ICRA

FERTILISERS

Ammonia prices expected to remain elevated

SEPTEMBER 2022

Highlights

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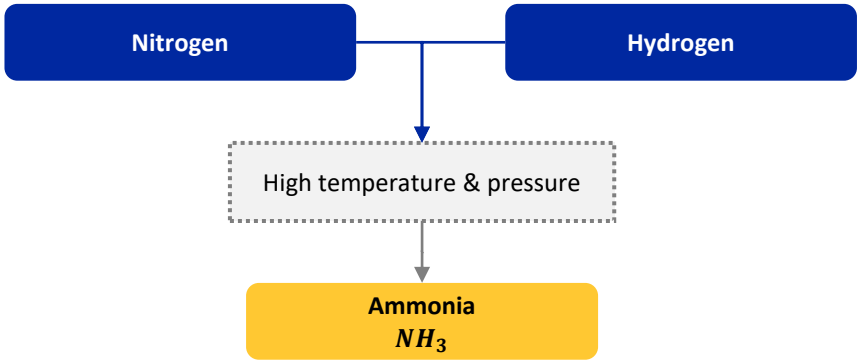
ICRA expects production-cut led price rise in ammonia, as winter approaches in Europe, if the Russian supply isn't restored to optimum levels. High gas prices are expected to keep prices of ammonia, urea and other nitrogenous fertilisers elevated, although some moderation from peak levels have been witnessed. While this will not have any major impact on urea producers, the profitability of the phosphatic players might remain contingent on NBS rate revision.

- Ammonia, a source of replenishing nitrogen in the soil, has agriculture as a huge demand driver amidst increasing food needs of the growing population.
- The Russia-Ukraine conflict led to the natural gas supply crunch in Europe, resulting in a cut in ammonia production.
- Since the beginning of the conflict Black Sea FOB ammonia price has been non-existent, which earlier was a benchmark price for ammonia.
- Russia has drastically reduced the gas supply to Europe and further cuts are expected, causing a surge in the gas prices.
- Winters are expected to increase energy demand and hence gas prices are expected to further shoot up if the supply remains inhibited which could cause a further dip in ammonia production.
- Current export restrictions in Russia and China are expected to impact global exports of nitrogenous fertilizers by 20-22% collectively.
- India currently imports 20% of its ammonia and ammonium nitrate consumption. High gas prices are expected to keep prices of ammonia, urea and other nitrogenous fertiliser prices elevated

Ammonia Production and Use

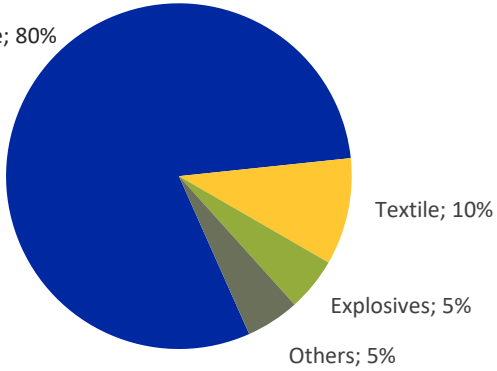
Haber's Process



- German chemist Fritz Haber discovered the process of manufacturing ammonia by reacting nitrogen and hydrogen under high temperature and pressure, in presence of a metal catalyst.
- Ammonia solved the problem of depleting nitrogen levels in the agricultural land. Today around 80% of ammonia is used for fertilisers.
- Natural gas has dual use in this process, as a fuel for heat and as a feedstock. Resultantly 70-90% of the cost is related to natural gas.
- As more than 70% of global ammonia production is through natural gas, hence natural gas and ammonia prices tend to show positive correlation.

Global Use Break-up

Includes direct application and various nitrogen-based fertilizer like urea, ammonium nitrate etc.



Ammonia Production by Raw Material

Raw material	MTPY (Mn)	% of total
Natural gas	170	72%
Coal	52	22%
Green ammonia	4.7	2%
Other (oil, naphtha)	9.4	4%
Total	~236	100%

Source: Industry, ICRA Research

Ukraine-Russia Conflict Impact

EU Ammonia and Gas scenario

Key Data Points	
Ammonia production capacity	18-20 MTPY
Average age of plants	~40 years
Supplier concentration risk	35-40% gas supplied by Russia
Current gas storage level (EU)	More than 75% full ≈ 2.5-month supply

Ammonia capacity of top producers

Country/Region	MTPA	%
China	71	30%
Russia	21	9%
Europe	19	8%
US	18	7.5%
India	18	7.5%
Total	**147**	**62%**

Source: Industry, ICRA Research

- The geopolitical developments in Europe have exposed its concentrated gas supply chain. The gas is pumped from Russia to Germany through a pipeline (Nord Stream 1) and then from Germany to other countries using a network of other pipelines.
- This concentration risk is even more problematic as lack of adequate LNG import terminals makes it harder to replace Russian pipeline gas
- Gas prices have increased to record levels in EU due to a host of factors such as weak renewable generation, low inventory levels, lower gas flows from Russia etc. Droughts have also forced lower hydropower generation and lower nuclear power generation owing to lack of water for cooling reactors.
- Ammonia manufacturers have been forced to cut down on production due to this cost-push inflation. It is estimated that Europe has shut down about half its ammonia capacity and 33% of its nitrogen fertiliser operations.
- Gas prices are only expected to increase with the approaching winters.
- Manufacturers fear complete shutdown if the situation doesn't improve.
- This crisis is expected to lead to higher fertiliser prices
- Europe's dependence on imports for its ammonia needs is expected to increase, keeping the nitrogen market tight.

Price Trend: Ammonia, Urea and Energy

Exhibit: Trend in price of ammonia

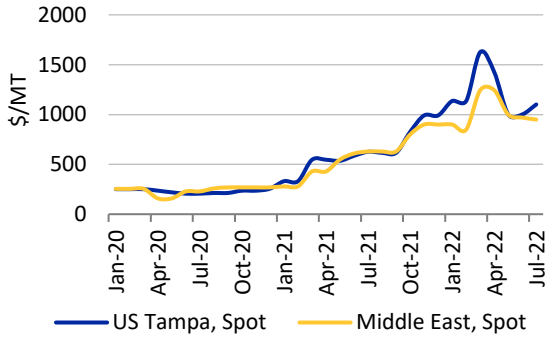


Exhibit: Trend in international urea prices

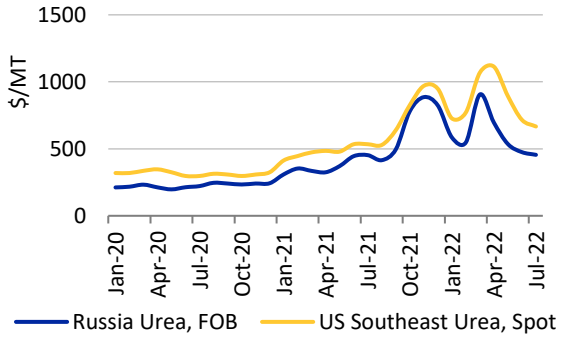
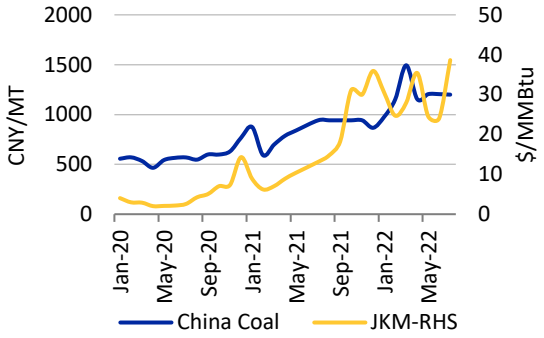


Exhibit: Trend in global energy prices



Source: DoF, ICRA Research

- Ammonia prices are expected to remain elevated in the near term amid record high natural gas prices in Europe which resulted in higher cost of production and temporary shutdown of few European capacities as gas supply remains highly uncertain.
- India imported a significant quantity of urea in December 2021 and February 2022 with prices moderating sequentially month on month and moderating to around $ 596/MT in February 2022 for Indian imports. Thereafter prices increased again.
- Urea prices peaked in April 2022, however, since then the prices have moderated month-on-month amid lukewarm demand as the key consumer countries had already tied up adequate supplies to meet demand for CY2022 while the global availability of urea has remained comparatively healthy.
- Although urea prices have slipped, the spike in energy prices continues amid geo-political tensions between Ukraine and Russia, which is likely to keep urea prices elevated.
- Rising natural gas prices in Europe have resulted in temporary shutdown of some ammonia and urea capacities which will keep the supplies tight in the global markets.

Indian Fertiliser Sector

Government Policy

Urea: Fixed Retail Prices

In case of urea, price is statutorily fixed at Rs 268 per bag (50 kg) against the cost of production. The balance is provided by the government as subsidy to the fertiliser units.

Phosphatic & Potassic: Fixed Subsidy

Under the NBS Policy, a fixed rate of subsidy (in Rs. per Kg basis) is announced on nutrients. Retail price of P&K fertilisers is largely decontrolled.

Extent of Dependence on Imports

Fertilizer Segment	%
Urea	33%
Phosphates	90%
Potash	100%

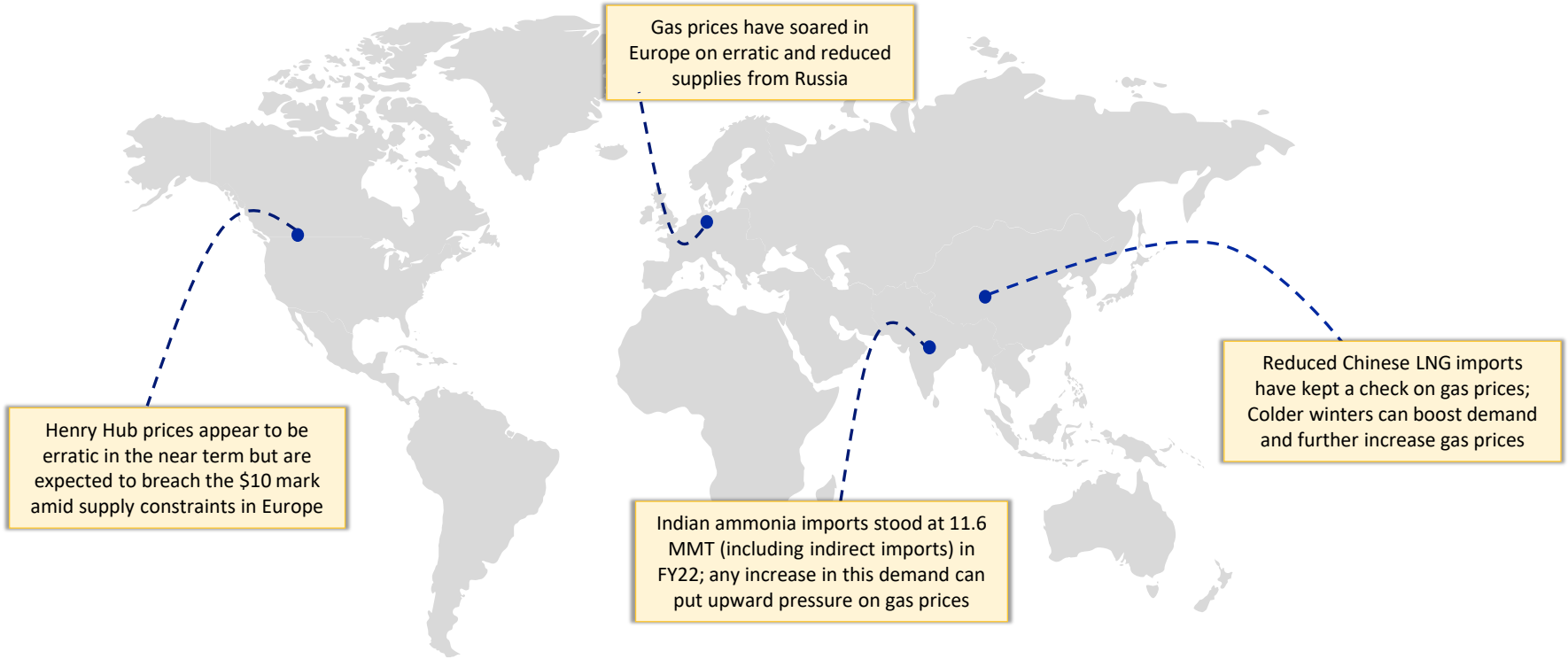
Subsidy Scenario for FY2023

- In April'22 GOI announced subsidy of Rs. 50,103/ MT on DAP, ~50% higher than the last year's rates. The increase in the international prices of Di-ammonium phosphate (DAP) and its raw materials had been primarily absorbed by the Union Government.
- The NBS rates for H1FY2023 stand significantly higher than last year.
- Another increase is expected in the NBS rates to cushion farmers from price rise given elevated prices of the fertilisers and raw material in the global markets. In 2021-22 too, the government had hiked the NBS subsidy steeply given the surge in imported fertiliser prices.

Impact on Indian manufacturers

- In the case of Urea, any price rise in inputs is completely passed through and supported by increase in subsidy by GOI. At higher gas prices the energy savings translate into higher savings in Rs crore for urea manufacturers.
- In the case of phosphatic fertilisers, ammonia remains a major raw material and its elevated prices are impacting the profitability of the manufacturers. However, the GoI is expected to support the sector by increasing NBS rates. While DAP retail prices have remained steady, the NPK prices have witnessed an increase to some extent.
- Government has adequately supported the sector in the recent past and the trend is likely to continue.

Global Energy Price Scenario



Gas prices and accordingly ammonia prices are expected to stay elevated owing to reduced Russia supply amid increase in demand owing to winters approaching

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Thank You!