Ammonia Build-Out: Recipe for Risks

OVERVIEW

Government agencies have been awarding financial incentives to private companies to build ammonia production plants that may fail to achieve robust economic benefits for host communities. IEEFA's five-part report shows why ammonia production would likely have a limited impact on jobs and high construction and operating costs, why energy markets for ammonia will not likely be robust, and why such projects should be heavily scrutinized given the potential risks to host communities. This factsheet focuses on community and financial risks.

SAFETY RISKS

Ammonia exposure from inhalation, ingestion, or skin or eye contact poses health risks that can include wheezing, breathing difficulty, chest pain, irritation to eyes, nose or throat and—where skin exposure to ammonia liquid occurs—skin burns and frostbite.[1] The National Institute for Occupational Safety and Health (NIOSH) warns although ammonia doesn't meet the federal definition for a flammable gas for labeling purposes, "it should be treated as one."[2] New Jersey's health department warns ammonia "may ignite and burn with explosive force," and release "poisonous gases" in fire.[3]

One of the most notorious ammonia-related explosions occurred in 2013 at the West Fertilizer Company site in West Texas. The facility did not produce ammonia, but rather stored and distributed a product made from ammonia: fertilizer-grade ammonium nitrate. Fifteen people—12 emergency responders and three members of the public—were killed.[4]

In 2025, an explosion at a hydrogen and nitrogen product manufacturing plant located north of Yazoo City in Mississippi last fall resulted in a leak of anhydrous ammonia. Times Now News stated no injuries were reported from the explosion. Still, the incident, prompted "widespread evacuations and shelter-in-place orders across the area."[5] The county Emergency Management Director, Jack Willingham, explained:

> "Once we were able to determine that the leak had been stopped, we brought in air monitoring with MDEQ {the state's environmental agency]. We monitored the areas that were in danger until we found safe readings, and we allowed our residents to return home."[6]

Such incidents are disruptive to communities and a burden on local emergency management teams.

Trucking transport risk. Ammonia transport accidents can put first responders, community residents and workers at risk. On the night of November 12, 2025, for example, an 8,500-gallon tanker truck holding ammonia began leaking as it was parked outside a hotel in Weatherford, Oklahoma.[7] The incident resulted in evacuation of an estimated 300 to 500 people within about a square mile of the truck. Public schools were closed for a day on the advice of local authorities.[8] No fatalities were reported, but five of the roughly 50 first responders on the scene within the first hour sustained chemical burns to their airways, and nine others suffered exposure to the chemical. A hospital in Weatherford treated 34 patients.[9]

Pipeline transport risk. Pipelines carrying hydrogen to ammonia plants, ammonia to liquified gas terminals or industrial sites, or carbon dioxide captured from ammonia plant emissions pose risks as well. A rupture of an anhydrous ammonia pipeline that occurred on October 17,

2016, a few miles north of Tekamah, Nebraska released 2,587 barrels (108,654) gallons of liquid ammonia that vaporized, producing a plume the National Transportation Safety Board (NTSB) described as "toxic." The NTSB reported, "A local resident who had left his home to investigate the accident scene died of respiratory failure due to exposure to the ammonia vapor," and 49 people were evacuated.[10]

"Minor" releases. Even under typical operation conditions, ammonia releases can occur. Princeton University researchers note that despite the maturity of ammonia infrastructure and the existence of industry regulations, satellite observations reveal ammonia plant emissions are greatly underestimated in inventories.[11]

Ten Largest Ammonia Plants Currently Operating in the United States

STATE	COMPANY	SITE	Capacity (Million Metric Tons)
LOUISIANA	CF INDUSTRIES	DONALDSONVILLE/LA	3.93
TEXAS	GULF COAST AMMONIA	TEXAS CITY/TX	1.31
OKLAHOMA	CF INDUSTRIES	VERDIGRIS/OK	1.10
IOWA	CF INDUSTRIES	PORT NEAL/IA	1.12
OKLAHOMA	KOCH FERTILIZERS	ENID/OK	1.63
GEORGIA	NUTRIEN	AUGUSTA/GA	0.92
LOUISIANA	CF INDUSTRIES	WAGGAMAN/LA	0.80
IOWA	KOCH FERTILIZERS	LEE COUNTY/ IA	0.76
TEXAS	YARA/BASF (FREEPORT)	FREEPORT/TX	0.75
OHIO	NUTRIEN	LIMA/OH	0.70

Source:Argus Media; updated with company Annual Reports, IEEFA

Potential nuisance. Even at well below the toxicity threshold, ammonia can be detected by smell (the odor threshold is only 2-5 parts per million),[12] and can present nuisance conditions in a community.

Disparate community impacts from ammonia. The burdens and risks of the ammonia industry are not distributed evenly throughout the country. Nearly three-fourths of domestic ammonia production capacity is generated in just three states: Louisiana (30), Oklahoma (17), and Texas (15).[13] But as highlighted in the table below, some of the largest ammonia plants can be found in other states, including Georgia, Ohio and Oklahoma.

The potential impacts to communities located near ammonia plants and transport infrastructure pose financial risks to the company. CF Industries acknowledges in its 2025 Form 10K, "We maintain property, business interruption, casualty and liability insurance policies, but we are not fully insured against all potential hazards and risks incident to our business, and certain hazards and risks associated with our operations may not be uninsurable."[14]

Proposals for government to grant public financial incentives to an industry that presents risks to the host community should be held to an extremely high standard of scrutiny.

CONCLUSION

Based on the concerns raised in the five parts of IEEFA's report, Ammonia Build-Out: Recipe for Risks, any plan to grant public monies and tax benefits to ammonia production projects should be subject to rigorous scrutiny and robust public discussion. See factsheets 1, 2, 3, and 4 on the IEEFA website.

[1] National Institute for Occupational Safety and Health (NIOSH). Ammonia. October 30, 2019, p. 30.

[2] Ibid.

[3] New Jersey Department of Health. Hazardous Substance Fact Sheet: Ammonia. February 2016.

[4] CSB. Investigation Report (Final): West Fertilizer Company Fire and Explosion. January 16, 2023, pp. 13, 16 and 21.

[5]Times Now News. Mississippi chemical plant explosion: Ammonia leak triggers mass evacuations in Yazoo City. November 6, 2025. Also see: CBS News. Explosion at Mississippi plant causes ammonia leak, sends large plume of yellow smoke into the air. November 6, 2025.

[6] WLBT. Yazoo County EMA director's efforts after chemical plant explosion. November 10, 2025.

[7] CBS News. Ammonia leak in Oklahoma leaves dozens hospitalized, forces hundreds to evacuate. November 13, 2025.

[8] Weatherford Public Schools. Facebook page posting dated November 13, 2025.

[9] Weatherford Police Department. News release posted on Facebook, November 13, 2025. Also see: CBS News, op. cit.

[10] NTSB. Pipeline accident brief: Magellan pipeline anhydrous ammonia release near Tekamah, Nebraska, October 17, 2016. PAB-20/01. January 29, 2020.

[11] N. Pocitarenco, et al. A systematic literature review on safety of ammonia as a marine fuel. Chemical Engineering Transactions. 116: 733-738. 2025, p. 733.

[12] Bertagni, et al. Minimizing the impacts of the ammonia economy on the nitrogen cycle and climate. PNAS 120(46) November 6, 2023 (updated), p. 4.

[13] Mineral Commodity Summaries: Nitrogen (Fixed) - Ammonia. February 2026.

[14] Ibid., p. 19.