



ITEO

At the Green Forefront

**Successful
implementation
of Environmentally
Clean Techs**

Introduction

TEO has achieved **green operational excellence** through the use of clean advanced technologies to increase the recovery rate of existing reservoirs and produce high quality oil in unused existing vertical wells.

A Positive environmental impact is achieved by extending the life of existing vertical wells for decades and avoiding as far as possible new drilling.

TEO focuses in finding, proving, using and mixing classic and new **environmentally clean technologies** for positive impact benefits beyond production increase but also significant cost efficiencies, sustainable competitive advantages and a committed long term strategy to protect the environment.

“2020 is a ‘Tipping Point’ for ESG”

Nasdaq CEO Adena Friedman

It is no surprise why sustainability and other environmental, social and governance (ESG) issues were the primary focus of this year’s World Economic Forum



Cohesive and Sustainable World “...the purpose of a company is to engage all its stakeholders in shared and sustained value creation.”
Davos Manifesto 2020 WEF



Growing concern: Call for Action. Following record-setting temperatures, investors are acknowledging the urgency for climate action. Sustainability, climate change commitment, societal impact, governance, are already entered into investment policies worldwide.

The challenge for the energy sector and in particular for Oil & gas industry is to **bridge** the sustainable energy phase



- TEO is capitalizing on recent and significant advances in Enhanced oil Recovery (“EoR”) technologies that makes it possible to increase the percentage of oil recovered from conventional wells in an economic and environment friendly way.
- Due to the complexity of understanding where and how to implement new technologies, and the conservatism in the oil industry, most exploration and production companies have not properly engaged and embraced EoR technologies
- TEO has an expanding dataset of detailed test results which shows the performance and effectiveness of a range of EoR technologies in different environments and scenarios
- TEO is seeking to use its experience and proven edge in EoR technologies as a competitive advantage when bidding for conventional oilfields and partnering with non-operating investors

TEO is devoted to deliver a tailormade mix of clean technologies for each particular well or field

Examples of Selected Technologies

- 1 Non-chemical well stimulation
- 2 Precision logging
- 3 Eco-friendly remediation, stimulation and maintenance
- 4 Combining clean technologies
- 5 New Clean Techs: Ongoing Mission



Examples of Selected Technologies

1 Non-chemical well stimulation

Non-chemical stimulation technologies, such as plasma pulse, radial drilling and ultrasonic tools, generate highly economic production increases with little or no environmental footprint.

e.g. Plasma Pulse

Implemented in seven producers and one injector

Average Production **increase c 70%**

Average Cost US\$ 50K per well (technology alone c.20 K)

Environmental footprint: Marginal, no chemicals and 1KJ/pulse



Abolishing:

- Toxic scale inhibition chemicals
- Solvents

To cleanout blockages and restore production



Green and safe, uses no water and chemicals



Sustained and long lasting effect in production and permeability increase



The technology, beyond cleaning the wellbore, generates microfractures up to 3-5 feet away from the well, allowing a much better flow from fluids



Can be used independently or in combination with other clean technologies

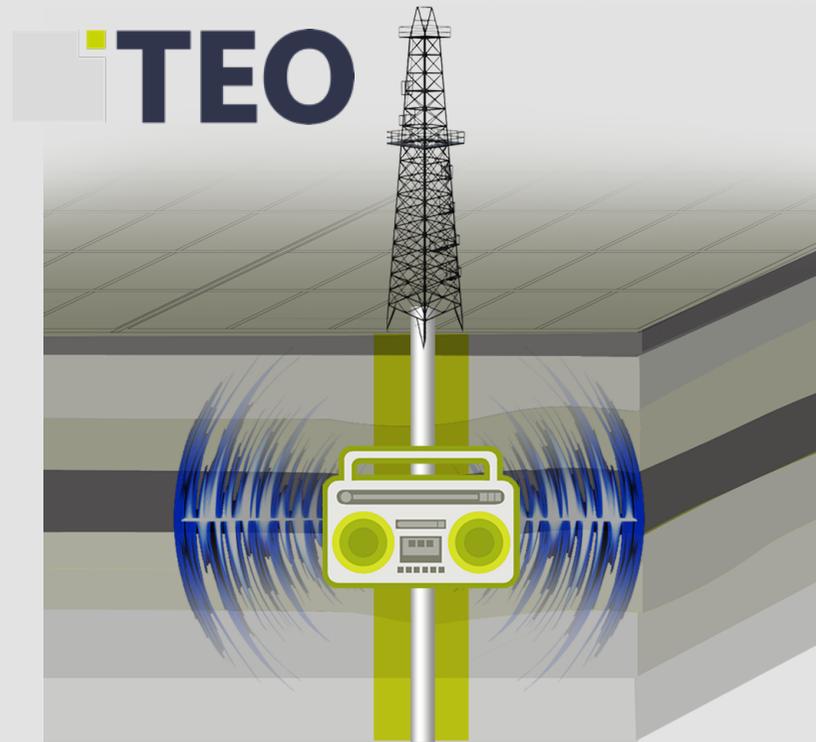


Efficient reduction of operational costs: fast (less than 8 hours) and low cost (Investment payback in less than 1 month)

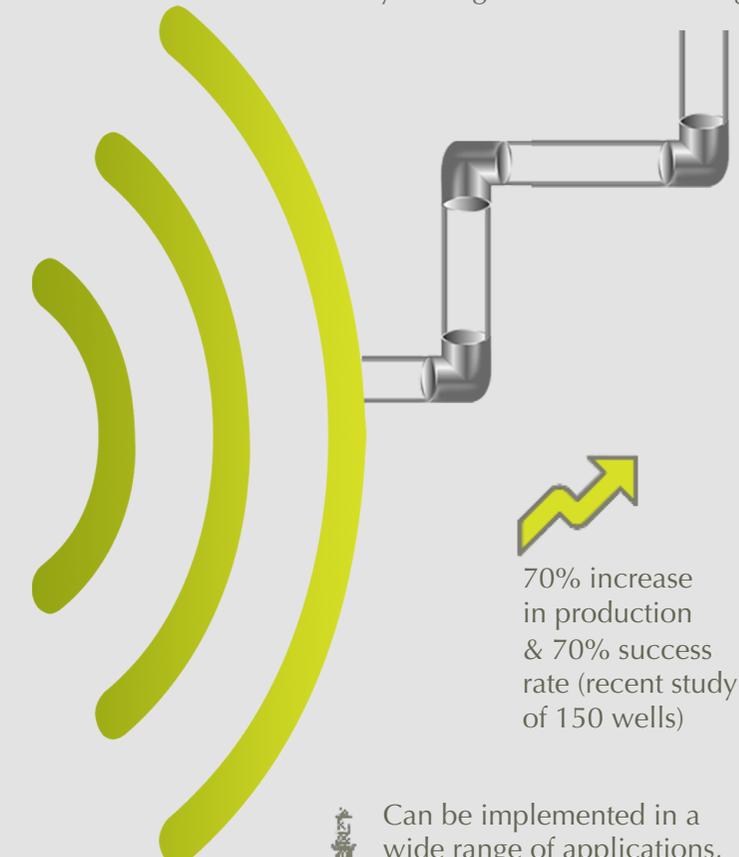
Plasma Pulse*

The sound of magnifying production

Rocking and boosting underproducing and shut-in wells by solving near wellbore damage



Can be repeated hundreds or thousands of times, according to the severity of the problem in the well



70% increase in production & 70% success rate (recent study of 150 wells)



Can be implemented in a wide range of applications, including new wells, injector wells and mature wells

Disruptive clean technology = Clean Cost Effective Increased Production

Radial Drilling

Meet the environmentally friendly stimulation tech that could replace fracking in vertical wells.

It can be used in select type of rocks such as limestone. Mini pipes drill out radially, maybe 120 degrees in one direction or the other.



Radial drilling can effectively reopen and/or stimulate mature wells and produce a lot more oil and gas with a much smaller environmental footprint. It may replace fracking in vertical wells, and soon in horizontal wells.

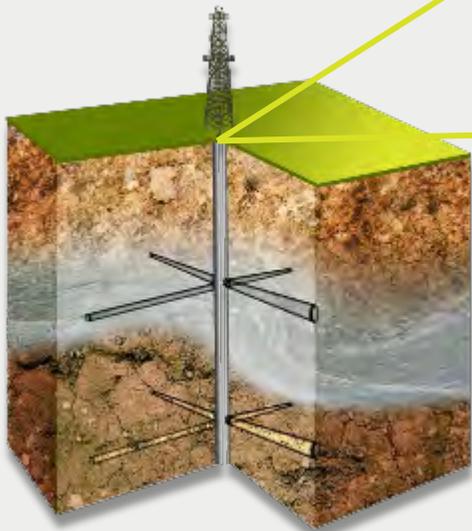
Traditional fracking pumps huge amounts of freshwater, sand and chemicals into geological structures, under high pressure, to fracture the rock and release recoverable oil and gas.



Usage of water is minimum compared to fracking, Radial Drilling uses high pressure water to drill exactly and directly into the rock. Without the use of sand and chemicals.



100% control. Unlike fracking, where you don't actually have control of where the fracked area extends to, this clean tech can ensure that drilling never goes near a water table or an aquifer and preventing the possibility of gas migrating into water body.



Examples of Selected Technologies

2 Precision logging

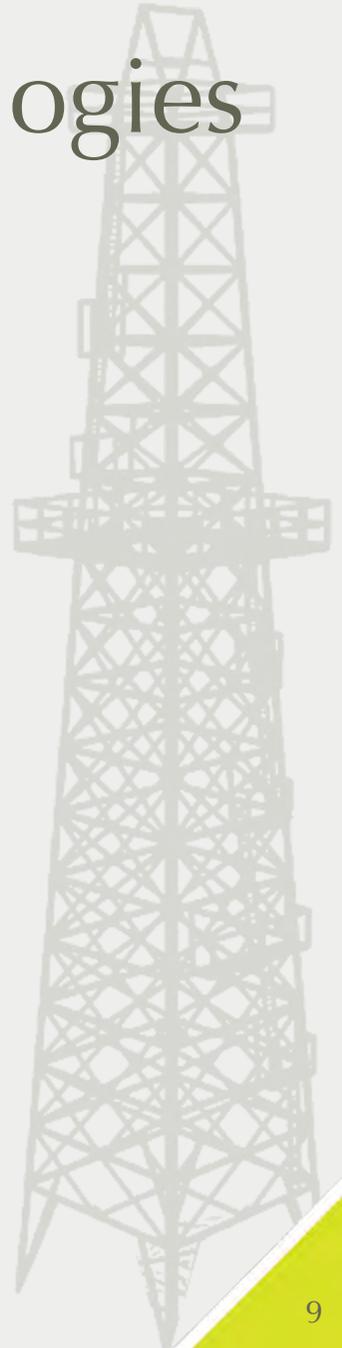
Use of highly selective and precision logging tools, such as quad neutron, limits production of water and focuses production on oil, as well as identifying productive zones that less advanced tools typically missed.

e.g. Quad Neutron

Implemented in 40 producers

Production **increase > 85%** (related to identification of bypassed pay zones)

Average Cost US\$ 90K per well (technology alone c.10 K) including Workover costs



Quad Neutron logging technology - ROKE

ROKE is an ultra-performant logging tool which allows **TEO** to get a precise view of downhole situation and therefore finetune it's diagnosis before performing the most appropriate treatment (like a surgeon reliant on pre-op scanning)

Functions:

- Identify additional pay areas
- Improve the targeting of other technologies
- Precise to within one foot, versus 2-3 feet with best competitors



Achievements:

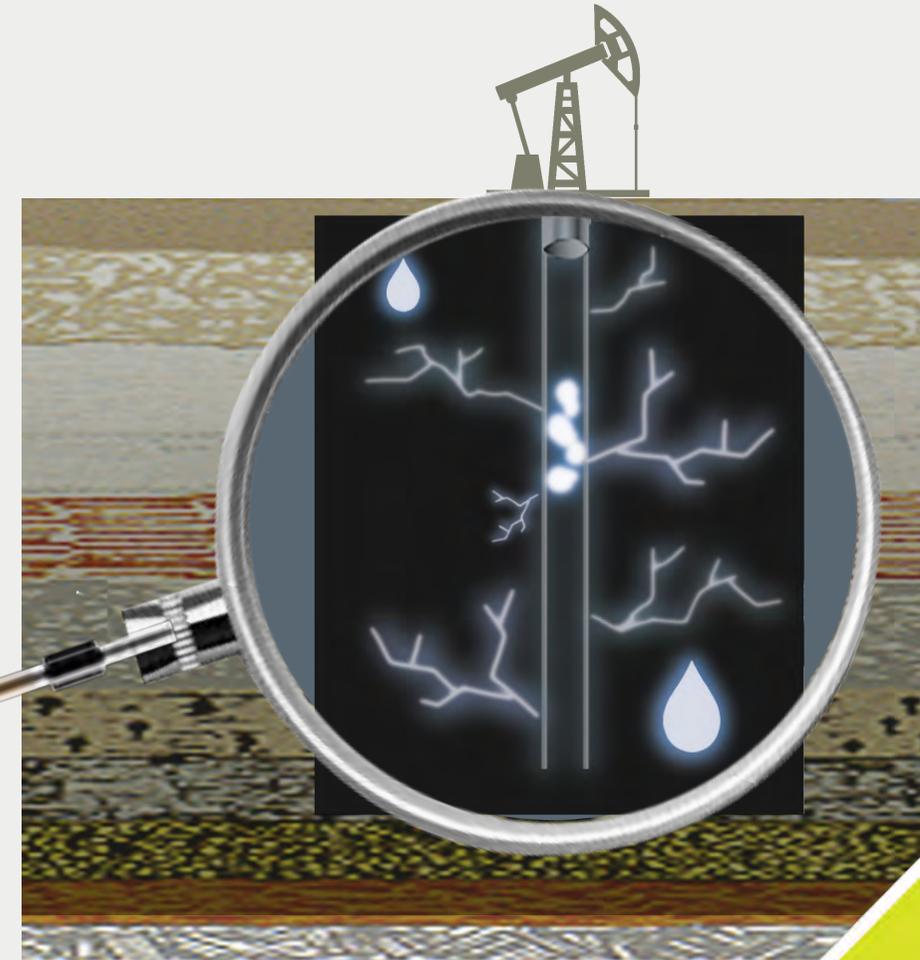
Successfully implemented across the TEO's assets



- Increased by 90% average wells' production potential
- Perforated zones without flow may be stimulated and are now additional pay zones

High-water saturation zones identified

Quad Neutron has been field tested in a wide range of environments and consistently delivered significant economic results



Examples of Selected Technologies

3 Eco-friendly remediation, stimulation and maintenance

We replace traditional, environment-unfriendly techniques such as massive hot water use, highly toxic xylene/BTEX or acids.

Instead we use environment friendly chemicals such as organic nano-particles, extracts from vegetals or non-toxic acid substitutes.

MAINTENANCE/REMEDICATION

e.g. Zen Earth, Gusher

Implemented in over 50 producers

Production **increase > 30%**

Average Cost US\$ 2-6K per well

STIMULATION

e.g. Acid Replacement

Implemented in six producers

Production **increase > 100%**

Average Cost US\$ 15K per well



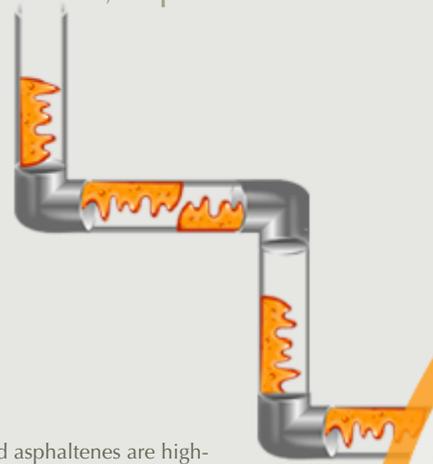
Abolishing:

- Xylene
- Toluene
- Benzenes

Flammable, volatile, toxic chemicals & solvents used by E&P's to clear solid deposits

Natural solution helps environment

Treating paraffine, asphaltenes and scale deposits in mature wells



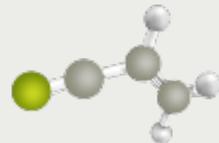
• Paraffine and asphaltenes are high-molecular-weight components of petroleum fluids that form solid deposits causing production loss in more than 60% of oil wells around the world

• Zen Earth is efficient as well against scale (non-organic deposits such as Calcium carbonate or iron sulphide)

• Formulated with natural ingredients Zen Earth has been developed to replace toxic remediation chemicals and successfully treat and prevent paraffin, scale and asphaltene simultaneously



Non flammable Encapsulates and suppresses Volatile Organic Compounds (VOC)



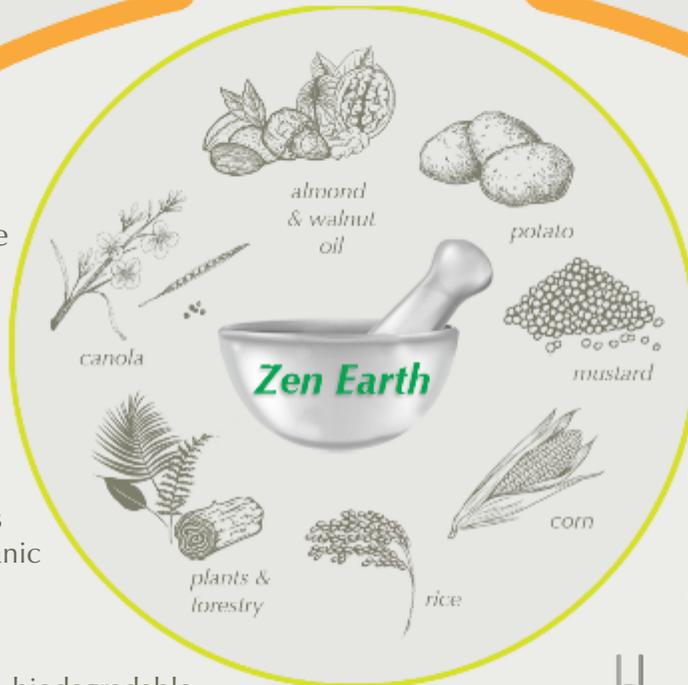
By using a biodegradable solution it commands a \$ premium



Application in 1.5 hrs.



Enhances workers safety
Minimum equipment



+50% increase in oil production



Improves oil quality
Elegible Agri-farming/
Specialist lubricants
and pharmaceuticals
instead of oil for fuel



Non corrosive,
non hazardous,
non toxic

Disruptive clean technology = Clean Cost Effective Increased Production

Maintenance Tech- GUSHER

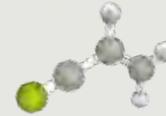
Inhibit creation of salt crystals



Salt saturated wells quickly generate plugs causing flow restriction and production loss, as well as damage to equipment. The obstructions usually need to be treated weekly with freshwater.

Nanoparticles of sodium silicate

100% safe 



Gusher inhibits the creation of salt crystals by not allowing germination, which results in the removal of deposited obstructions from the production facilities and maintains a consistently high level of production.



Gusher reduces cleaning of the well to every two months instead of weekly, reducing costs and saving massive amounts of freshwater.

Biodegradable Acid Replacement

Acid Replacement is an acid replacement formulation, 100% biodegradable, used to stimulate carbonate, limestone and dolomites formation without the requirement of Hydrochloric Acid (HCL)



Increased over 100% production potential

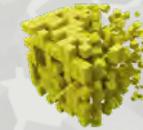


Successfully implemented In TEO's assets in 7 wells



No risk to staff and the environment as compared To HCL stimulations

Acid Replacement	VS	HCL (Acid)
<ul style="list-style-type: none"> • Non Corrosive • Non Toxic • Safe for surface handling and transport • 100% Biodegradable • Non Hazardous • High dissolution efficiency 		<ul style="list-style-type: none"> • Highly Corrosive • Highly Toxic • Special requirements for surface handling and transport • Neutralization required for disposal • Hazardous • High dissolution efficiency
Result: Rock Dissolution		



Stimulate and clean out through dissolution of mineral deposits (carbonates, limestone and dolomites formations)



100% biodegradable, Non Corrosive, Non-Fuming and carries a Triple Zero HMIS hazard rating



The dissolution reaction is triggered only by contact with mineral salts at high temperatures (over 120 F), making it safe to handle, transport and use at surface

Examples of Selected Technologies

4 Combining Technologies

Combining classical and advanced technologies in the field generates beneficial non linear cross-effects.
For example, the plasma pulse effect has been shown to be multiplied by further Acid Replacement (Substitution of acid, harmless for crew, equipment and environment) deployment in certain formations, especially carbonates.



Eco-friendly Remediation Tech: Derived from orange peel to dissolve paraffin.

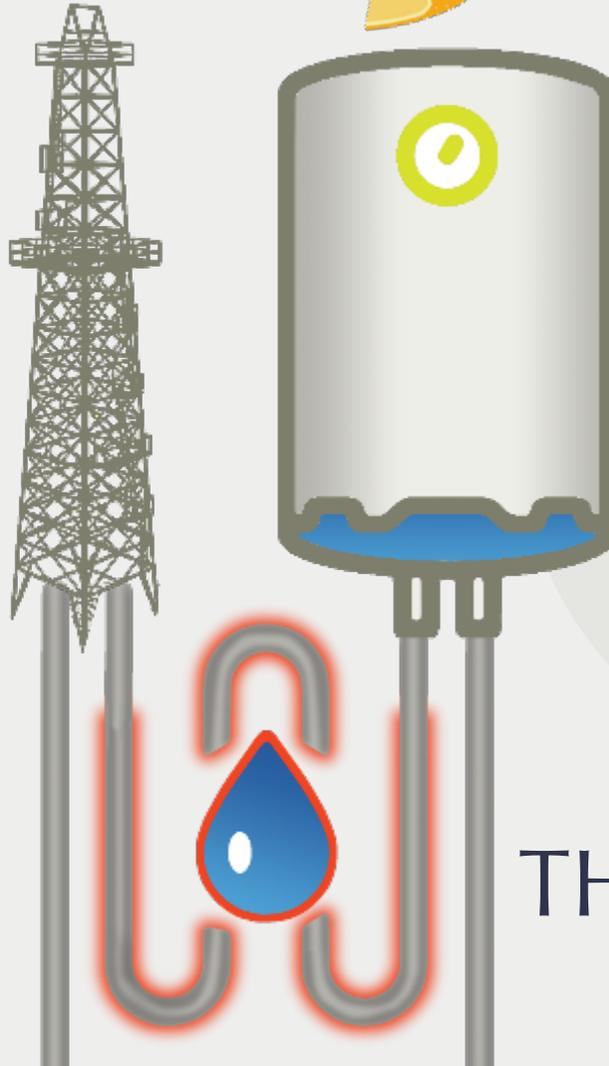
TERPEN + THERMOTREAT



Heated Terpen is highly efficient as it keeps paraffin in suspension. It becomes a remediation clean tech that replaces toxic dangerous chemicals such as Xylene or HF.



Oil extracted with paraffin within is sold to refineries specialized in agrochemicals, farmachemicals, pharmaceuticals that pay a premium for this type of oil.



All in cost: US \$5K

THERMOTREAT

Maintenance Tech: Economic Infrastructure to Circulate hot water

Resolving bubbles

FOAM STICKS are the most **economical** and **ecofriendly** way to remove water from gas wells and increase production



Water foaming unloads the gas, allowing it to flow, and increasing production



Foam Sticks are only dropped in the well when the flow rate begins decreasing, to avoid over-use



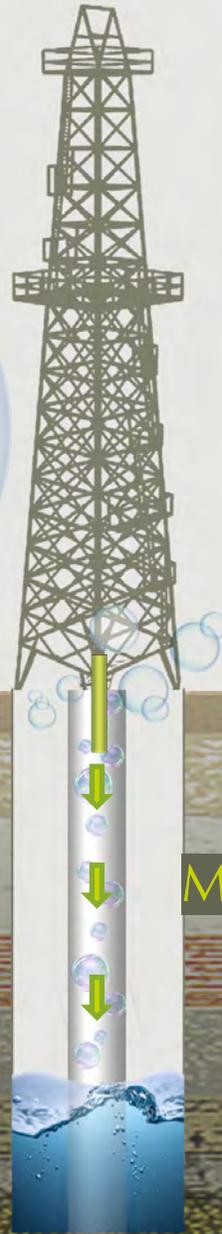
Finding the right stick for a well needs a deep understanding of the water chemistry



The foaming action also cleans the well bore of deposits, which build up over time

FOAM STICKS
Eco-friendly soaps especially formulated as foamers, avoiding the use of highly toxic chemicals such as acids

Maintenance Clean Tech



Examples of New Clean Technologies

5 New Clean Techs: Ongoing Mission

It takes ongoing research, testing, commitment and passion to exceed expectations.

New clean techs are constantly being proven and evaluated to accomplish environmental excellence.

New clean techs

To be tested/deployed Q2/Q3 2020

Stimulation-Remediation Tech

Surgitech: Hot gas stimulation technology that sends heated Nitrogen and CO2 downhole to remove paraffin and scale deposits, and enhance production. Airborne instead of waterborne which makes it go deeper, saves freshwater and uses minimal amounts of chemicals. To be tested in Q2/Q3.

Stimulation-Remediation Tech

Acid Replacement from Acquire Oilfields

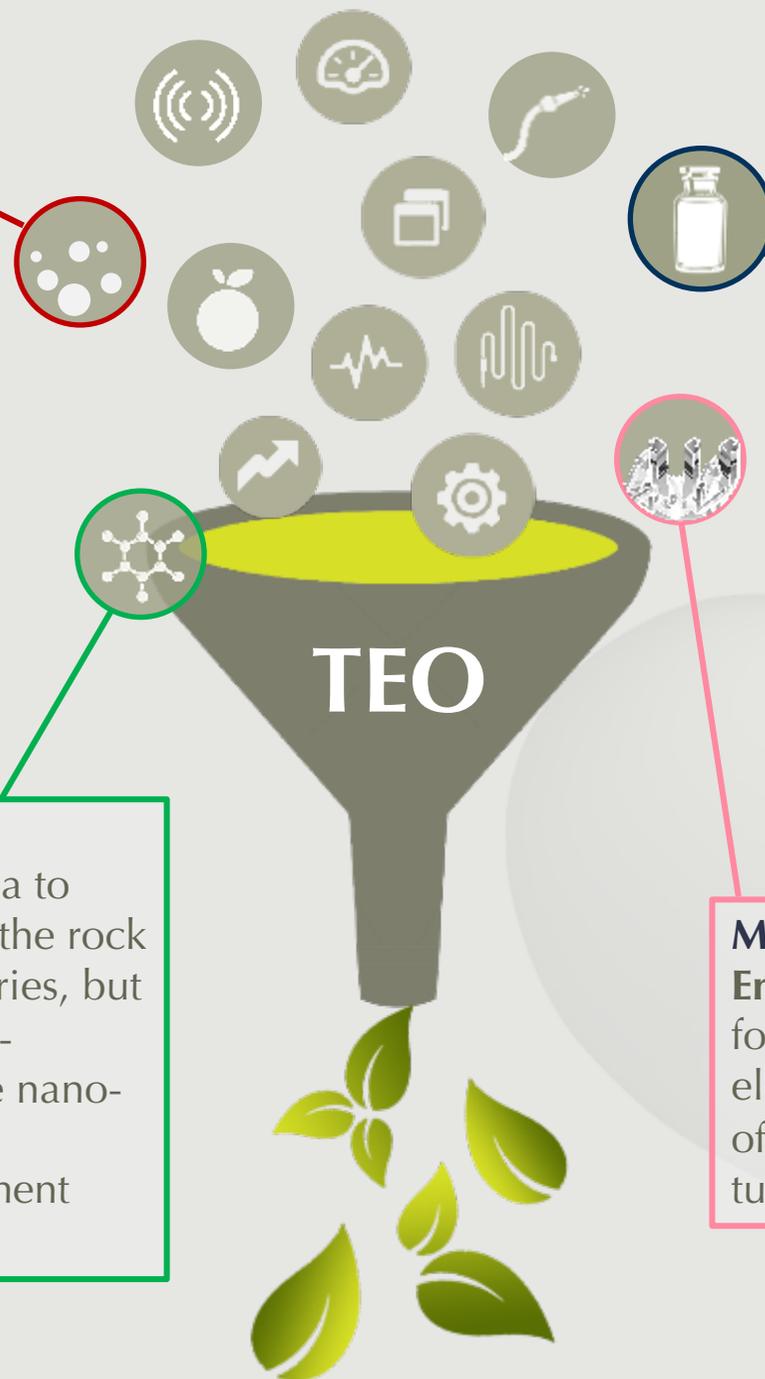
Solutions: Currently evaluated as a replacement to CSES as it is a less expensive and more tailormade treatment. First test in combination with Plasma Pulse was very successful, with 150% increase in production. To be further deployed in Q2/Q3. 100% Safe, and clean and 30% cheaper than a classic acid job and needs no further treatments to inhibit acidification.

Stimulation Tech

Nissan: Using Nano Particles of silica to dislodge droplets of oil adsorbed to the rock has been lab-tested in several countries, but Nissan has designed the first oilfield-deployable product leveraging those nanoparticles. This technology has a zero environment footprint. To be tested in Q2/Q3.

Maintenance Tech

Enercat: Paraffin and mineral scale formation inhibition using piezo-electric and electro-magnetic effects of quartz, and metal alloys, in tubing. To be tested in Q2/Q3.



Tech Selection Process for Newly acquired fields

- During this phase, TEO will further deepen its understanding of the fields by simulating them and confirming/amending the list of technologies to be used to maximize production and improve the EHS footprint of the field
- In parallel, TEO addresses and fixes the obvious things (operationally-speaking) which will deliver material production increases with limited time and costs: Wells-cleaning, pumps and other key items change/repair
- TEO will log the wells with conventional tools and advanced tools such as Roke, or Abrado's cameras, to identify further opportunities
- TEO will also if required bring the field in compliance with regulatory and TEO's standards, which are invariably more stringent: This will include spill-cleaning, field-control system, venting/flaring control and infrastructure upgrading as well as any further action needed to bring back the field to a best-in-class EHS status

- During this phase, TEO implements the deployment of conventional technologies, whilst taking into account the findings of phase one, such as perforating new producing zones identified in phase 1 with advanced logging tools
- In parallel, TEO commences accretive – but not critical - pilot projects with non-chemical technologies and combinations identified as suitable for the field
- In a third step, we will test green chemicals to substitute existing environment unfriendly techniques, and evaluate their results to select the best products/combinations

- This is the part where TEO really and fully benefits from phases 1 and 2, and which enable the team to finalize the development plan in combining the best strategy and /combination for each field and formation, with TEO deploying these strategies across the whole asset
- Further tests carried out in phase 1 enable TEO to define optimized sequences and implementation protocols for each case, and to have a clear view on what returns to expect and project

After having fully implemented these phases of the plan, TEO continues to actively optimize its exploitation of the assets:

- Decreasing the cost, energy consumption and environmental footprint of the field
- Constantly working to improve yields, via the optimal combination of technologies for each field
- Testing and evaluation new technologies, if those have the potential to replace existing ones with greater economic and EHS efficiency

Modelling of the field, technology selection, "low hanging fruit" harvesting and compliance with both regulators' and TEO's standards

Implementation of classical technologies with advanced technologies, combined as needed

Full deployment

Field optimized management

Phase 1

Phase 2

Phase 3

Phase 4

When taking over a new field, we will always seek to identify the best strategies to unlock the maximum potential from that field, using state of the art eco-friendly technologies

Long Term Commitment

TEO defines itself as a positive 'impact player' willing to challenge and change the traditional mindset and to promote best practice.

TEO is a company whose long term commitment to the environment is industry leading.

TEO's ongoing mission is to make the difference every day and in the long term.

Every aspect of TEO'S daily operation is consistent with this ongoing mission.

Technology selection and implementation is TEO's competitive advantage.

In the pursuit of environmental excellence:

A

Venting from the U.S. Oil upstream industry generates the same order of magnitude of CO2 emissions as the net emissions from a large European Country, **TEO reports ZERO flaring and ZERO venting for 2019.**



B

The rise of production from the Permian Basin translates into an increasing need of water use and treatment. TEO's technologies allow to drastically reduce the use of freshwater on the oilfield. Moreover, following a thorough analysis of water filtering technologies and trusting its ability to implement successfully available disruptive technologies to clean water before injecting it, TEO decided to launch the transformation of its 18 Salt Water Disposal wells into a viable commercial water-cleaning proposal.



C

TEO manages its operating activities and processes directly to ensure increased efficiencies and environmental controls are adhered to. TEO created automatic regulatory reporting tools on a well by well basis. (Environmental Emission Calculation Module)
TEO controls its environmental impact throughout its whole business.



What we do, makes a positive difference to the environment

Turning a harmful waste into a resource and a source of income...

while **other** E&Ps flare gas due to a “short-cutting” attitude, even when non venting and non-flaring economic options exist. Venting is actually more harmful than flaring, as CH4 has 25 times more greenhouse effect than CO2

TEO is as energy conscious as possible by:



Having gas lines which transport the gas directly to the purchaser



Capturing All the gas which is then used within the powering process of the well equipment becoming as self sufficient as possible by reusing whatever resource byproducts



Forging our own path and leading by example to promote highest environmental standards: Zero flaring and Zero venting

- The US is the second largest contributor of greenhouse gas emissions. Any measure taken represents a great positive impact.
- Flaring is totally unproductive, and can be avoided far more easily than much of the other CO2 and CH4 emissions.
- The opportunity value of using the gas to generate electricity can be many multiples of the gas value itself. *Source: World Bank*

YOU CAN

ERADICATE FLARING



IN OIL FIELDS TOO

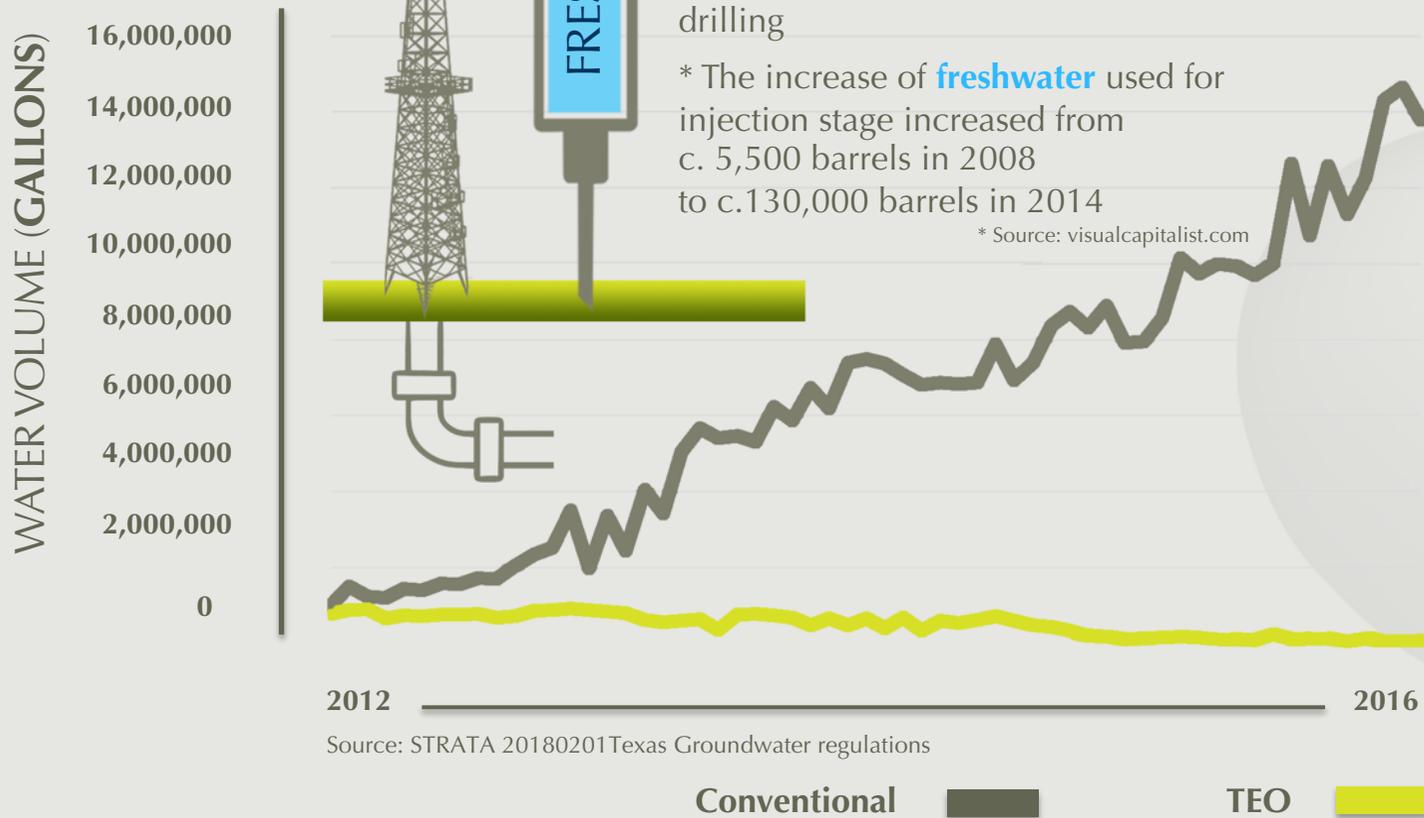
...we know the WORTH OF WATER - Benjamin Franklin

Over the last 10 years, the pace of US drilling for oil has picked up aggressively
Freshwater need for unconventional wells increased by a factor of x30
Unconventional fracturing stake has exploded (+600% growth)

Unconventional producers use substantially more **freshwater** for hydraulic fracturing after horizontal drilling

* The increase of **freshwater** used for injection stage increased from c. 5,500 barrels in 2008 to c.130,000 barrels in 2014

* Source: visualcapitalist.com



2012 ————— 2016

Source: STRATA 20180201Texas Groundwater regulations

Conventional 

TEO 

TEO aims to extend the life of existing vertical wells for decades, avoiding as far as possible new drilling

We are preventing an imbalance in the ecosystem, by recycling salt saturated water into the same geological formation

TEO
Our flag:
ESG good practice

A majority of business leaders and investment professionals now say that environmental, social, and governance programs individually create value over both the short term and the long term.**

The existence of high-performing ESG programs is a proxy for good management*

Eleven pension and investment funds managing >£130bn in assets filed a resolution calling for Barclays to set clear targets to phase out services to energy companies that fail to align with Paris climate goals.**

Investors are acknowledging the urgency for climate action, expressed in their ESG policies and public statements. Current industry practices are far from sustainable, and investors are starting to exclude selected activities within fossil fuels... *

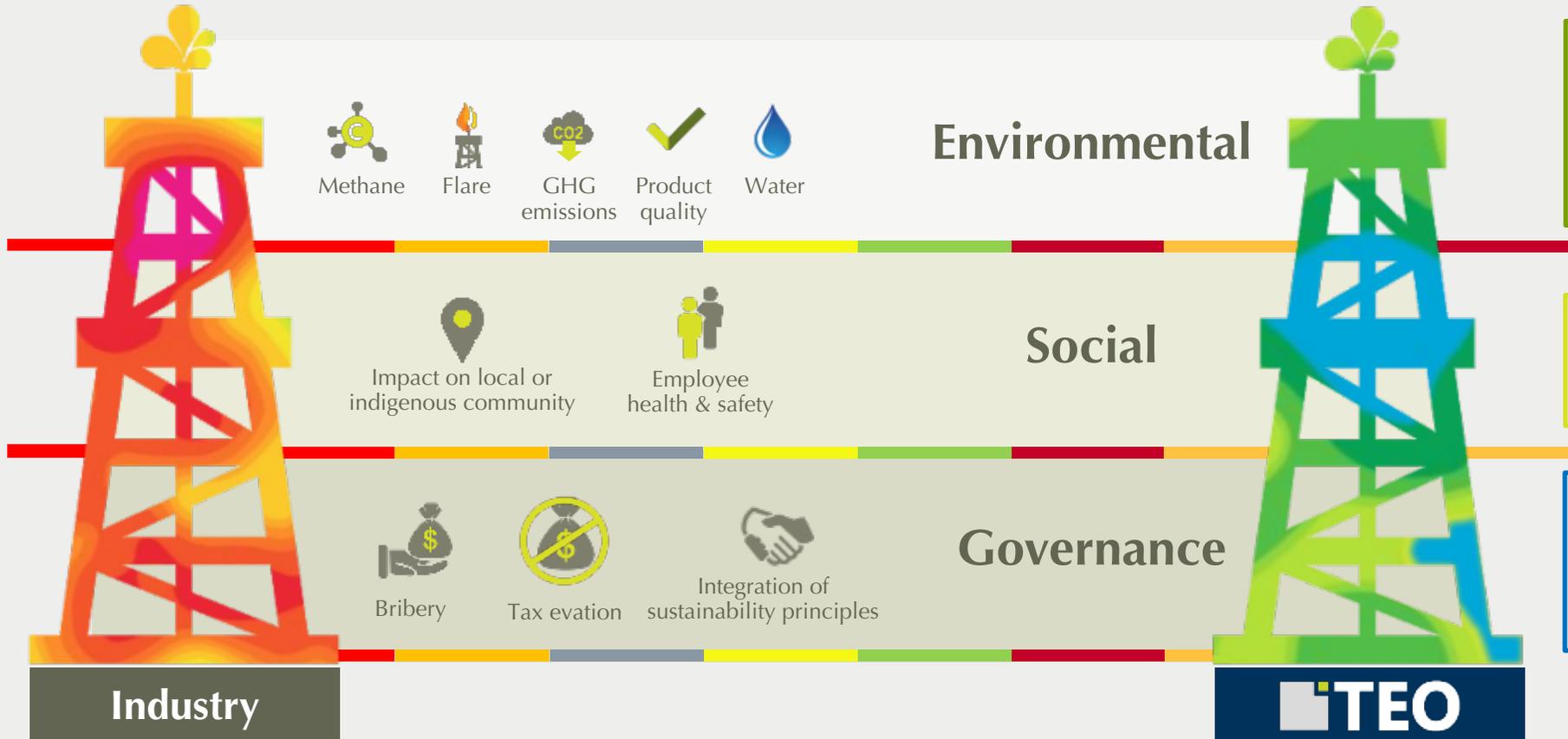
Companies that have not fully committed to ESG may leave its value on the table.*

TEO is a positive 'impact player' willing to challenge and change the traditional mindset and to promote best practice.



Impact Investing

Being part of the solution



Investor's View on classification of energy investments*



Source: *MJ Hudson Sustainability Assessment & Strategy July 2020 Report for TEO



TRANSPARENCY



VALUE



EFFICIENCY



PRODUCTIVITY



PROFITABILITY



Be part of this
revolutionary
vision of an
empowered and
clean transitional
oil industry