

Fuel Authentication Program

Authentix solution uses authentication technology and transfer of knowledge to build a reliable, best-in-class program for a developing country.

THE CHALLENGE

A West African country was experiencing a significant deterioration in the quality of its petroleum products due to adulteration. Consumer confidence in the fuel supply was rapidly diminishing as adulterated fuel damaged vehicle engines resulting in a flood of consumer complaints. In most cases, the adulterant used to dilute the fuel can result in the release of harmful emissions to the detriment of the environment and public health. Before the implementation of a fuel authentication program, the recorded level of fuel adulteration was 32%.

Illicit trade also impacted the appropriate recovery of fiscal tax revenues and government subsidies from the sale of petroleum and diesel for passenger vehicles. A country's excise tax on petroleum products is diminished when fuels are diluted with products subject to a lower tax rate. National subsidies are negatively impacted when subsidized fuels are smuggled to countries where prices are higher.

In 2012, in response to this crisis, a government agency was created to ensure the efficiency and profitability of the local petroleum industry, ultimately working to safeguard the quality of petroleum products placed on the local market. The agency's goal was to halt the adulteration of petroleum products and ensure that subsidized products were reaching the intended consumers. An official fuel authentication scheme was enacted by the government agency to achieve these goals. The scheme was introduced in 2013 and awarded to Authentix as prime contractor, a leading global authentication program and information services company.

RESULTS

- ✓ The Authentix Fuel Authentication Program led to a steady decrease in adulterated samples from 15-19% in 2013 to 3-5% in 2017
- ✓ Generation of more than USD 200M in additional excise revenue retention and subsidy recovery

THE SOLUTION

Authentix works with governments to ensure authentic products are sold in-country to benefit law abiding citizens – not criminals. Fuel marking solutions enable governments to collect more excise taxes without raising taxes for the benefit of citizens and legitimate industries. By delivering technology and partnership strategies, the Authentix fuel authentication program is financed and operated by Authentix with a program of knowledge and skill transfer so governments can independently operate their own fuel authentication initiatives. The Authentix end-to-end solution uses chemical markers built to withstand adulteration and illicit filtering methods, the AXIS Information System, an integrated set of software applications, and in-house services and support (advisory, design, implementation and operational) to customize security solutions for its customers. Authentix, as prime contractor, designed, financed, built, and managed the operations together with the customer of the entire program before transferring it to a local partner after several years.

As this program was the first in the country, Authentix designed the program based on the national mid and downstream fuel distribution networks and implemented the infrastructure and operations to maximize the efficiency and minimize interference with the local operators. Initially, fuel marking was rolled out to ten fuel depots. The program was expanded to all 13 national depots with additional sites coming online as they become operational. Authentix trained the government customer for field testing which was initially conducted to set the baseline for fuel adulteration occurring and subsequent subsidy and revenue recovery calculations.

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Markers and Devices – A machine-readable marker was added to the fuel supply at test retail stations (and later to the national supply at fuel depots) where unannounced checks could be conducted. A layered testing approach used the LSX 2000 field portable analyzer to screen samples. Failures were retested and, if failed a second time, were sent to a local lab for forensic testing. This layered solution provides scalability at a low total cost with enforceable results for legal prosecution.

AXIS Information System – Expansion of the program required more efficient ways to operate the program daily. Authentix deployed the Marking Operations Management System (MOMS) module of the AXIS Information System when it was determined that manual completion of truck marking orders and certificates wouldn't meet the needs of fuel depot personnel. The digital database eliminates the need to manually input data from forms, a tedious process subject to error. Legible printed orders and certificates resulted in a higher professional standard of documentation. Data from the depots is compiled and sent to the government agency for analysis and official record keeping.

Services and Support – Under the guidance of the government agency, the fuel authentication program has followed a process of continual improvement and stakeholder engagement, including changing elements of the program, adapting to the actual conditions of the fuel supply chain and the agency's desire for a greater role in daily operations. Authentix supported this process by providing training and guidance to transition to government agency-led management and implementing significant improvements to the analyzers, chemometric testing methods and depot operations.

THE OUTCOME

The Authentix fuel authentication program successfully identified product adulteration, earning back consumer confidence, recouping lost tax revenue and creating a significant number of highly skilled jobs for local people. The increase in tax revenue assisted government investment in critical infrastructure projects including roads, health posts, and schools. Over time, the Authentix build-operate-transfer fuel authentication model moved the operational workload of the program to the government agency. This approach supported the agency's goal of independently operating its own fuel authentication program. Authentix as prime contractor delivered the following measurable successes from 2013 to 2017 have included:

- ✓ A steady decrease in adulterated samples from 15-19% in 2013 leveling off to 3-5% in 2017
- ✓ A year-over-year reduction (196 million liters in 2013 to 95 million liters in 2017) of illegitimate, non-taxed product in the supply chain
- ✓ An increase in consumer confidence as evidenced by a reduction in consumer complaints in an annual customer satisfaction survey
- ✓ Generation of more than USD 200 M in additional excise revenue retention and subsidy recovery
- ✓ A 50% increase in the number of retail outlets tested and year-on-year increases in testing frequency. This in combination with actively sanctioning those found with adulterated fuels, has resulted in a strong deterrent effect
- ✓ Increase in the programs reach by deploying higher numbers of analyzers in the field and labs which has led to the creation of local maintenance and auditor jobs

ABOUT

As the authority in authentication solutions, Authentix helps you thrive in supply and distribution chain complexity. We provide advanced authentication solutions for governments, central banks and commercial companies, ensuring local economics grow, banknote security remains intact and commercial products have robust market opportunities. Our partnership approach and proven sector expertise inspires proactive innovation, helping you mitigate risks to promote revenue growth and gain competitive advantage.

Are you seeking to mitigate risks in a complex supply & distribution chain; grow revenue and gain a competitive advantage?

IF SO, LET US HELP YOU.
Contact us; info@authentix.com