

GF Technologies

# An ultimate solution to fight fuel theft and adulteration

# Introducing GF Technologies

- Ultimate Solution to Prevent Motor Fuel Theft and Adulteration over Its Transportation by Road Tankers
- Guarantees Fuel Integrity from Tank Farms to Filling Stations
- Makes Fuel Business More Social Responsible for Mutual Benefit of Society and Business
- Decreases Negative Impact on the Environment

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# *Value chain, systems in fuel business and a place of our solution*

ERP (business processes support, optimisation)

MES (data consolidation, storage, analysis, reporting, MMI, operational optimisation)

PLC/DCS (data acquisition & primary processing & control)

Instrumentation (Sensors)









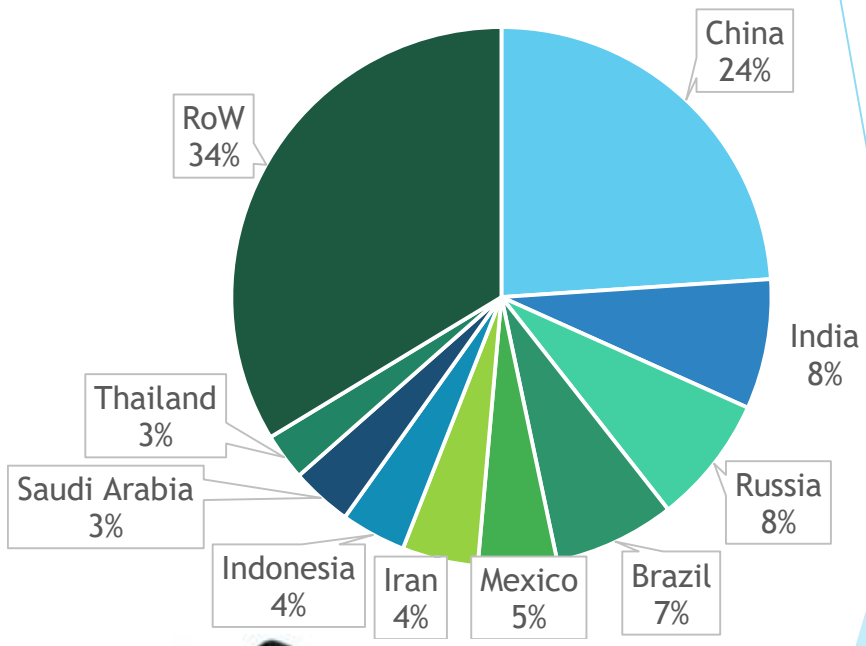

Refining → Storage → Transportation → Retail

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# *Tax evasion due to fuel adulteration and theft accounts over $80bn annually*

- Every average fuel delivery by road tankers leads to losses of **0.3%-1.5%** of their cargo due to syphoning of motor fuel by truck drivers or other connected to the drivers people
- This causes direct annual losses of **50-200kUSD** per tanker-trailer
- Largest losses due to tax evasion, impact the whole society: slowdown of infrastructure development and social security reduction*

Additional annual losses of retailers account over $30bn



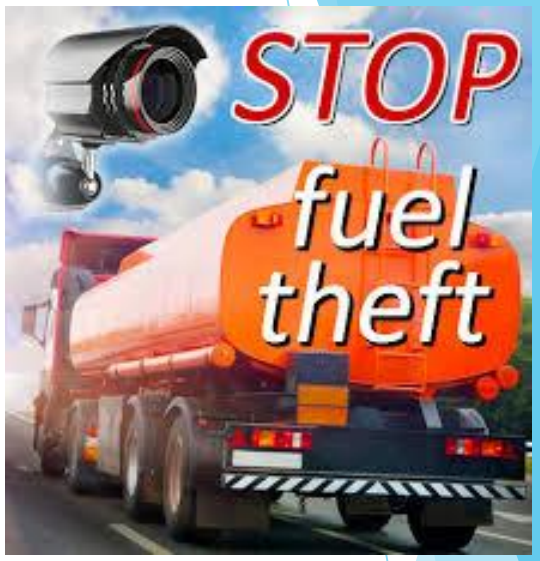



*) "Stop Fuel Fraud", Authentix, 2013

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# *We offer an ultimate solution*

**24x7 Service of Monitoring of Fuel Integrity**




- We offer a **real-time monitoring of fuel integrity** that provides permanent tracking of the quality, quantity and location of every delivery batch of the fuel

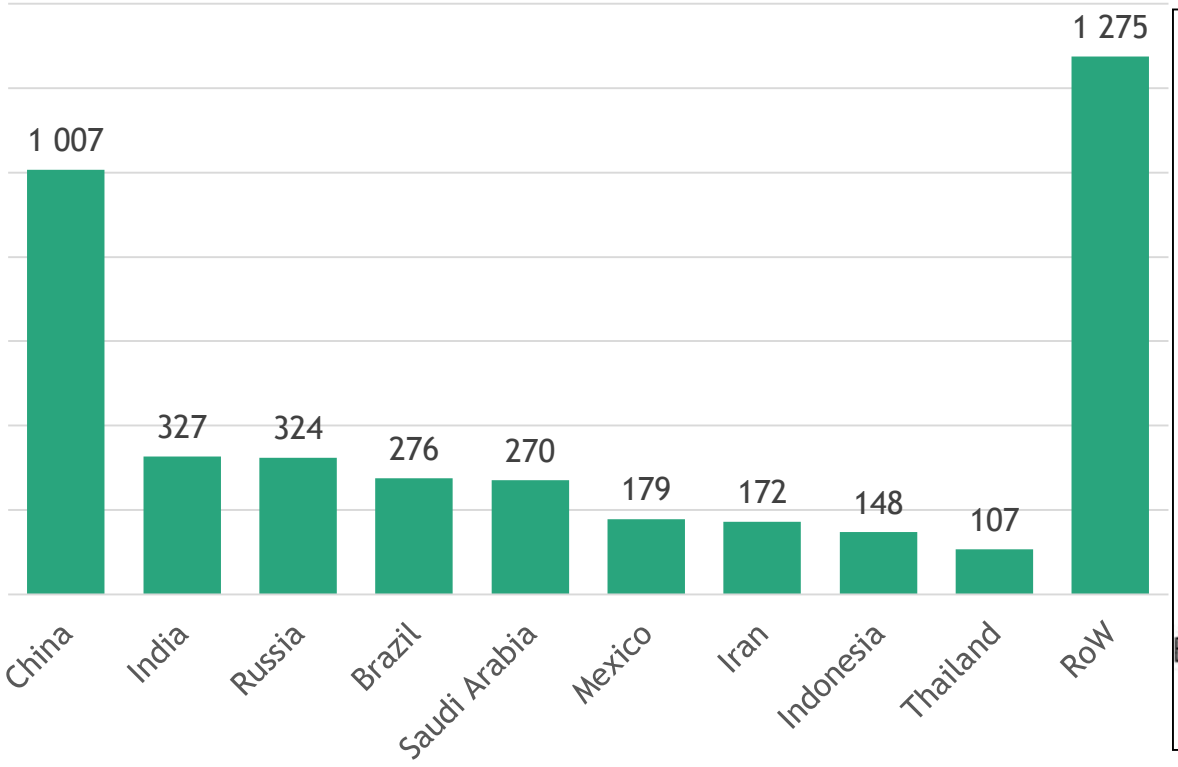
- We **instantly detect time and location** of any meaningful deviation of fuel quality and quantity from their original “fingerprints” taken at the fuel depot

- **Acquired data make fuel theft and adulteration business vulnerable to law enforcement**

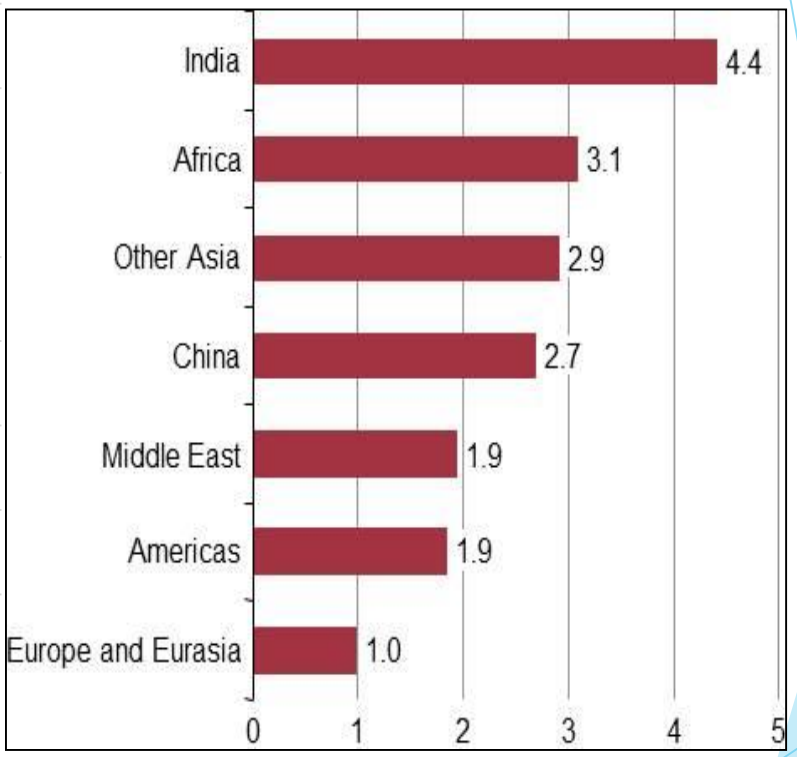
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# *"Blue Ocean" market for fuel fraud prevention accounts of ~$4bn, it is global and growing*

Market size, Annual revenue potential, MUSD



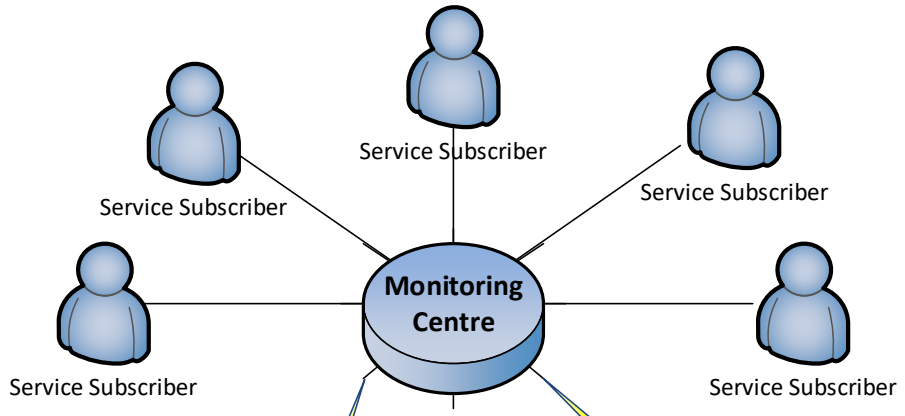

Market CAGR for 2012-2040, %



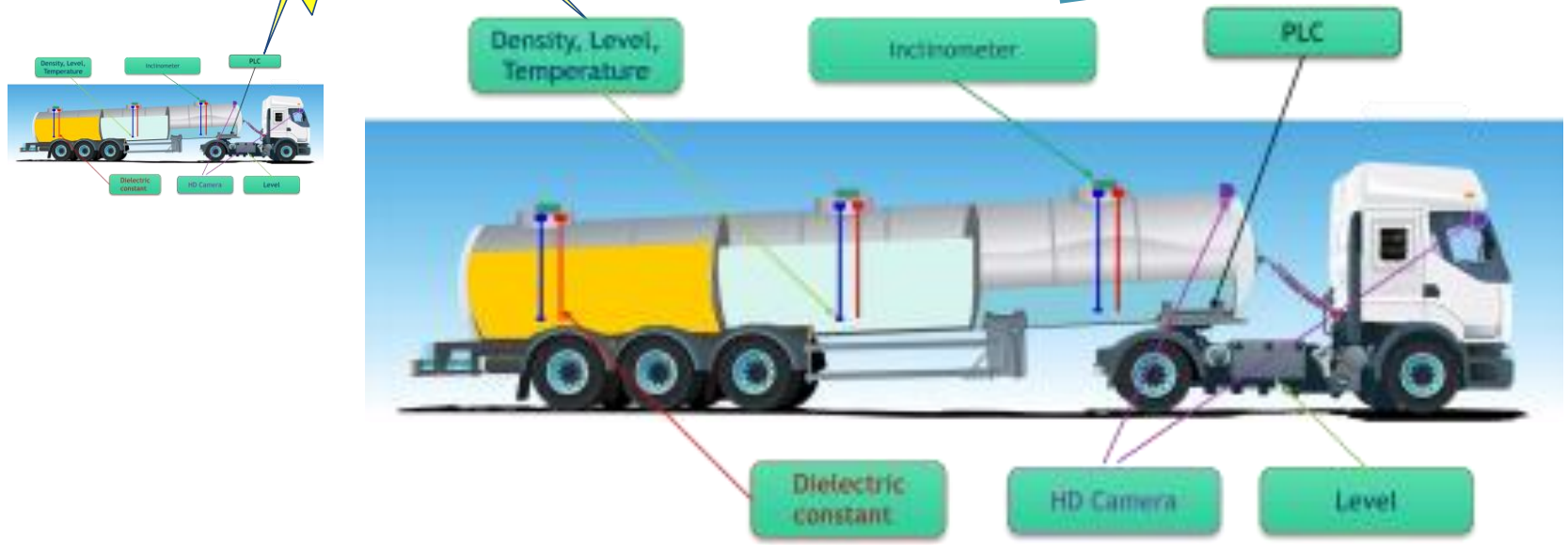

- Market assessment of global annual revenue based on subscription model, road fuel consumption and minimal available price per litre of fuel marking service

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# The Product: Two-layer Solution



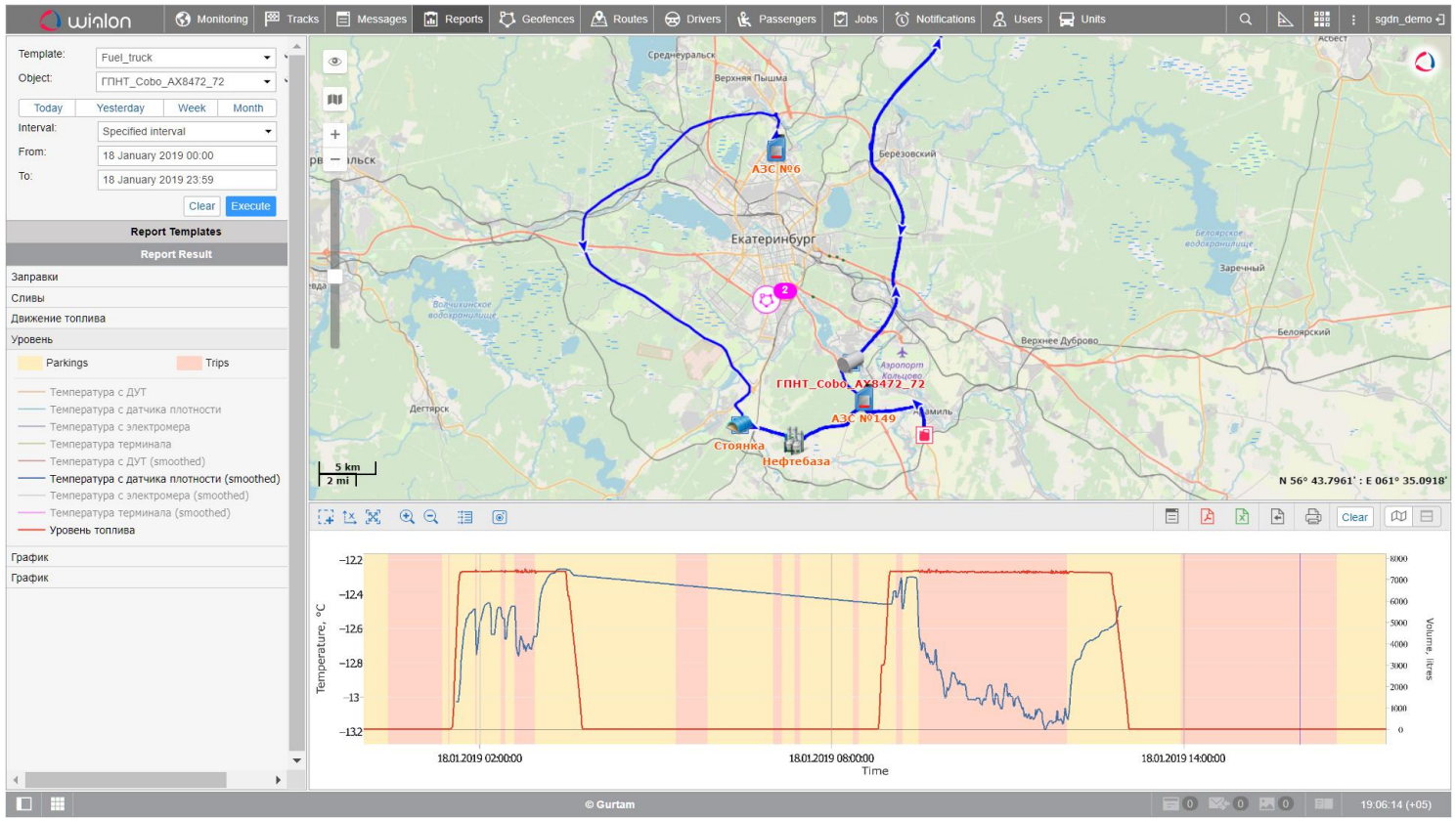

Set of equipment installed on a tanker-trailer and a truck




- First layer is spread across a fleet of road tankers; Second layer is a Monitoring Centre
- Current status: operational pilot solution, tested in Russia and Kenya

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# *Examples of visualisation of information*






- Data from the systems are automatically acquired by GF Technologies 24x365 and accumulated in its Monitoring Centre
- GF Technologies provides several levels of services to its customers based on type of their subscription

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# *System specifications and Additional functions*

## System Specifications

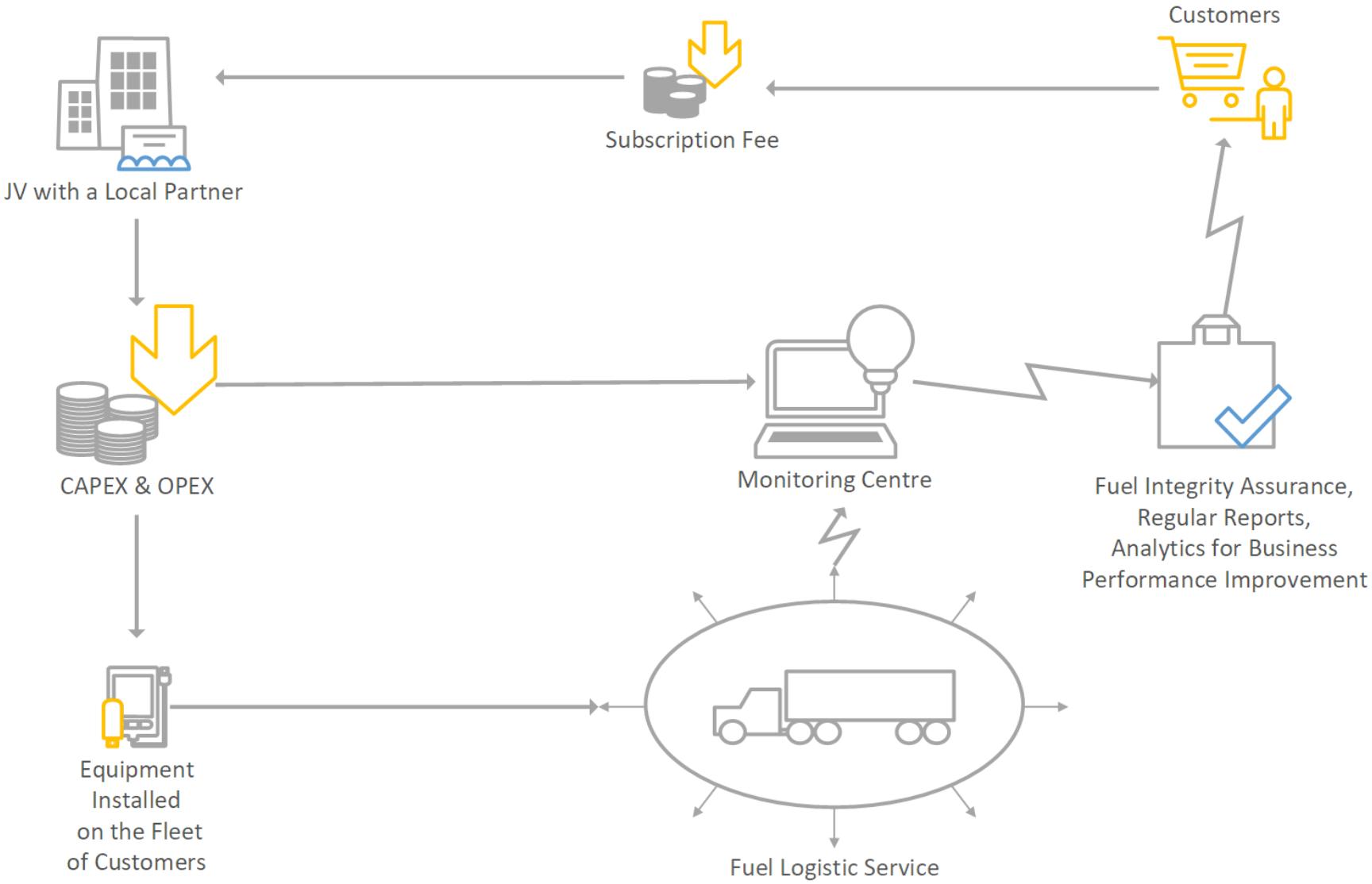
- Density deviation, less than: **0.7 kg/m3**
- Density measurement: **1.5 kg/m3**
- Level measurement, less than: 1 **mm**
- Permittivity deviation: **2%**
- Monitoring up to 8 trailer's sections

## Monitoring of driving style and fuel level in tank of the tractor

- Monitoring of driving style of tractor driver
- Monitoring of real fuel consumption
- Monitoring of fuel syphoning from tractor's fuel tank
- Identification of the driver by RFID card

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# *Service business model makes business more sustainable*




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# What does our Customer get?

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# *Direct benefits*

- Significant mitigation of fuel theft will increase sales revenue by implementing the system across fuel trucks fleet
- Prevention of fuel fraud and adulterations will drastically decrease the number of incidents with sales of poor quality fuel at PFSs
- Real time verified insight into wet stocks
- In a midterm guaranteed high quality of motor fuels will be reflected in better brand perception
- Better brand perception will definitely increase customer loyalty and sales revenue
- Analysis of data collected by the system will help to optimise logistic operations
- Analysis of driving style of the drivers may help to develop and implement KPIs for them that will positively impact on fuel consumption and rate of truck breakages



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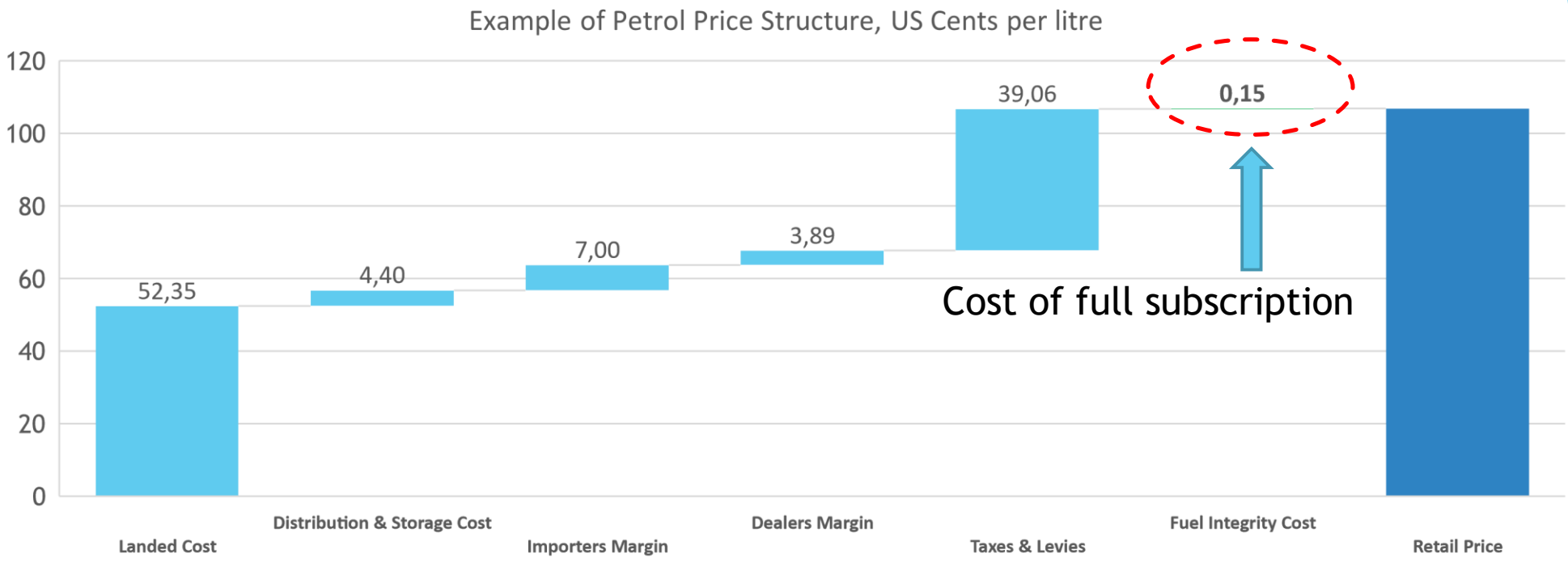
# *The Opportunity to Stay Ahead of the Curve*

- The GF Technologies solution offers customers a level of assurance in terms of guaranteed quality
- The GF Technologies Fuel Real Time Monitoring system mitigates fuel frauds associated with wet stocks by augmenting total fuel quality control over whole supply chain
- The monitoring program can be White Labelled or GF Technologies “Monitored By”
- Kitemark that will stand for Guaranteed Premium Quality of fuels. This “White Label or GF Technologies Kitemark” can be assigned to any Retail Fuel Station that complies with the White Label or GF Technologies Kitemark requirements




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# *How much it would cost?*




- We offer a paid subscriptions for 24x7 fuel integrity monitoring including provision, installation and support of necessary equipment based on 5 year SLA
- Payment can be made per tanker-trailer or per litre delivered, in that case it will amount of ~**$1.5 per 1000 litres (0,15% of fuel price)*** or on a monthly basis per trailer

*) Actual figures depend from a number of sections in a tanker-trailer and other local particularities

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# Thank you attention




CONTACT US
GF Technologies L.L.C.
TEL - +7 903 110 11 44
v.gavrilenko@gftechnologies.ru

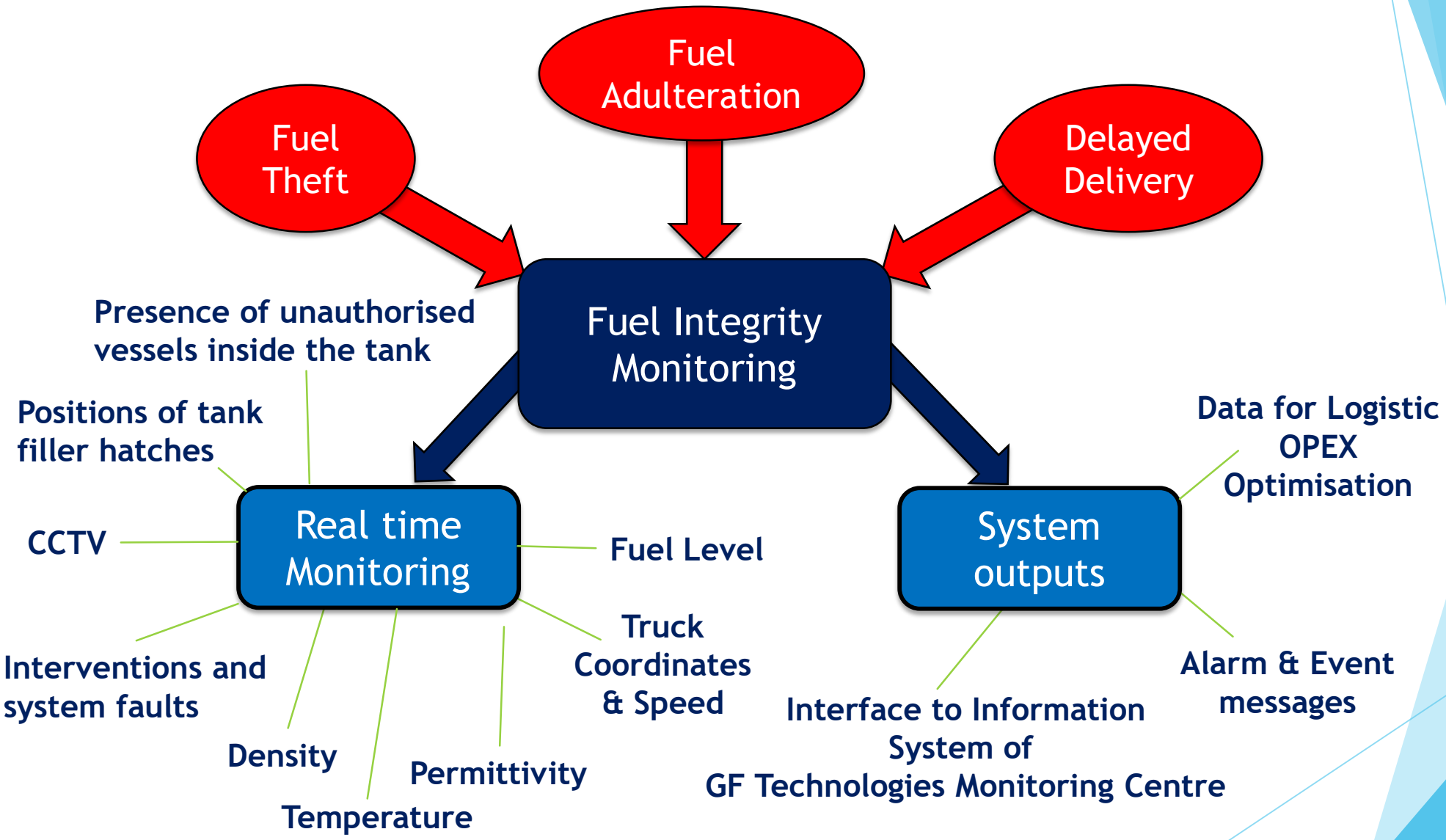
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# Annex

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# *Low-level system functionality*




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# *Main components of fuel integrity provision*

**Monitoring of fuel parameters**

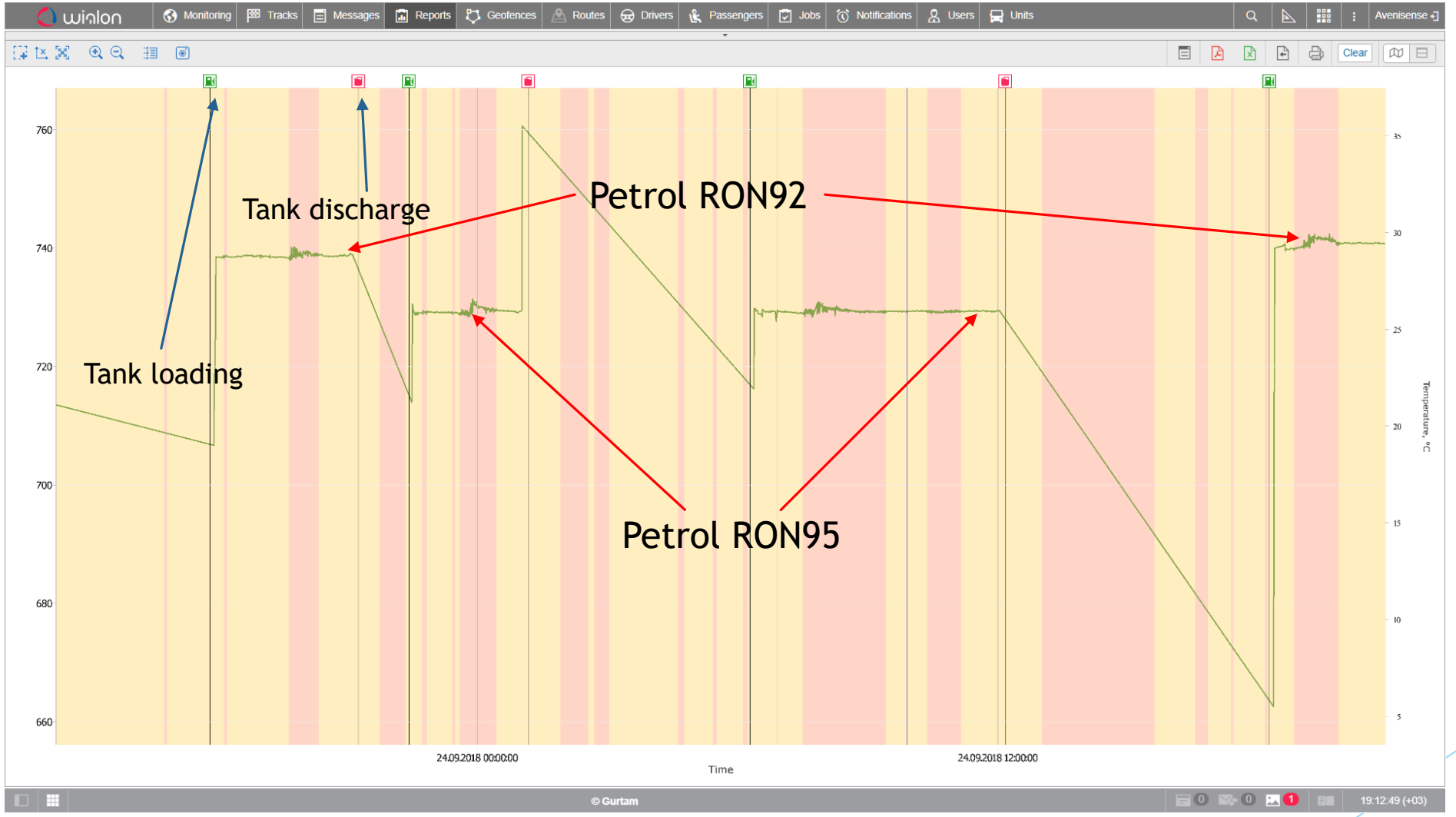
- Snapshot of density, level, dielectric constant and temperature of the fuel immediately after its loading
- Continuous adjustment of density, level, dielectric constant of the fuel on changes of its the temperature
- Real time monitoring of mentioned above adjusted by temperature parameters and detection of critical deviations

**Measurement of the fuel density provides an opportunity to correctly adjust fuel level on temperature changes**

**Correct adjustment of fuel volume on the temperature of the fuel opens an opportunity for precise level monitoring**

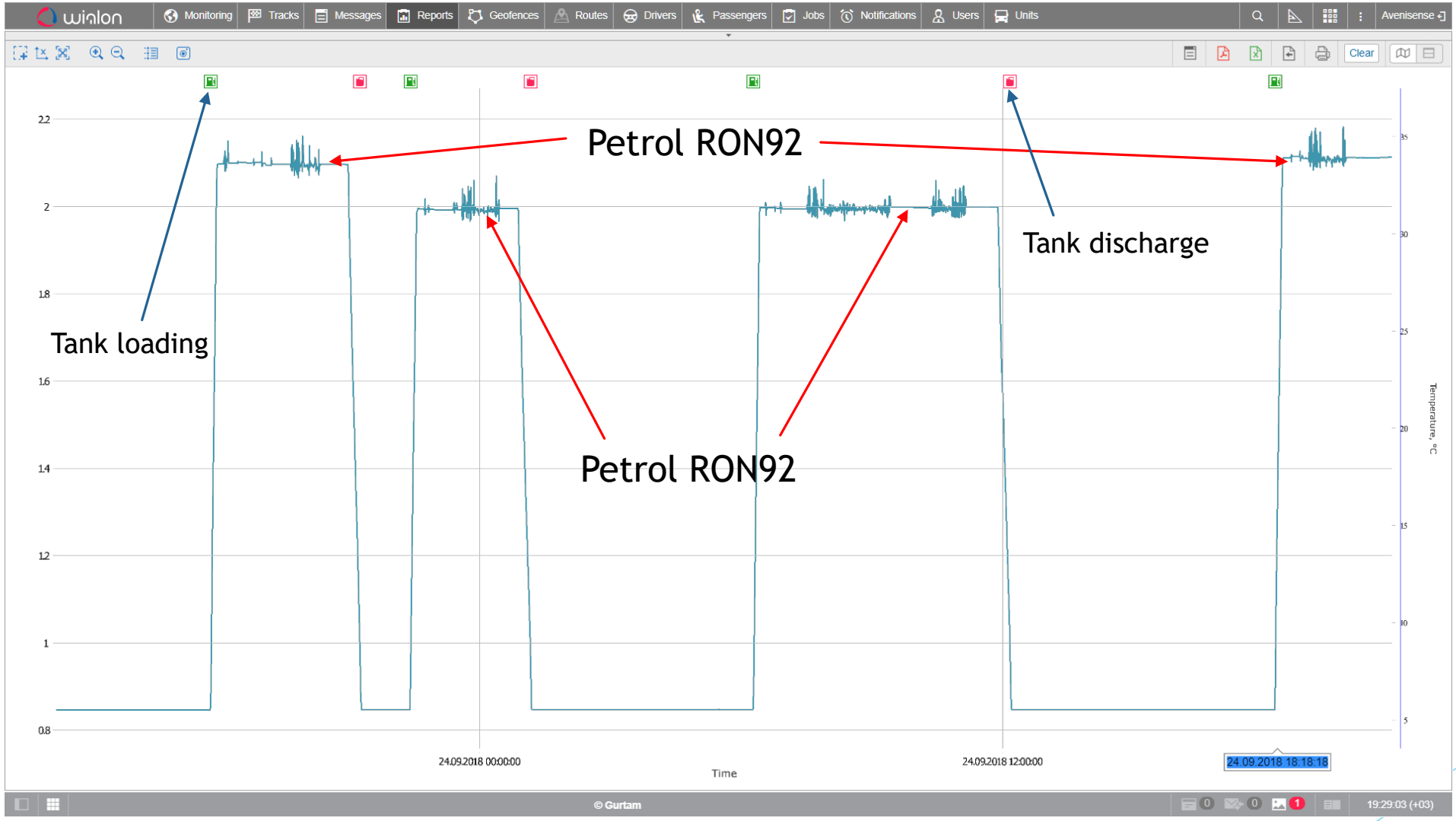
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# Test Results: Density at 15C



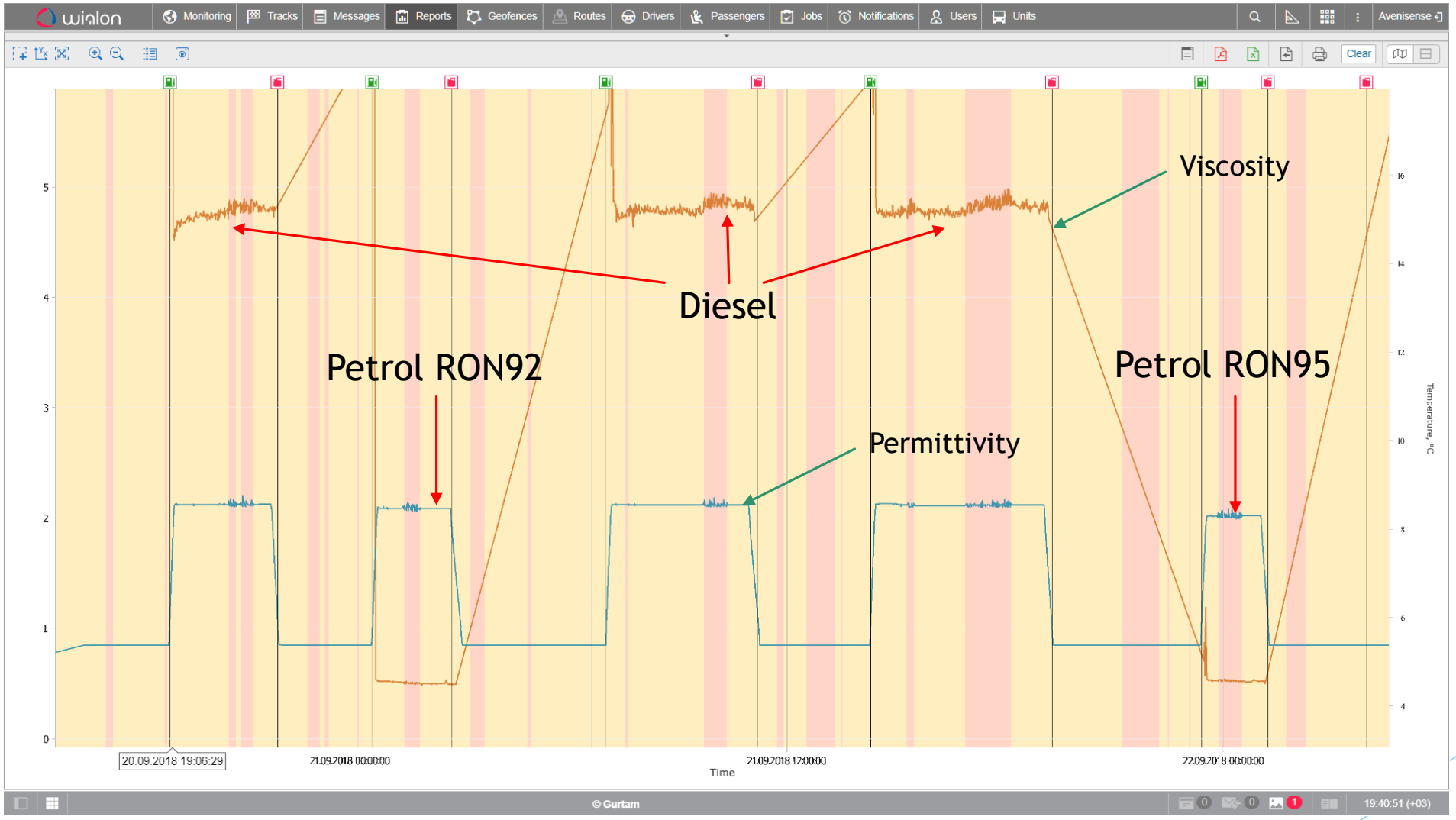

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# Test Results: Permittivity



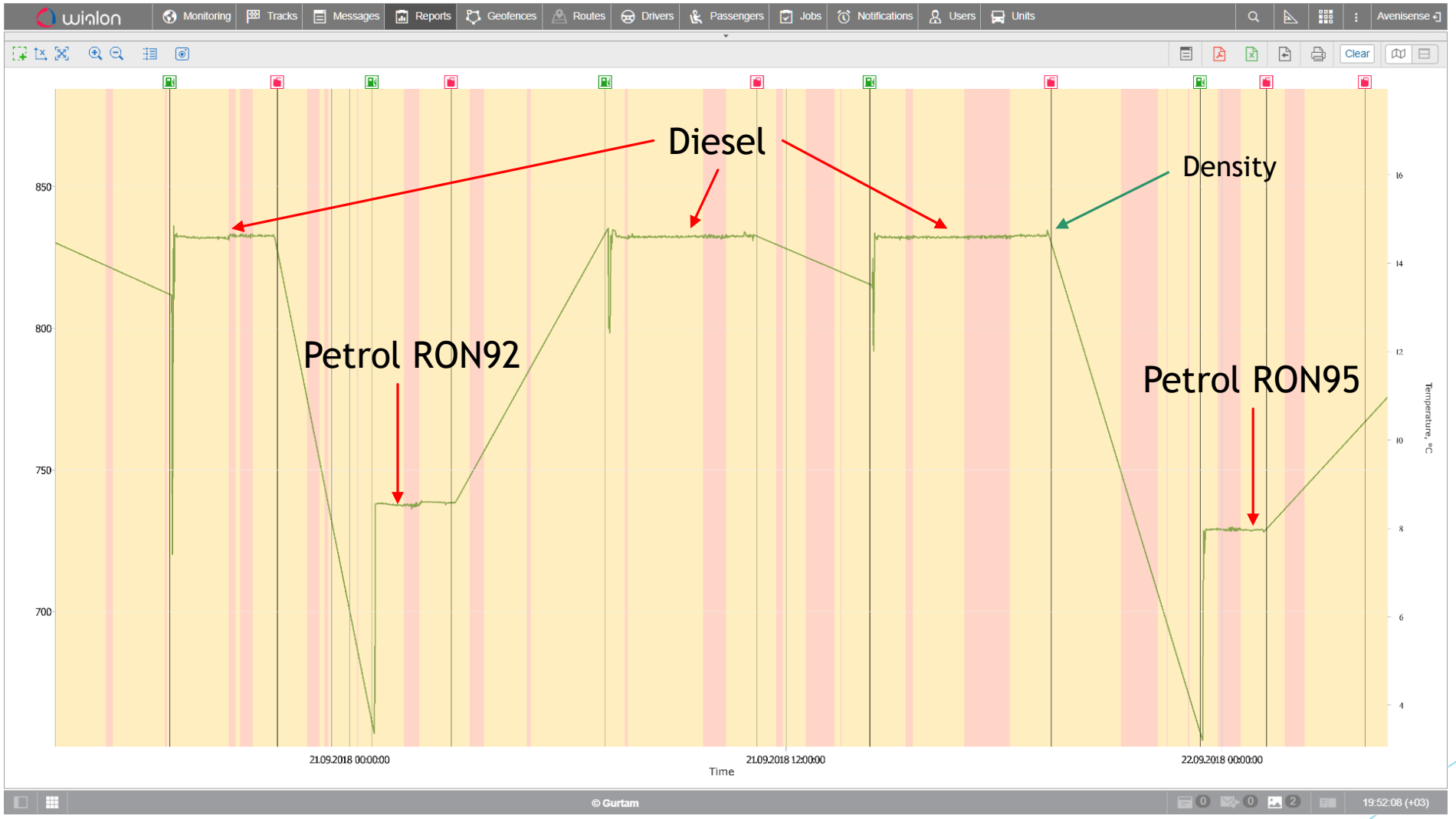

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# Test Results: Viscosity & Permittivity




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# System identifies types of the fuel through learning




❑ **3-week test found an average siphoning of 470 l per delivery or 14 full trailers p.a.**

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# *Monitoring of trailer perimeter*

**Inclinometers, HD Camera**

- Real-time monitoring of positions of filling hatches and lid of the discharge valves compartment
- CCTV of area of filling hatches and area of the discharge valves

**Main Controller**

- Data processing
- Data analysis
- Generation of event and alarm messages
- Real-time monitoring of trailer position and speed
- Monitoring of system integrity

System control

Generation of alarm messages in case of attempt of unauthorised opening of filling hatches or discharge valves combined with camera snapshots






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# *System installation*

- System is installed by GF Technologies technicians on customer's site with access to power
- Before the installation, all trailer's sections should be cleaned from inside due to H&S reasons
- All sensors are installed on a top of trailer
- Examples of different types of installation envisaged on the left
- Tractor can be easily changed because all system components are installed on the trailer



Example of system installation

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