

# Fluenta's technology to aid Nigeria efforts at flare gas reduction

Fluenta, the global leader in ultrasonic sensing technology for measurement of flare gas, has completed work on the Dangote Refinery in Nigeria, Africa's biggest oil refinery to install 18 ultrasonic flare gas meters on large pipelines around the plant. This is as the Nigerian authority is leading the charge in the control and regulation of flaring gas as a move towards eliminating routine flaring over the next few years.

Fluenta has spent more than four months working with its exclusive Nigerian representative, Daptem Engineering, and the Dangote project team to deliver a workable, accurate and reliable flare measurement solution. Whilst it's not unusual to have high levels of customization associated with such installations, the wide variety and sizes of pipelines, which ranged from 18" to 90" diameters presented a unique engineering challenge. Larger pipelines make it difficult to measure accurately as the acoustic pulse has further travel which could weaken it and lead to less accurate readings. In addition, flared gas expelled through these pipelines is high in CO<sub>2</sub>, a particularly difficult gas to measure using ultrasonic technology.

The Dangote Refinery stands at the vanguard of Africa's and Nigeria's moves towards energy self-sufficiency. The West African nation currently imports refined petroleum products for its own use, even though it is Africa's 39 biggest oil producer.

Dangote Refinery, the world's largest single-train refinery, which began operating in May 2023, is capable of refining 650,000 barrels of oil per day enough to meet Nigeria's daily fuel supply requirements, with a daily surplus of 38m litres of refined products, already earmarked for export.

Nigeria is positioning itself as a world-leader when it comes to reducing its emissions, and flaring the controlled burning or combustion of excess or waste gases that cannot be processed or captured for productive use is a safety and environmental practice employed in the petroleum industry to prevent release of potentially harmful or combustible gases into the atmosphere. Flare measurement in a refinery is essential, from a regulatory

and environmental law compliance perspective, and for accurate emissions monitoring.

The team implemented a multitude of innovative, bespoke solutions, each considered on a case-by-case basis, to ensure accuracy of the system. Under current Nigerian law, companies refining oil and gas must pay a 'tax' for flared gas, to encourage an overall reduction in flaring, underlining the importance of Fluenta's accurate, trustworthy flare measurement and management.

According to Radek Kurkowski, director at Fluenta, "Flare gas measurement and control is vital to ensure compliance with environmental regulations and to help identify potential safety hazards. This is especially true at a plant on this never-before-seen scale and with the world's largest flare pipe." "Delivering this solution meant some close work with our local partner and the client project team, and we are delighted with the result which will support bringing energy security to Nigeria and the wider Africa region. Our team used a range of state-of-the-art technology, adapted meter software and special pipe gaskets and ball valves to deliver the pipe flare gas measurement solution." He noted that "Fluenta's work stands as testament to the power of innovation, creative teamwork and a desire to always meet the client's needs. We are extremely proud to support the domestic security of energy supply in Nigeria."

Fluenta has deep experience of working in Africa. In 2017, the company was approached by an International Oil Company (IOC) working in Nigeria, who were looking for a reliable flare measurement solution. Fluenta developed bespoke solutions in response to the IOC's requirements, which were installed in 2019. Since then, the IOC has ordered an additional 32 Fluenta flare measurement meters. Fluenta has now been awarded preferred supplier status and all flare gas flowmeters on the IOC's assets have been replaced (or are in the replacement process) with the Fluenta solution. Meanwhile Fluenta will be speaking further on the challenges of combustion efficiency and industry challenges to track methane emissions from flaring Nigeria Hydrocarbon Measurement Conference (NiHMEC) taking place 4-5 Oct in Lagos, Nigeria.

Fluenta has been a global leader in ultrasound technology and its application in flare gas measurement since its inception in 1985 and has more than 30 years' expertise in the technology, including thousands of deployments, often in some of the most challenging environments in the world, where safety and accuracy are paramount.

