IMPACT TECHNOLOGY

Impact Technology Systems

Increased Oil Recovery (IOR) technology

that improves the environmental footprint

Overview

www.impacttechnology.no

Company Highlights

Impact Technology – *Significantly* Enhanced Oil Recovery (EOR)

1

Unique Product

IMPACT TECHNOLOGY has developed a technology for enhanced oil recovery based on impact dynamics that will **increase oil recovery significantly in conventional oil fields**

2

Validated in Lab & Field

Testing in laboratory and in oil fields **confirms increased recovery** in the range of approx. 10 percentage points, sometimes more. Strong increase in oil cut, from 18% to 56% in Fort Stockton, a highly typical west-Texas oil field representative of thousands of other fields.

3

Excellent IP Protection

ITS has **4 patents** - a strong patent family in all major oil producing countries.
We expect to pursue additional patents as we continue to innovate.

4

Global Potential

The ITS method will change the fundamental economics of oil production **worldwide.**

Intellectual property

Family of patent rights established, covering the device itself and methods

Patents filed in key countries with the high onshore oil production

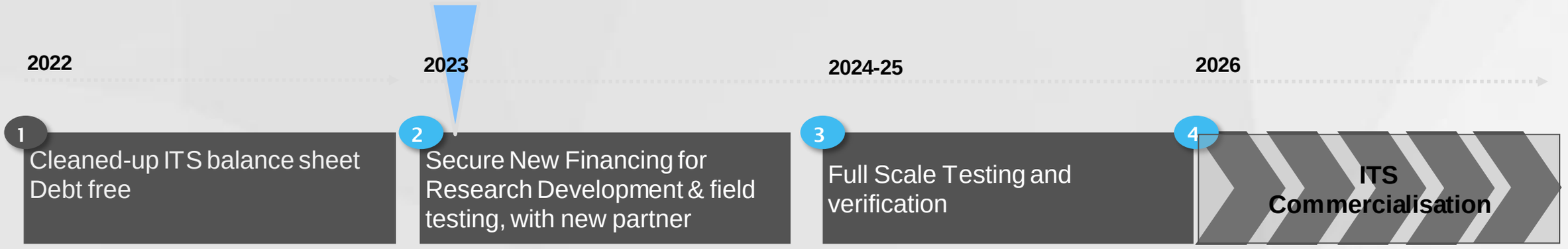
No.	Patent ref.	Expiration date	Patent description
1	PCT/NO2010/000190	26 May 2030	Device : Apparatus employing pressure transients for transporting fluids
2	PCT/EP2011/059914	15 June 2031	Method 1 : Method employing pressure transients
3	PCT/NO2012/076148	19 Dec 2032	Method 2 : Impact Pressure Pulsing - Rayleigh Number
4	PCT/EP2012/076145	19 Dec 2032	Method 3 : Impact Pressure Pulsing - Impact Chamber

Meeting the world's energy needs

According to leading analysts*, even in a net zero world >250 billion additional barrels oil are needed to meet the world's energy needs towards 2050 on top of existing global proven and probable reserves.

Increased Oil Recovery from existing fields is the cheapest, safest and most environmentally friendly way to meet the demand – but currently commercial IOR methods do not suffice.

ITS' clean IOR technology has shown to deliver a step-change IOR effect and has the potential to become a preferred forward IOR technology for the world's energy companies.



* Rystad Energy, WoodMackenzie, etc

STRATEGY TO REACH THE POINT OF FULL COMPANY COMMERCIALISATION

Aim: To be able to demonstrate verifiable improved oil field recovery using ITS technology

Secure funding

Impact Technology Systems

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Funding

- Overhead support for 2022/23
- Complete Pilot Project
- Innovation Norway secured
- Fund ITS through the full development and testing of technology to the point of full commercialisation 2025

Establish proven and verifiable technology

Pilot demonstration project

- Successfully completed
- Independently Verified
- Technology achieved clearly improved recovery

Secure reputable industrial partner

Industrial partner

- Industrial manufacturer and research entity
- Reputable Oil Company willing to participate in R&D and the full field demonstration and testing of the technology

Successfully complete full field demonstration ITS technology

Full field demonstration project

- Deployment and testing of multiple units on significant mature producing oil field

Successful Demonstration

- Improved daily oil production
- Opex reduction per bbl
- Significant reduction in CO_2 footprint per bbl

The ITS Value Proposition

Industry unique patented technology

Significant NPV increase to oil field owners

Increased daily oil production ~ increased oil cut

Improved oil recovery rates and increased reserves

Reduced capex and operating costs per barrel

Reduced environmental footprint

Reduced scope 1 emissions (CO_2 / barrel)

2. ITS technology, how it works

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The science behind our technology is the result of how systems and fluids behave in response to an impact pressure front

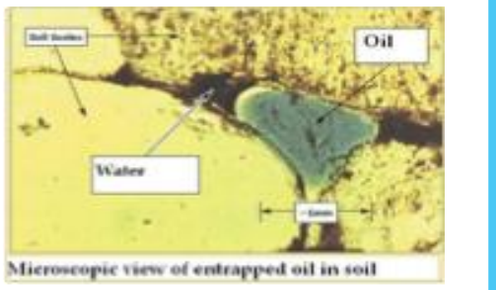
There are at least four main topics that are important for understanding the technology

- The phenomenon of branches in nature.
- Darcy flow and the Capillary number.
- Invasion percolation, Haines jumps and the Rayleigh time.
- Impact dynamics and the Hertzian contact time.
- The generation of impact pressure, and why the rise time of the impact pressure must be short

Basic physics is the fundament of the ITS technology

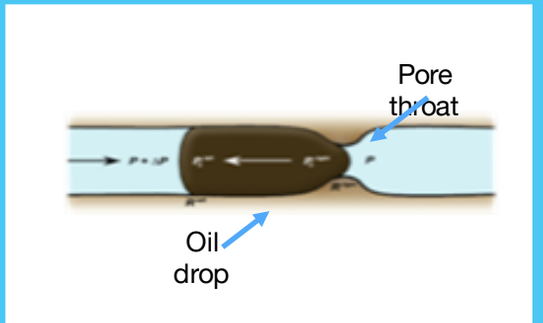
ITS technology removes the blockage (caused by trapped oil/water drops) in the reservoir and thus mobilizes large connected oil volumes in the reservoir.

Step-by-step – How does it work?



1

- Oil/water drops are “trapped” in pore throats in the reservoir and becomes a blockage for oil recovery.
- These drops must overcome capillary forces and migrate to remove the blockage in the reservoir.

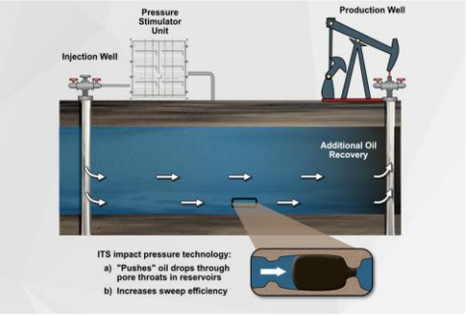


2

- A blockage is formed when there are two fluids in the pore throat.
- A pore throat filled with only oil or water is not a blockage.
- Large connected (over many pore throats) oil volumes can be blocked by a single oil/water drop in a pore throat.

3

- ITS generate a shock front or impact pressure in a liquid by a collision process inside equipment installed on surface next to the well
- The propagation of the shock front in the reservoir is a complex branching structure.

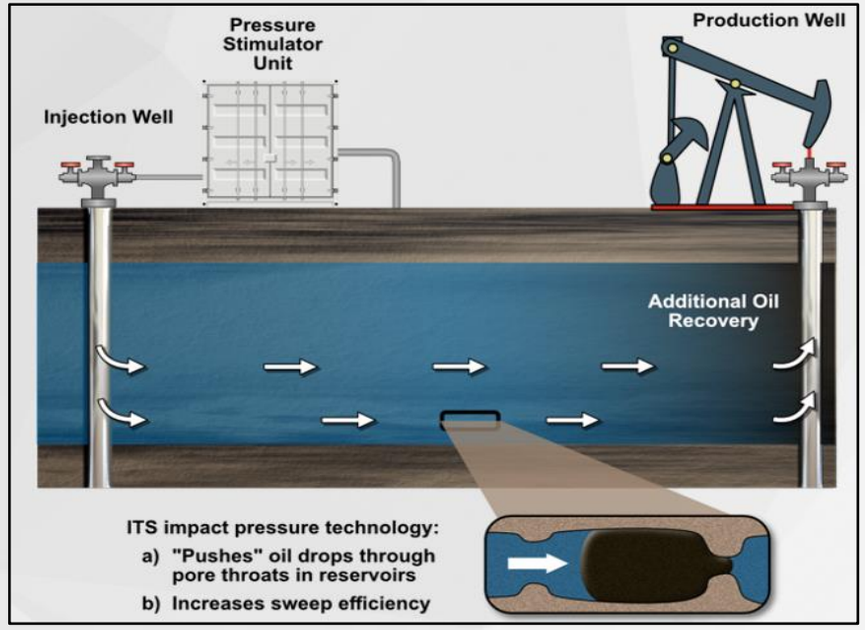


4

- ITS equipment is hooked up to a water injection well
- Shock front propagates in the water injection pipe and down into the reservoir
- ITS equipment need approximately 30 bar pressure in order to operate efficiently.

Impact Technology offers a new simple and effective solution for enhanced & increased oil recovery

- Containerised equipment is easily installed on surface to a water injector well
- no downhole installations or adjustments needed
- The “bolt-on” technology doesn’t interrupt ongoing operations or production
- The unit’s Impact Driver mechanically induces a shock front that propagates in the injection water fluid from the surface and down into the reservoir.
- In the reservoir formation, shock front overcomes capillary forces holding back trapped oil.
- The released oil is then swept by the water flood to a producing well
- The technology requires liquid contact with reservoir, normally using a water injection well



3. Initial results and value impact

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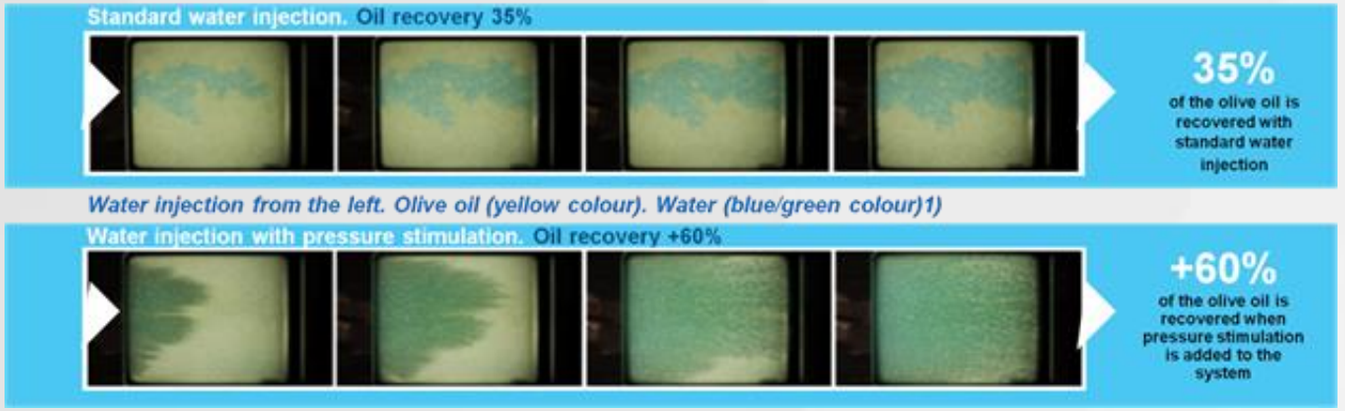
Improved Injection sweep efficiency

Initial lab results at Centre for Integrated Petroleum Research (CIPR) provided strong positive results

Pressurized lab-model with 1 mm glass beads stacked tightly between two glass plates (using olive oil).

- Reduced viscous fingering
- Improved sweep efficiency/injection efficiency
- Standard water injection gave 35% recovery
- Water injection with impact stimulation gave > 60% recovery



Use of ITS patented technology

- Improved oil field recovery
  - both total field reserves and in daily production though increased oil cut of produced fluids
- **Increased CO2 injection efficiency in CCS projects** (more research needed)
  - Resulting in more CO2 storage per unit volume of reservoir, the need for less injectors and therefore reduced capital

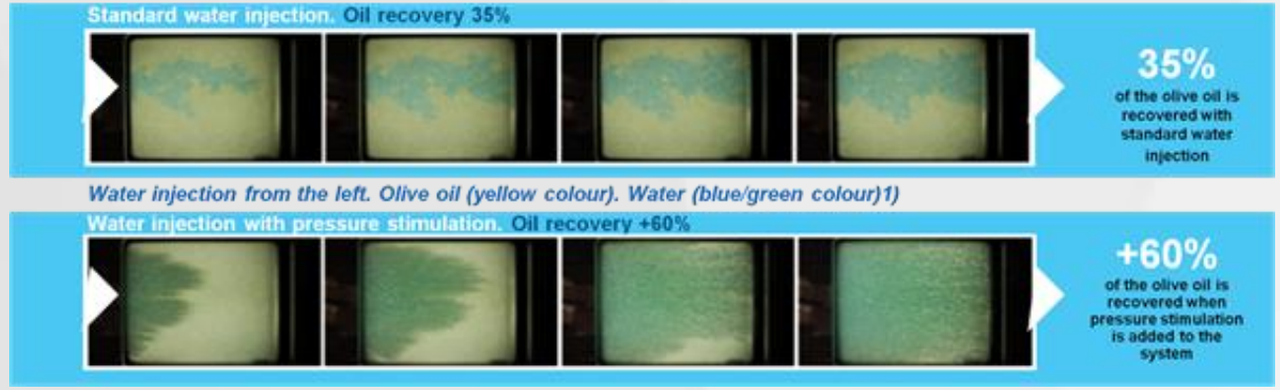
Initial lab results at Centre for Integrated Petroleum Research (CIPR) provided strong positive results

Pressurized lab-model with 1 mm glass beads stacked tightly between two glass plates (using olive oil).

- Reduced viscous fingering
- Improved sweep efficiency
- Significantly improved total recovery from 35% to 60+ %

Tests on Sandstone core samples

- Testing both differing flooding rates and core permeability's
- Increased total recoveries by 5 – 14%



Experiments		Kw (mDarcy)	Original oil in place (ml)	Flooding speed (um/s)	Oil produced (ml)	Oil recovery (% of OOIP)	Increased recovery (pp)
1.1	WI no ITS	540	30	1,48	16,1	53,6	10,3%
	WI with ITS	540	29,9	1,48	19,4	64,9	
1.2	WI	540	30	14,8	16,2	54	13.6%
	ITS	540	30,6	30-40	20,7	67,6	
2.1	WI	134	15,8	1,55	8,3	52,5	5,3%
	ITS	134	16,1	1,55	9,3	57,8	
2.2	WI	134	15,8	15,5	8,4	53,2	8.3%
	ITS	134	16,1	15,5	9,9	61,5	

Pilot field Test results

Fort Stockton in Texas

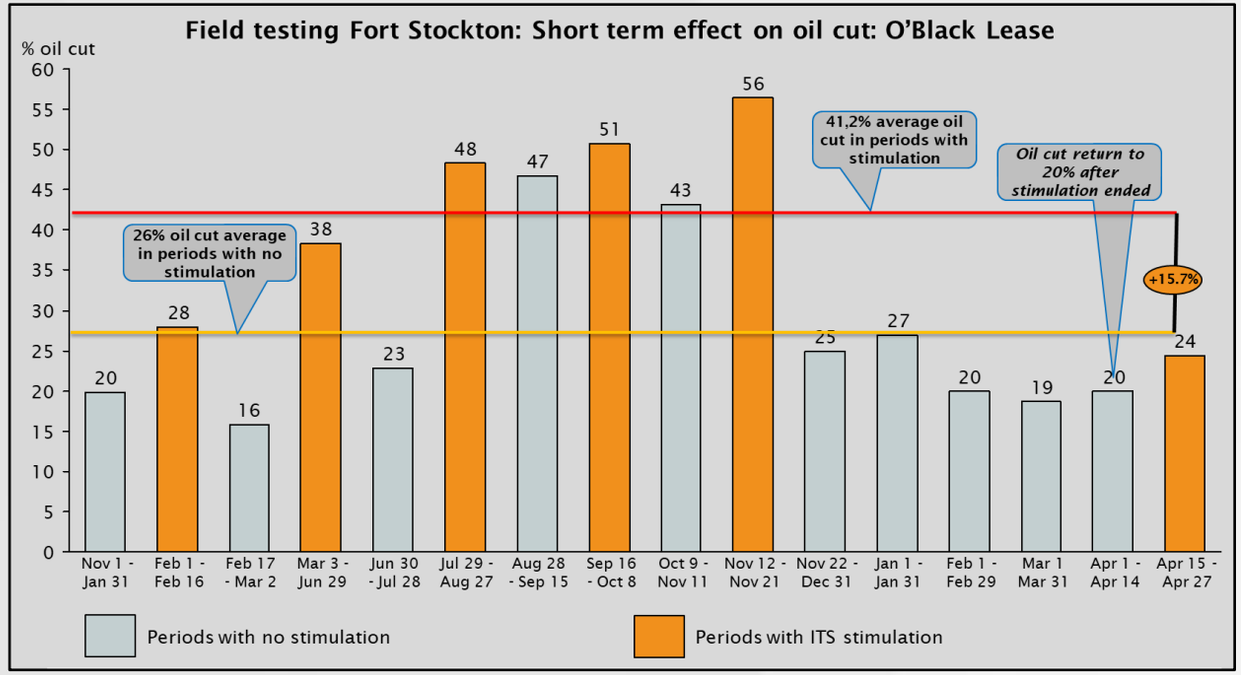
- Small mature field with active water injection
- High water cut and low oil cut
- Moderate gravity low viscosity oils in a heterogonous thinly bedded fluvial sandstone reservoir

Testing aims were

- The equipment reliability and functionality
- the effect on the oil and produced water cut

Results

- Equipment set up had reliability issues which has led to some redesign
- Significant improved oil cut rising from 20% to >50% during Stimulation periods



The value impact of deploying ITS

Potential increase daily production and reserves

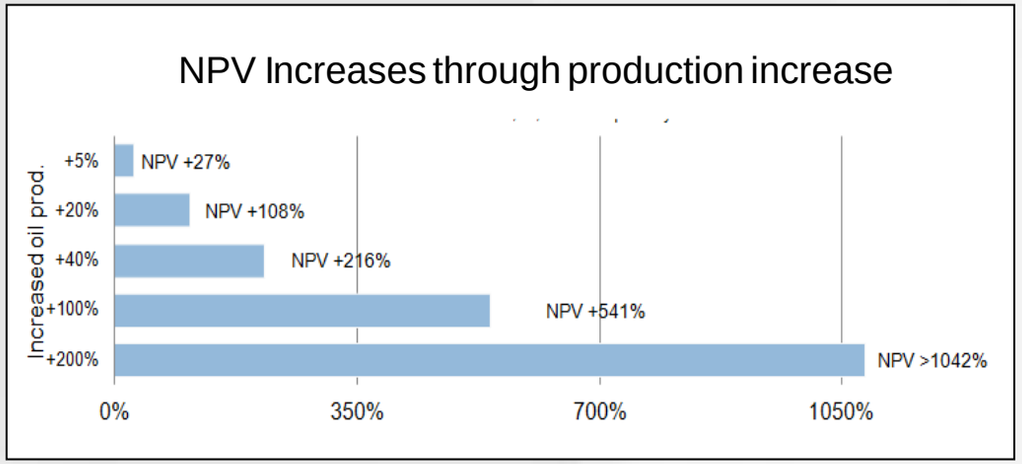
- Improve full field recovery by an additional 10+%
- Up to a 2-3 fold increase in oil cut from <20% to >50% in mature field (Fort Stockton)

Costs

- Simple modular (container) installation
- Low cost manufacture of equipment and installation
- Minimal operating costs

Value Add to field owner

- Significant NPV add
- Even small increases in oil production result in large NPV increase
- Doubling the oil cut can give a >300% increase in NPV



The scale of the opportunity

- Even in a net zero world, at least an additional 250 billion barrels is required to meet the supply demand gap
  - New field exploration: high level risk dollars, long lead times, high capex, long pay back, high green activism
  - New field development high capital, long pay back times, increasing risk of stranded assets, high green activism
  - Increased recovery from existing field, using current technology, high Capex, high Opex and large environmental impact
- Applied ITS Technology delivers low cost instant pay back improved environment performance
- World Scale opportunity
  - World developed and producing reserves in the order of 1,000 B bls, 250 B bls is 25% increase
  - ITS technology can potentially improve current global IOR field recovery from <40% to >50 %, this technology could meet the supply gap
- Local Scale Opportunity
  - Texas has approx.140,000 marginal wells, average prod of 2,2bbl per day each one an opportunity for ITS technology
  - ITS technology can massively improve marginal field recovery and deliver massive NPV growth

Window of opportunity exists: It's a perfect storm & ITS has the solution

IOC & NOC strategy's focussed on

1. Cash flow and debt reduction
2. Managed production decline link net zero 2050 targets
3. Short cycle time investments
4. Scope 1 and 2 emissions reductions
5. Managed and flexible capital programmes
6. Energy security

ITS Technology deployment

1. Improved production and cash flow
2. Maximised Res & Prod from existing fields
3. "Instantaneous" results following technology installation, fast pay back
4. Reduced per barrel emission metrics
5. Ability to phase deployments and with re deployment capability
6. Increased production from existing field and increased economic field life build energy security

4. Path to technology acceptance

Industrial partnership (s)

- ITS is seeking to form a series of strategic industrial partnership
  - The aim to build collaboration partnerships that can work on the research, development and deployment testing of the Technology
  - The aim is to have a multiyear partnership to take the technology through to industry acceptance
  - A joint commitment and agreed plans on R&D and testing
- With the aim of partnership is
  - Brand Recognition
  - Research & Development of ITS technology and equipment
  - Undertake multiple field testing of technology and equipment to determine the best operational window of the technology
  - Establish early commercial deployment of equipment working directly with industrial partners
- The partnership would be based on a mutual shared risk and reward basis

Research & Development and Field-Testing Objectives

- Final budgets to be developed and agreed with industrial partners, tailored to agreed research objectives
- Equipment R&D, today the equipment is early prototype equipment, unreliable & bespoke
  - Aim to develop better equipment, with new patents to be able to
    - Operate in all environments, nr urban habitation, offshore and subsea as well as onshore
    - With remote digital operational management , Manufactured at low cost, with easily deployable modular containers
- Reservoir Scale Research, linked to major technical and industry recognised institutions
  - Aim to better understand how the technology works at the field/reservoir scale to enable
    - Better prediction of potential increased production rates and reserve recovery
    - To enable optimisation of field operations and establish technical acceptance of the science behind the system
- Field Operations
  - Ultimate credibility comes from multiple field verified tests but with aim of
    - Improving the pre-use predicted outcome
    - To test and define the width of field/ reservoir operating conditions, eg oil gravity, viscosity & GOR and reservoir parameters eg degree of heterogeneity etc

The timing is right for ITS to help meet the energy challenge

Internal factors	**1. New Team in Place**	New management team and board aligned with investors on strategy and time line to achieving commercialisation
	2. Patented new technology which results in better IOR	The ITS Patented IOR technology successfully lab & field tested. Shows to improved ultimate 0il field recovery by additional 20% Further planned field tests to verified by independent observers. Support grant from innovation Norway
	3. New ITS Strategy	The strategy is aimed at reaching a near term commercialisation point by accessing full funding, an industrial partner and a successfully completed technology verification process.
	4. Attractive business model	Low capital costs exposure to ITS through commercialisation strategy Massive ability to scale once the strategy has been completed with many commercialisation options open to ITS investors
External factors	**A. Strong market drivers**	Supply Demand imbalance, is leading to and expected long high oil price cycle. Political desire for renewed Energy Security, energy transition and ESG investment KPIs . Investors are focussed on short cycle times, instant impact
	B. Improves producing oil field environment KPIs	Achieves improved IOR with the use of chemicals or substantial increase in the use of production energy Resultant production increase lowers all per barrel metrics
	C. Improves producing oil field economic KPIs	Simple low cost, Capex & Opex plug and play technology improves all oil field financial metrics by increasing production. Capex per bbl, Opex /barrel Net back /bbl, field net cash flow, NPV and ROCE.
	D. ITS Technology fits with NOC/IOC strategy's	Improves Cash flow, reduces long Capex spending by increasing reserve recovery, reduces Opex by increasing production. Reduces environmental impact and Scope 1 emissions

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