RWE

Nord Stream 1 yearly maintenance: what's ahead?

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RWEST Commodity Solutions

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Contents provided by ***RWE Trading Services GmbH****:*

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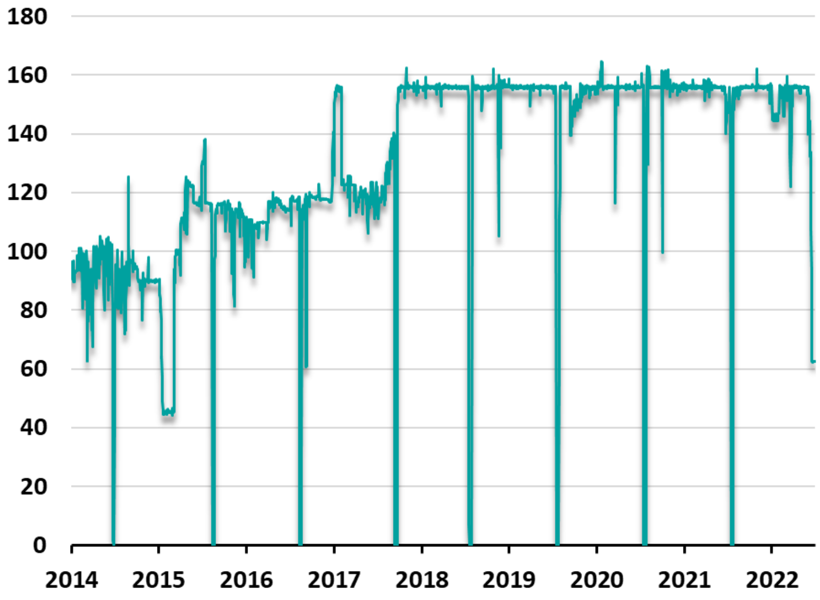
We as RWETS put together 4 potential scenarios EU might soon have to face

Russia to Germany gas flows through the Nord Stream 1 pipeline: daily figures in mcm/day



Last update: 07.07.2022
Source: OPAL, NEL Gastransport

Setting the scene

- *As planned and communicated since months, **maintenance works** will be carried out on the Russian Nord Stream 1 pipeline between 11 and 21 July. During such period, no gas will be delivered, as always the case at this point of the year since 2014.*
- *Molecules currently shipped through the route account for around 60% of total Russian exports to EU, now at around 100 mcm/d after Gazprom called **"force majeure"** on the pipe at the middle of June 2022. Should NS1 fail to come online on time or remain fully unavailable through the rest of current year, at stake for our hubs are some 10 bcm of supply over the next 5 months.*
- *We as RWETS developed four potential streamlined scenarios which try to anticipate impacts on EU gas markets and their price reaction. How traders would behave during the maintenance window remains of course a function of very near-term developments (weather and LNG imports above all) and of the news flow, yet reasons to turn dramatically bearish might not be there yet according to us.*
- *To set briefly the stage without boring you with too many figures and data, one of the most relevant assumptions we made is that gas flows through **Ukraine** stay unchanged at 35-40 mcm/d, a sort of ace up Putin's sleeve to be used later on in winter when it could hurt the most.*
- ***Enjoy reading and let us have your valuable feedback!***

Scenario 1: De-escalation – NS1 is back online on time and at full capacity

Clearly the most bearish near-term price development for EU gas

Main points of the scenario

- **Likelihood:** 15%
- **NS1 capacity:** back to 155-165 mcm/day from 21.07 (06:00 CET)
- **Warning level in the German gas market:** 2 → 1
- **EU storage level @ 01.11.2022:** 90-95%
- **EU storage level @ 01.04.2023:** 30-35%
- **EEX spot gas market:** ON
- **EEX fwd gas market:** ON
- **Impact on EU gas prices:** extremely bearish from current levels
- **Expected range for TTF Day Ahead:** back to 65-90 €/MWh*
- **Expected range for TTF Cal Ahead:** back to 75-85 €/MWh**
- **Outlook for Win21/22:** a weather play for the very most
- **Outlook for Summer 23:** price normalization could gradually restart

Our storyline in few bullet points

- *That's by far the scenario with the largest bearish price impact yet with the lowest chance of materializing. This development implies indeed that "technical" problems curbing NS1 capacity would be solved very quickly (in the next 2 weeks!), still a **diplomatic and geopolitical challenge** at this stage. If we focus on the next months, chances could of course improve significantly, yet for the time being such a twist remains a very aggressive speculative bet to us.*
- *Price target for the TTF Cal Ahead product could anyway be the Ichimoku cloud at 75-85 €/MWh: both a level the market was comfortable at before Gazprom's "force majeure" announcement and an environment which would not completely lower traders' guard. Same logic applies to the TTF spot contract which would struggle to keep trading well above the 90 €/MWh mark.*
- *It is reasonable to assume that the "new but old" price environment should be targeted pretty swiftly by the market as soon as rumors/leaks hit the headlines.*
- *This fundamental twist would, of course, significantly improve gas market's fundamental situation in the EU, trigger a sharp reduction in the risk premium along the entire forward curve but even mean a remarkable weakening in Putin's short-term "bargaining power".*

** 2022: Jan-Feb + May-Jun comfort zones*
*** Q2-22 comfort zone*

Scenario 2: Status Quo – NS1 keeps running at current reduced capacity

No big twist in the plot and no reason for traders to turn much less conservative

Main points of the scenario

- **Likelihood:** 40%
- **NS1 capacity:** back to 65-67 mcm/day from 21.07 (06:00 CET)
- **Warning level in the German gas market:** 2
- **EU storage level @ 01.11.2022:** ~ 85%
- **EU storage level @ 01.04.2023:** 20-25%
- **EEX spot gas market:** ON
- **EEX fwd gas market:** ON
- **Impact on EU gas prices:** very bearish from current levels
- **Expected range for TTF Day Ahead:** 123-164 €/MWh*
- **Expected range for TTF Cal Ahead:** 100-121 €/MWh**
- **Outlook for Win21/22:** potentially tight, skewed to the upside, spiky
- **Outlook for Summer 23:** a repetition of the scenario from Summer 2022 shouldn't be ruled out at all

Our storyline in few bullet points

- *This is our base scenario, with Moscow not delivering the deathblow to the EU yet, NS1 capacity still cut by 60% through the second half of current year and market nervousness staying very high.*
- *While Germany might try to negotiate with Canada in order to "free" the NS1 turbine stuck on the other side of the Atlantic ocean, EU gas market can't of course fully release the brakes yet, no matter if in the end picture didn't worsen any further.*
- *After NS1 maintenance works, gas storages resume being filled at full speed: reaching the target of 80% in the EU (90% in Germany) remains challenging but feasible, only thanks to the strong financial support from the governments. Provided nothing else goes wrong of course.*
- *This offers a lot of resilience and elasticity to the entire gas forward curve, especially to the central months of the year. TTF Spot would keep swinging in the 123-164 €/MWh wide range, TTF Cal Ahead should still prove comfortable in 100-121 €/MWh price corridor. The second alert level is very likely to remain in place in Germany.*
- *Nevertheless, chance of spiky price episodes during next winter would remain very high with none of the main bullish risks (greater dependence on the global LNG market and threat of gas stop performed by Russia) being off the table.*

** Year-to-Date 23.6% and 38.2% Fibonacci retracement lines respectively*
*** Technical support level and 76,4% Fibonacci retracement line respectively*

Scenario 3: Escalation– NS1 doesn't come back online at all

A new politically-motivated move by Moscow triggers a price Armageddon

Main points of the scenario

- **Likelihood:** 20%
- **NS1 capacity:** down to 0 from 11.07 (06:00 CET)
- **Warning level in the German gas market:** 2 → 3
- **EU storage level @ 01.11.2022:** ~75% (below 5-yr AVG of 89%)
- **EU storage level @ 01.04.2023:** 0-5%
- **EEX spot gas market:** ON ***(according to the Exchange)***
- **EEX fwd gas market:** ON, but who would offer at this stage?
- **Impact on EU gas prices:** extremely bullish from current levels
- **Expected range for TTF Day Ahead:** → 339 €/MWh (all-time high)
- **Expected range for TTF Cal Ahead:** → 199 €/MWh*
- **Outlook for Win21/22:** very dangerous uncharted territory
- **Outlook for Summer 23:** way above Summer 2022 unless recession kicks in and EU economy swiftly collapses

Our storyline in few bullet points

- *The most bullish of the four scenarios as chance to see NS1 online again anytime soon would be assessed as negligible by the market. By that point it would be crystal clear that Moscow aims at blackmailing the EU before winter, - why not - in order to negotiate the lifting or easing of West sanctions.*
- *As our hubs would have to do without Russian molecules, gas prices skyrocket to give the global LNG market the right incentive to release any potential LNG molecules. Not just any spot volumes left but, if feasible, even those bounded to Asian long-term contracts. Bullish effects on global coal prices would have to be expected too, which of course would not reduce the pressure on EU power at all.*
- *Shortly after the announcement, there is nothing wrong in assuming new all-time highs for both TTF Spot and Cal Ahead contracts: with few words, no more room for rationality. Intraday volatility would increase dramatically, risk of a looming recession would add an additional layer of uncertainty. To make it through the winter without Russian molecules, **according to the IEA** 30% of the total gas demand in the EU would have to be cut.*
- *The third alert level in the German gas market should also be declared very quickly, gas rationing start and the already rather poor market liquidity dramatically drop.*

** Year-to-Date 150% Fibonacci projection*

Scenario 4: Delayed restart – Maintenance lasts more than expected

Pipeline not back online on time: Moscow to blame West sanctions again?

Main points of the scenario

- **Likelihood:** 25%
- **NS1 capacity:** back to 65-67 mcm/d, yet 2-3 weeks later than planned?
- **Warning level in the German gas market:** 2
- **EU storage level @ 01.11.2022:** 80-85%
- **EU storage level @ 01.04.2023:** 15-20%
- **EEX spot gas market:** ON (liquidity likely to drop further)
- **EEX fwd gas market:** ON (liquidity likely to drop further)
- **Impact on EU gas prices:** very bullish from current levels
- **Expected range for TTF Day Ahead:** 231-272 €/MWh*
- **Expected range for TTF Cal Ahead:** 146-171 €/MWh**
- **Outlook for Win21/22:** very tight and spiky environment
- **Outlook for Summer 23:** filling up EU storages would be a big challenge amid huge demand and still uncertain supply

Our storyline in few bullet points

- *As plausible scenario, maintenance works would continue for 2-3 more weeks, afterwards the capacity of the pipeline would remain cut by 60% as right now. Reason behind this delayed restart could be alleged difficulties/constraints in getting the required components on time or the need for unexpected fixing emerging from the inspection process. German government might not necessarily take any additional steps and could simply monitor the situation for a while.*
- *On the one hand, the market would immediately have to price in the probability of lower gas storage levels at the start of November 2022: bullish, no doubts about it, although the sky would not be the limit, just like in Scenario 3.*
- *On the other hand, market participants would continue to ask themselves the same question which currently finds no firm answer: will Russia really stick to any new potential restart plan? All in all, room for great uncertainty and potential for both further escalation and swift - although not brutal - correction to the downside.*
- *During this phase, strong is the risk for liquidity along the forward gas curves to worsen further, an event which would bring additional volatility with it, just like most recent developments confirmed.*

** Year-to-Date 61.8% and 76.4% Fibonacci retracement lines respectively*
*** All-time high for the product and Year-to-Date 123.6% Fibonacci retracement line respectively*

Let's bring everything together: RWETS different price targets at a glance (1/2)

TTF Day Ahead gas contract: daily prices in €/MWh

RWE Last update: 08.07.2022
Source: RWETS

Let's bring everything together: RWETS different price targets at a glance (2/2)

TTF Cal Ahead gas contract: daily prices in €/MWh

Last update: 08.07.2022
Source: RWETS

Let's bring everything together: RWETS different scenarios at a glance

Caution ahead! Fuller EU storages YoY may not keep price spikes at bay

	RWETS Scenarios			Fundamental impact				Price targets (€/MWh)		Will there still be a gas market?		RWETS expectations	
#	**Name**	**Short description**	**Likelihood**	**Nord Stream 1 capacity from 21 July**	**Fullness of EU gas storages by end of October 2022**	**Fullness of EU gas storages by start of April 2023**	**Alarm level in the German gas market**	**TTF Spot**	**TTF Cal+1**	**EEX Spot**	**EEX FWD**	**Winter 2022/23**	**Summer 2023**
1	*De-escalation*	NS1 back online on time and at full capacity	15%	***~155-165 mcm/day***	*90-95%*	*30-35%*	2 --> 1	65-90	75-85	Yes	Yes	Weather play for the very most	Price normalization could gradually restart
2	*Status Quo*	One Siemens turbine remains stuck in Canada, another one offline in Russia	40%	***65-67 mcm/day***	*~85%*	*20-25%*	2	123-164	100-121	Yes	Yes	Potential for episodes of tightness as well as for price spikes would still be there	Repetition of the scenario from Summer 2022 shouldn't be ruled out at all
3	*Escalation*	Flows through NS1 are completely stopped	20%	***0 mcm/day***	*~75%*	*0-5%*	2 --> 3	--> 339	--> 199	Yes	Who would offer…?!?	Hazardous uncharted territory	Summer 2023 way above Summer 2022 unless recession kicks in and EU economy swiftly collapses
4	*Delayed restart*	Maintenance works are prolonged	25%	***65-67 mcm/day from the middle of August***	*80-85%*	*15-20%*	2	231-272	146-171	Yes, but with increasingly falling liquidity		Very bullish and exposed to jitters	Filling up EU storage would be a big challenge: huge demand, still uncertain supply

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