidity of liberalised gas markets, demand-destruction will have to play an increasingly important role. I do not believe that the market will price in these stricter measures anytime soon, so it should be safe to trade this.

### **Outlook**

Spot & Winter 22/23 contracts: Near-full storages in Europe mean that demand won't be as intense this Winter as it was during the storage-building phase and EC and regulatory actions will likely keep a somewhat-effective cap on prices; this news should mean that prices, especially those before year-end, are relatively tame compared to what we've seen recently; €100-130 before year-end, €150 after year-end

Summer 23 contracts: As the beginning of the re-stocking season, there is little positive news to the supply-demand balance despite my view of a larger-than-expected industrial/manufacturing output reduction and a larger-than-expected economic contraction; across this Winter, I expect prices to rise significantly from current pricing, with the risk being political changes; ~€250

Winter 23/24 contracts: The struggle to reach median stock levels over Summer 23 should place additional pressure on prices the following Winter, with the risk being severe regulations from the EC clamping down on the market (which shouldn't be an issue until much closer to delivery); €250-300

### **Trade**

Assuming these outlooks hold, the main issue is whether these further-out views will begin to get priced in during our relevant investment horizon this semester, or whether this is more of a thesis for next semester. I think both are true, and the way to express that this semester would be to pair a long of Summer 23 or Winter 23/24 contracts (depending on which dynamics we're more confident about and which risks we're more wary of) with a short of the December 22 contract. Next semester, I would be more confident about an outright long of first Summer 23 contracts, then Winter 23/24 contracts.