

RAYA

Fueling Trust

Securing the Global Energy Supply Chain



FUELING TRUST

Fuel Authentication for a Secure, Transparent, and Traceable Energy Supply Chain

Why the Urgency?

■ Risk Exposure in Global Fuel Supply Chains

- Brand damage
- Revenue losses
- Regulatory fines or subsidy claw backs

■ ESG & Compliance Pressure

- Net zero emissions by 2050
- Improved fuel quality and transparency
- ESG reporting standards (TCFD, SASB, EU CBAM)

■ Cost Savings & Efficiency

- Even a **5% fraud reduction** in a single region could **save companies' \$10–40M+ annually**

THE NEED

Global oil theft & leakage losses - Over \$130B annually

- Fuel is the largest smuggled natural resource¹
- Every year US\$133B² of fuels are illegally **stolen, adulterated**, or **defrauded** from legitimate petroleum companies and governments.



The Need for Environmental Accountability

- Regulations are forcing oil companies to provide full traceability of crude oil origins, transportation routes, and environmental impact.
- Oil companies **cannot legally validate** compliance with environmental standards or disprove liability in court disputes.

Inventory Mismanagement

- **Fuel Diversion & Subsidy Abuse:** Mislabeling and unauthorized rerouting of subsidized fuel
- **Custody transfer disputes:** Inaccurate measurement during handoffs leads to financial and legal conflicts.



RAYA is dedicated to setting a new standard for **fuel integrity** and **transparency**.

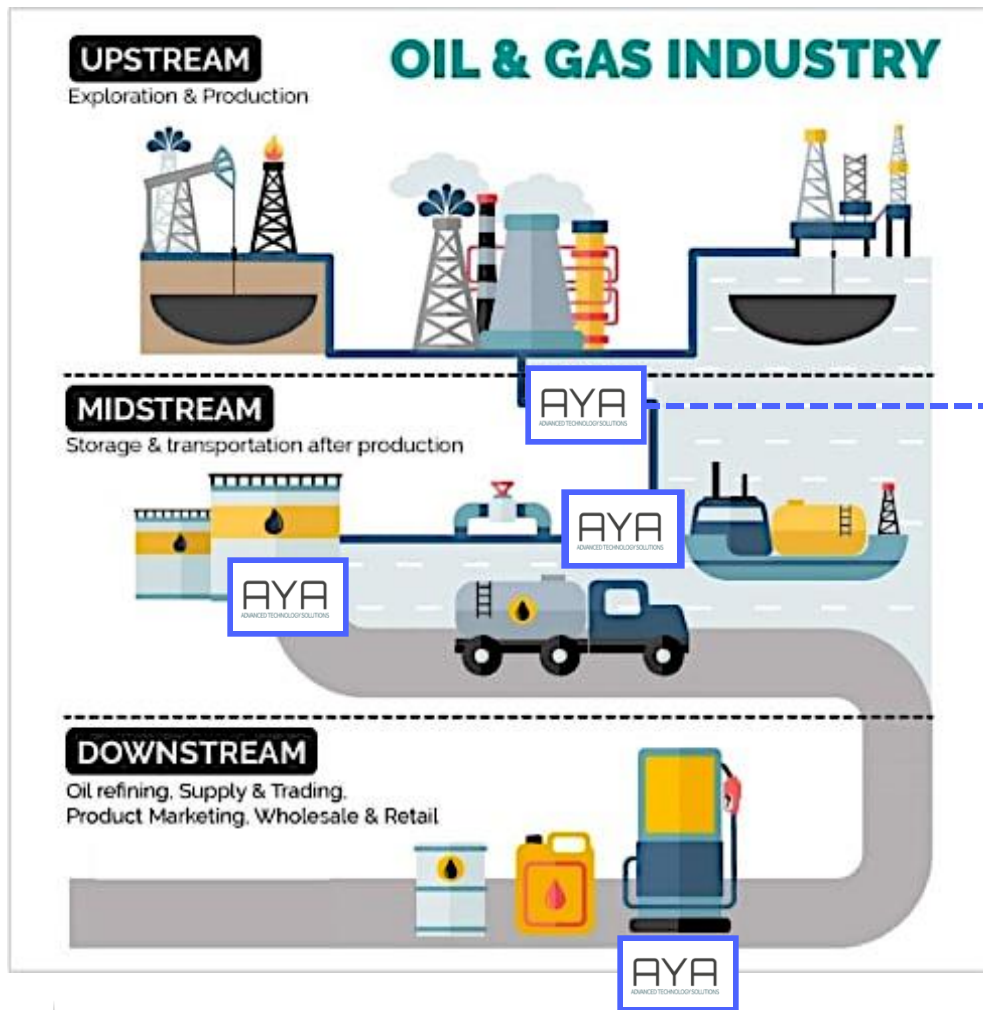
Our flagship solution, **VERIFUEL**, is a proprietary platform that enables **real-time, on-site fuel authentication** and **end-to-end supply chain verification**.

By addressing core industry pain points - including fuel fraud, liability exposure, identity misuse, inventory discrepancies, and regulatory compliance - **VERIFUEL** delivers **tamper-proof traceability** designed for today's high-stakes energy landscape.



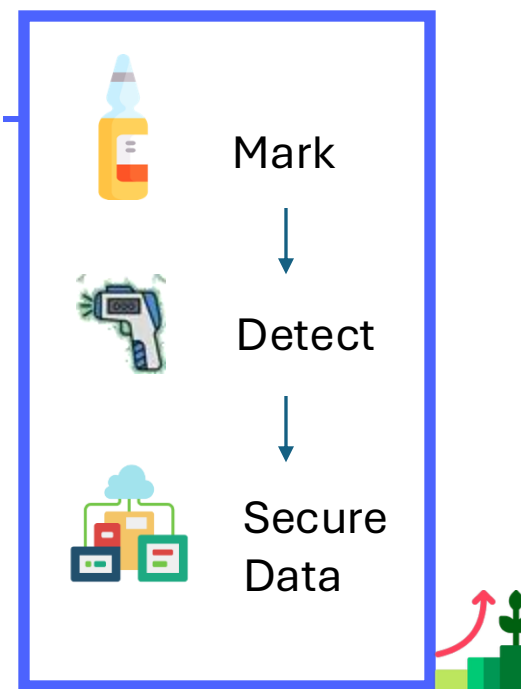
- White-label traceability by **new generation chemical markers at PPB level**
- Addressing pressing challenges - fuel **adulteration**, **tax evasion**, **revenue leakage**, and **environmental damage**
- Multiple distinct markers for **multi-layer protection** and authentication – Country / Fuel Type / Company etc.
- Invisible and compatible to petroleum related products
- Alerting on **dilution or mixture** of the fluid and the ratio (%)

THE TECHNOLOGY



VERIFUEL

Compatible to embed at each value chain stakeholder



USE CASES FOR CLIENTS & SEGMENTS

■ Terminal-to-retail integrity

Ensure anti-tampering of fuel from terminals to intended stations.

■ Cross-border shipment tracking

Prevent diversion or illegal resale in subsidy-sensitive countries.

■ Risk Mitigation

Mitigate significant operational, financial, and reputational risks.

■ Liability Protection

Confirm that subsidized fuel reaches intended recipients.

■ Brand protection & Identity Theft

Prevent counterfeit fuel sold under Oil & Gas company branding.

■ Inventory Management



STRATEGIC VALUE

- **Cost-Effective Alternative** to Legacy Systems
- **Non-toxic, non-radioactive**, and **tamper-resistant** markers
- **Real-time**, in-field authentication with no lab dependency
- Scalable, Adaptable Infrastructure
- Strategic Data Control & Sovereignty
- Digital traceability and anomaly detection powered by
proprietary algorithms

LEGACY SOLUTIONS COMPARISON

Tech Feature	VERIFUEL	Competing Solutions
Chemical Design	▪ Unique chemical compositions ▪ ‘Marker’ Portfolio	▪ Dyes ▪ Isotopes ▪ Basic tracers
Marker Concentration	▪ Ultra-trace levels (parts per billion – PPB)	▪ Higher concentrations (parts per million – PPM)
Marker Complexity	▪ Complex Signature ▪ Stable and compatible to fuel and strategic liquids ▪ Chemically engineered to be non-obvious and non-replicable	▪ Typically, a single, simple marker used across supply chain ▪ Limited security – can be removed
Multi-Marker Capability	▪ Supports multiple unique markers per batch or stakeholder	▪ Generally limited to a single marker
Detectability	▪ Nearly undetectable by standard or public-domain analytical tools	▪ Detectable using standard lab equipment

LEGACY SOLUTIONS COMPARISON

Tech Feature	VERIFUEL	Competing Solutions
Environmental Impact	▪ Uses environmentally friendly materials	▪ Depends on chemicals used; may have environmental impact
Common Use Cases	▪ High-value liquids, strategic fuel chains, anti-fraud applications	▪ General commercial use, low-security requirements
Digital Integration	▪ Connects with SCADA, IoT, edge sensors, ERP/logistics systems	▪ Typically offline, with no digital integration
Chain-of-Custody Tracking	▪ Secure logs, audit trails for ESG/customs compliance	▪ Limited or manual tracking
Market Fit	▪ Suited for both advanced & emerging markets (jet fuel) ▪ strategic fuel chains	▪ Often built for high-infra markets only ▪ General commercial use

MARKET OPPORTUNITY

B2G

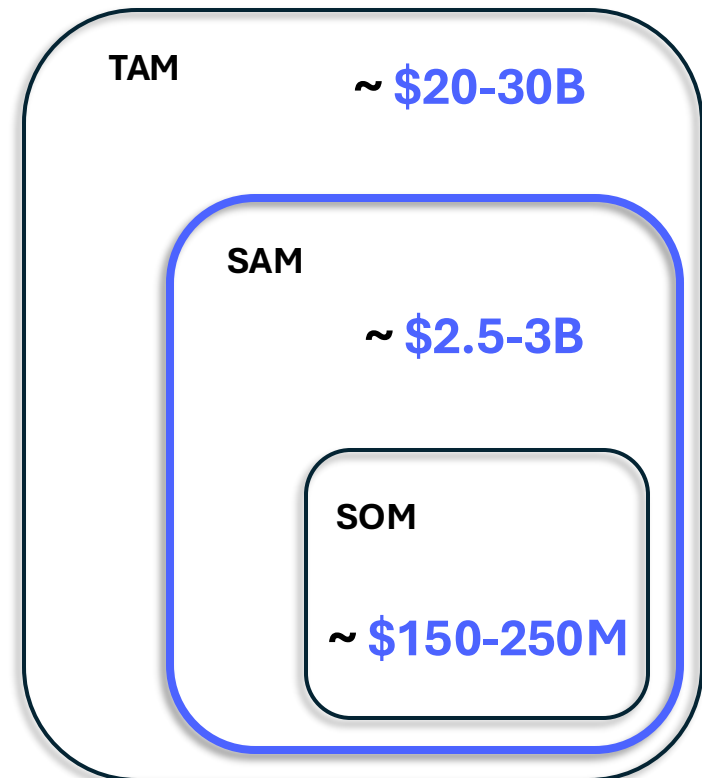
**\$10M
–
\$120M**

**Annual budget for national
fuel marking programs**
5-10-year service contracts

B2B

~ \$40B

Estimated annual losses due
to fraud and operational
inefficiencies in global O&G
downstream market



Cumulative 5-10 Years

GO-TO-MARKET STRATEGY

AYA's go-to-market strategy for **VERIFUEL** is constructed as a phased, low-friction adoption model that corresponds with the dynamics and regulatory challenges of the oil and gas industry.

Strategy Phase	Timeline (estimated)	Milestones	Industry Segment
Phase I	0 - 12 months	▪ R&D (fuel) ▪ IP registration ▪ Regulatory validation (EPA, ISO, IIEE) ▪ Detector Gen. #1	▪ Downstream ▪ Governments in contract with SICPA (15)
Phase II	12 - 24 months	▪ R&D (fuel and strategic liquids) ▪ Commercial pilots ▪ Customer onboarding ▪ Detector Gen. #2 ▪ Digital platform	▪ Downstream ▪ Governments in contract with SICPA (15)
Phase III	24 - 48 months	▪ R&D (jet fuel) ▪ Commercial pilots ▪ Customer onboarding ▪ Commercial agreements ▪ Revenue generation	▪ Downstream ▪ Midstream (pilot / onboarding) ▪ Governments ▪ Aviation (midstream)
Phase IV	48+ months	▪ R&D (jet fuel) ▪ Commercial pilots ▪ Customer onboarding ▪ Commercial agreements ▪ Revenue generation	▪ Downstream ▪ Midstream ▪ Upstream (pilot / onboarding) ▪ Governments ▪ Aviation

BUSINESS MODEL

B2B & B2G

- Focused on entering **multi-year contracts**
- Deals span **5 - 10 years**
- An average annual value of **\$12-25 million**.
- Secure long-term agreements that include all technological components- **markers, digital infrastructure, and maintenance services**
- **New detectors purchases** and **additional chemical material** (if needed) will be priced separately.

Key Revenue Streams:

- I. **Technology Licensing** – Annual fees for using the markers and digital system, including maintenance and support services.
- II. **SaaS Platform** – Annual subscription for access to the data analytics, monitoring, and reporting platform.
- III. **Add-on Services** – Separate pricing for new detectors and additional chemical material, based on usage volume.



USE OF FUNDS – PRE-SEED & SEED

Budget * for MVP + Paid Pilots + Commercial Deployment Preparation [18-24 months]		
Category	Budget [USD]	Purpose
R&D (Lab + Field Trials)	\$200,000	Tech validation, marker expansion [#5-10]
IP & Regulatory Compliance	\$150,000	Patents, certifications, regulatory advisory
Team Expansion	\$500,000	Key hires: R&D staff [global], consultants
Reader/s Prototyping	\$250,000	Design, registration and manufacturing
Operations & Overhead	\$150,000	Office, legal, accounting, PoC travel
TOTAL FUND \$ 1,500,000		Including ~15% contingency

FOUNDING TEAM

AVITAL TRACHTMAN | Co-Founder & **CEO**

- Former Operations Manager at Security Matters (SMX). Issued on NASDAQ.
 - Lead in the past three years trueGold, SMX's subsidiary dedicated for the gold industry.
 - Co-founder of former two technological hardware initiatives.
 - Holder of over 10 patents on various subjects.
 - Product manager of digital platforms and solutions based on Blockchain.
 - Master of Business Administration (MBA), Tel Aviv University in Management of Technology, Innovation & Entrepreneurship (MoTIE).
 - Bachelor of Science (B.Sc.) in Medical Science, Tel Aviv University .
 - 81 and SCOLA alumni.
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DR. YAIR GROF | Co-Founder & **CTO**

- Owner of four (4) independent ventures currently in various stages of development.
 - Consultant and developer for the Israel Defense Forces and other security agencies.
 - Visiting Professor at Ben-Gurion University and NMSU – five (5) years each.
 - Voluntary mentor at HIT and consultant to several startups privately.
 - Former VP and Chief Scientist at Security Matters (SMX). Issued on NASDAQ.
 - Holder of over 20 patents on various subjects.
 - 25 years at the Atomic Energy Commission as a researcher and administrator.
 - Bachelor's/Master's degree in Nuclear and Computer Engineering.
 - PhD in Physics obtained at Los Alamos, New Mexico, USA.
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DR. REFAEL FASS | Partner & **CSO**

- Former Senior Manager in the Israel Institute for Biological Research, retired after 40 years of research with an A+ research rating
- Experienced with leading large projects in the fields of environmental and medical biotechnology
- Director of the section for pharmaceuticals and environmental biotechnology and director of the petroleum laboratory at the Biological Institute
- Visiting scientist in the Biotechnology Unit at the US National Institutes of Health (NIH) for 4 years
- Published dozens of articles in the fields of microbiology of fossil fuels
- Founder and CEO of RYSHENS LTD., developing a sensitive optical platform for the detection of small and large molecules

THANK YOU.

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