



# PERFORMANCE PROFILE

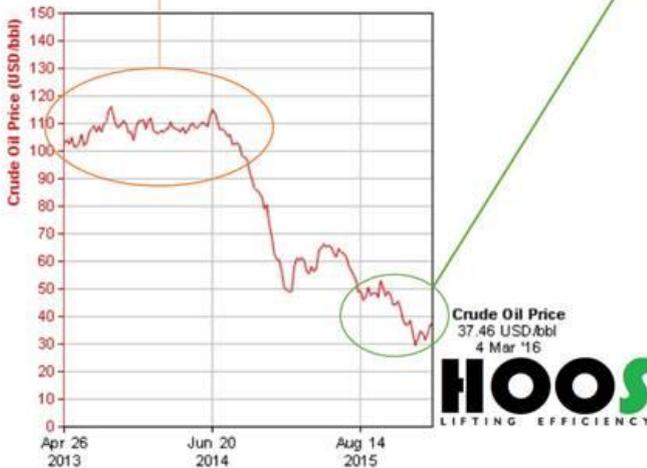




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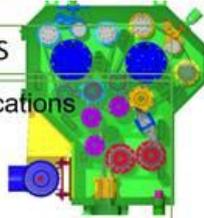
Looking to the oil price plummeting, E&P organizations strongly consider changes to their strategic focus, from volume of production to efficiency of production. We are pleased to mention that our research and development efforts done in the past year are clearly aligned with the new E&P goals: **cost reductions while increasing crude production.**

High Oil Prices – focus on production



Low Oil Prices – focus on productivity, use HOOS

- ✓ Reduced workover costs with 70% in all applications
- ✓ Solve problems with heavy, viscous, sandy, high GOR oil types
- ✓ Reduced *power consumption with up to 95%* for viscous oil
- ✓ Permanently cut costs with tubing, submersible pumps, rods, strings
- ✓ *Efficiency increases* with the increase of subsurface workover amplifiers: viscosity, sand, gas, paraffin
- ✓ Gather real time data from all your wells due to the built in oil operating system. Control your production. *Remote control your well* – even from your mobile phone.



We would like to introduce to you our heavy oil operating system – **HOOS** – a **new artificial oil lifting technology designed for high energy efficiency, low workover cost and increased production.**

The technology replaces the vertical pumping paradigm with vertical transportation. The transport is facilitated by an oil adherent, continuous, extremely durable textile belt, capable of lifting up to 600 bbl of heavy oil per day. The belt is so strong that is able to resist to tensions higher than 35 tonnes. It is also non-abrasive and specially designed to endure corrosive conditions of oil environment up to one year.

**HOOS** is the artificial oil lifting technology designed to change the paradigm from vertical oil pumping to oil transportation. It was engineered with focus on productivity, cost & energy efficiency, extreme reliability, security and care for the environment.

The technological principle?

The underground oil is transported to the surface using a high resistance, oil absorbent belt. The O shape belt goes underground, reaches the downhole unit diving in oil under the static level, absorbs the oil (part of it is absorbed, part it is sticking), then it is transported at the surface where the absorbed and sticking oil it is collected in a specially designed surface unit, then the belt goes again underground and the cycle is repeated.



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The concept of **efficiency** we embed in HOOS technology translates in practice as follows:

- We will increase production time – because HOOS is not affected by downtime caused by heavy, sandy, high GOR oil types
- We will pay special attention to reducing:
  - ✓ Workover costs – because there is virtually no underground equipment that needs maintenance
  - ✓ Necessary equipment to operate – no pumping, no tubing, no strings, no rigs or heavy equipment
  - ✓ Energy consumption – we just need the energy to lift the oil, plus a very small additional energy to rotate and squeeze the belt
  - ✓ Downtime – the equipment is featured with own smart operating system, able to mail, SMS, alert in real time any known issue

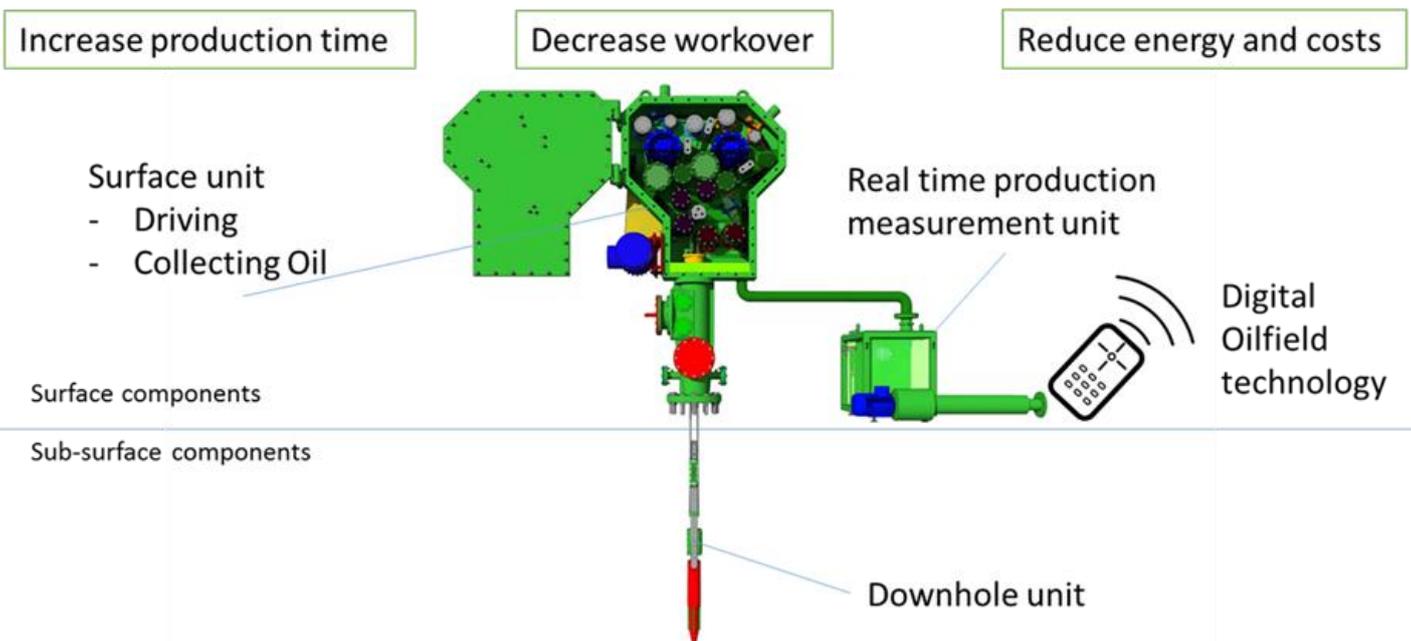
All this research and development effort will give you the **following results**:

- You will **reduce energy costs** with 40% to as much as 95% (as demonstrated in a practical test in Demjen field, light oil with high paraffin: the lifting energy has been reduced from 1MWh to 0.085 MWh per tonne)
- You will **increase production to the true well capacity**. In some cases, the production increased even several times (the more difficult the environment, the more efficient HOOS it is – our best result is from 200l to 860l, that is four times)
- You will **increase MTBF** (Mean Time Between Failure)
- You will have a **lower water cut**- the reduction is between 30% and 90% from the actual water cut
- You will be able to measure in real time your production (provided that the oil is still liquid after we lift it)
- You will **slash your operating expenses** with at least 50%. Our history proves that we have 2 USD/barrel cost for lifting
- You will be able to operate HOOS from your desk and even from your mobile, while preparing for a management meeting

In order to achieve previous listed results, HOOS is made of the following **modules**:

- **Digital oilfield technology:**
  - ✓ Internet enabled management tools: dedicated software application, database and VPN security channels designed to protect, monitor, control and properly report your HOOS units activities, whatever their physical locations. Hosted at <http://hoos.energy>. Can be located on your premises
  - ✓ Operating System: a combination of embedded software, computing power, hardware protections (HOOS unit, HSSE), sensors and electrical engine controllers designed to operate and optimize your HOOS activities

- **Surface unit:** ATEX certified, computer designed mechanics to drive your unit and collect the production. Featured with custom designed blow-up preventer.
- **Integrated heating unit** so the equipment will work even at temperatures below -30 degrees Celsius.
- **Measurement unit:** real time production measurement, primary oil/water separation, pumping to park
- **Downhole unit:** active unit with special design to allow production stimulation, oil flow, unit anchoring, optimal belt tensioning and temporary viscosity reduction for proper vertical transportation.



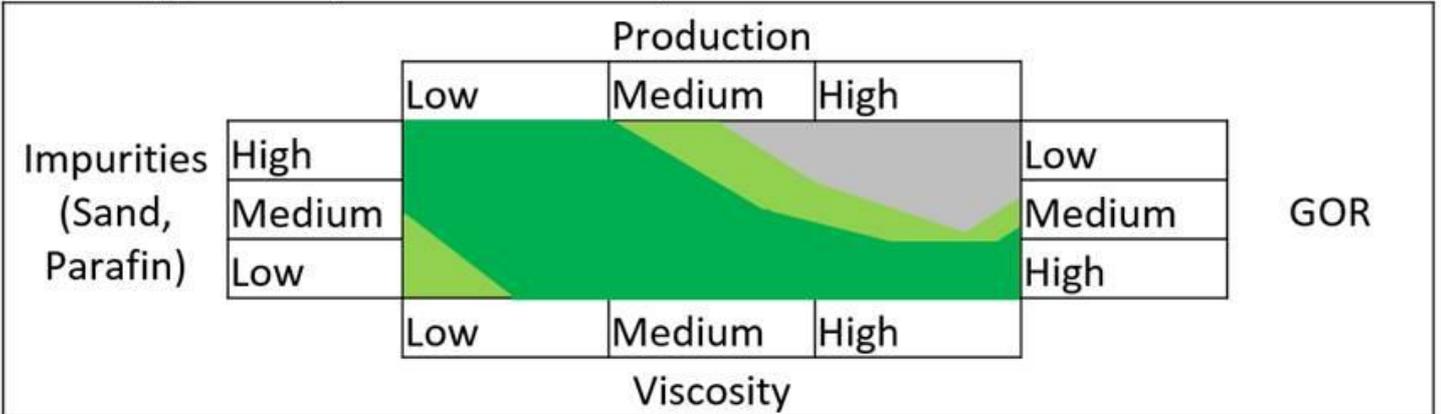
As mentioned before, HOOS is not affected by crude composition that reduce efficiency, such as sandy oil, viscous oil, high density, high paraffin or high GOR oil types. We have designed the technology to perform in these special conditions.

As shown in the following graphic, although not designed for high volume production wells nor for low viscosity oil types, HOOS is best suited for high impurities, high viscosity and/or high GOR oil types:



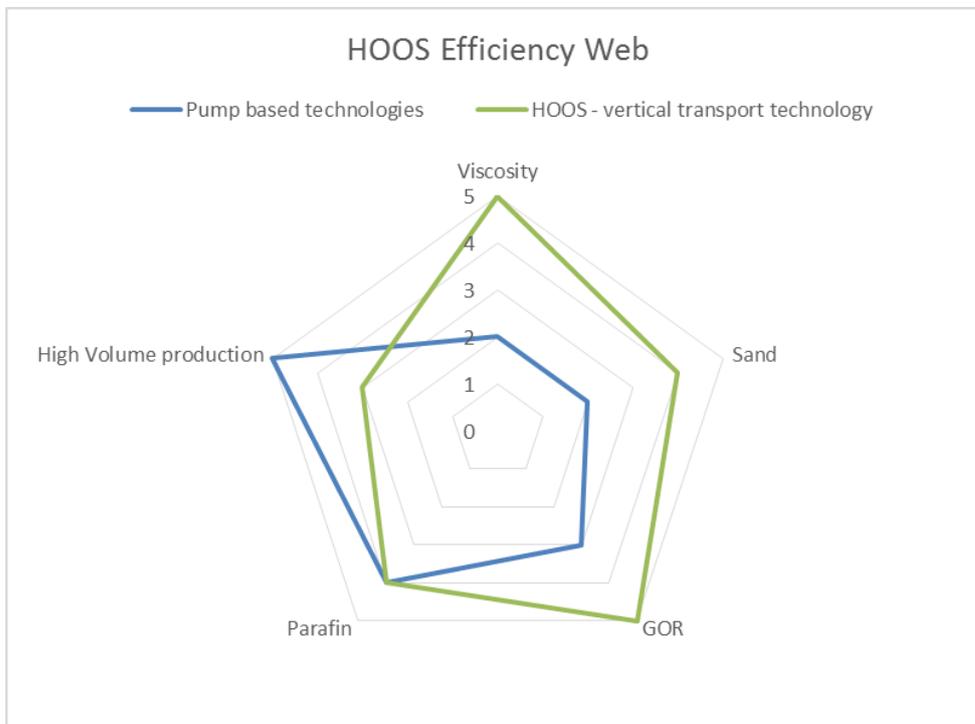
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### HOOS Applicability - Colour Intensity Matrix



Being designed to properly produce in harsh oil conditions, HOOS has a clear efficiency advantage comparing to pumping technologies. One key result we've got regarding energy efficiency is the **power consumption reduction** from 1MWh down to 0.065 MWh while significantly increasing to production too.

As shown in the efficiency web below, HOOS efficiency is best when applied to sandy oil, oil with paraffin, viscous or high GOR oil types:

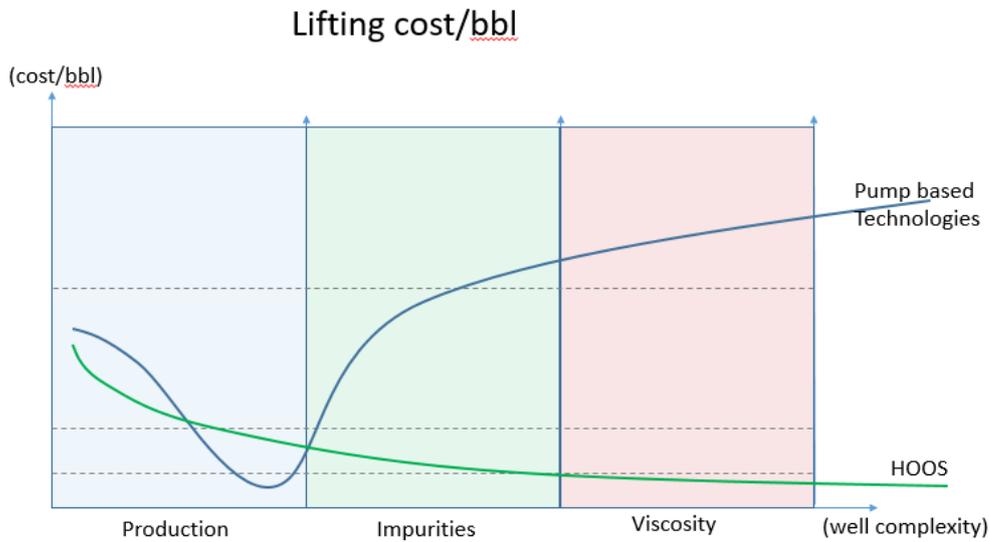


This increase efficiency translates into important **cost reductions**: you significantly decrease your energy costs, your water cut, you reduce drastically workover and you permanently drop costs with pumps, tubing, and strings.

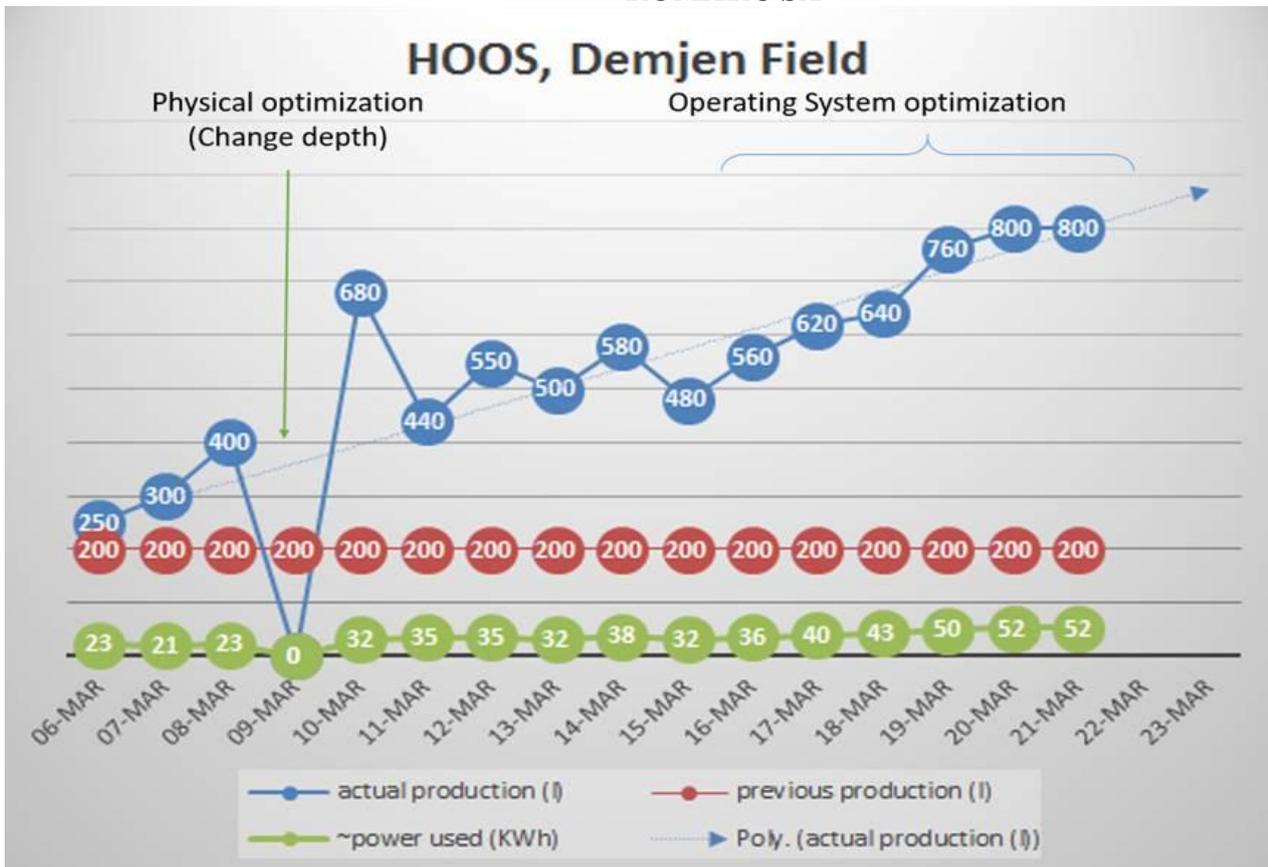


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As shown in the following graphic, while for traditional pump based technologies the cost per bbl. increase with well impurities or viscosity, HOOS costs per bbl. steadily decrease. The more viscous or sandy the oil, the lower the lifting costs per bbl., relative to traditional technologies.



And as a practical demonstration of HOOS efficiency level, please find below a graph representing HOOS results from a fine-tuning period , light oil, high paraffin, low GOR, sandy, marginal well.



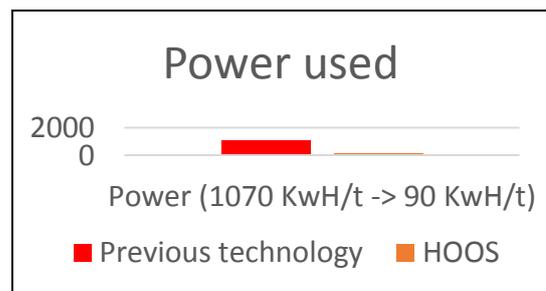
As for further practical demonstration, look at the data from two of our wells DE22 and DE26:

Month: May: No technical issues during operation

### De-22 Service summary

#### 1. Energy consumption

Decrease of daily operating time from 24h to 4,2 h → 92% energy savings

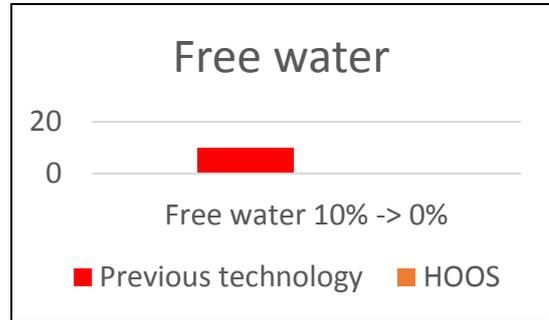




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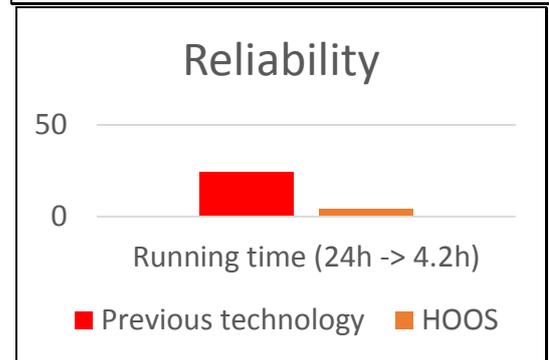
### 2. Transportation costs

Abrupt reduction of free water based on Mol Group lab data from 10% to 0% → less transportation costs.



### 3. Lifetime & lifecycle

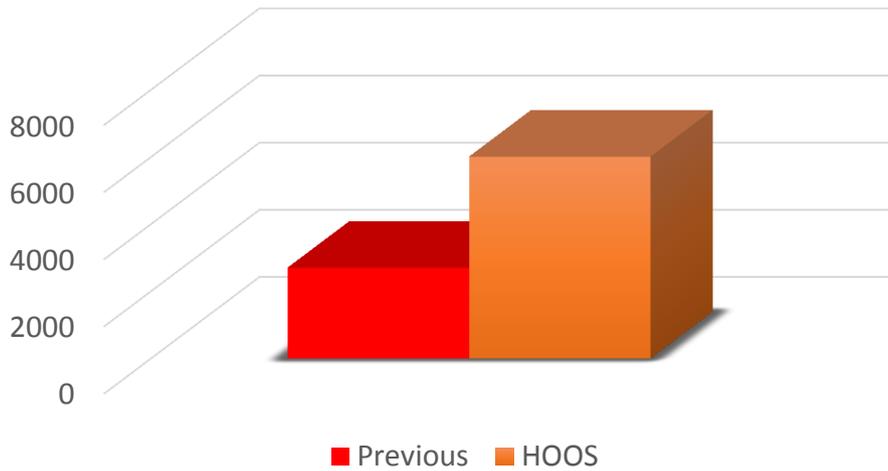
Proactive technical belt improvement activities by using adapted belt sewing techniques.



### De-22 net production comparison

Previous technology	HOOS
Production per day: 200 l Days in month: 30 d Average operating time: 50% <u>Production in month: 200l x 30d x 50% =</u> <b><u>3000 l</u></b> Free water: 10 %	<u>Production in month: 6010 l</u> Free water: 0 %
<b>Net production: 2700 l</b>	<b>Net production: 6010 l</b>

## Net oil comparison in May

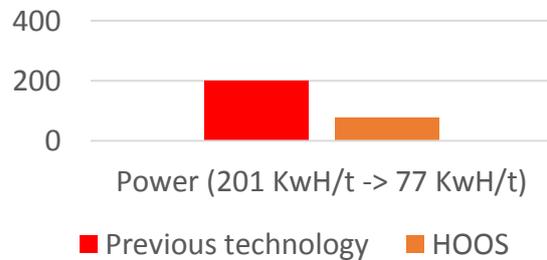


## De-26 Service summary

### 1. Energy consumption

Decrease of daily operating time from 24h to 3,85h → 62 % energy savings

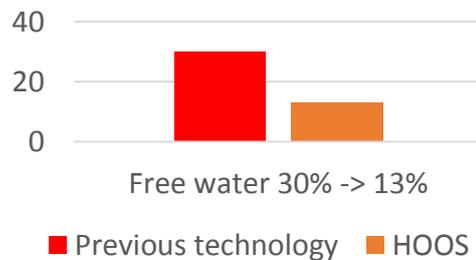
### Power used



### 2. Transportation costs

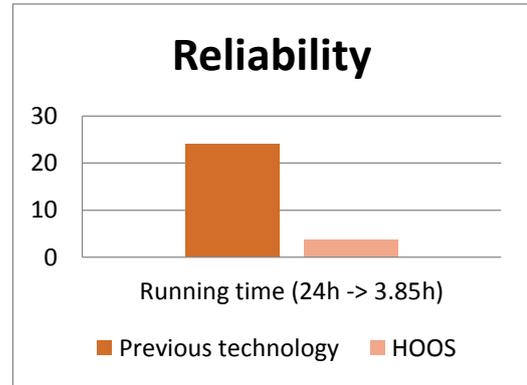
Abrupt reduction of free water based on Mol Group lab data from 30% to 13% → less transportation costs.

### Free water



### 3. Lifetime & lifecycle

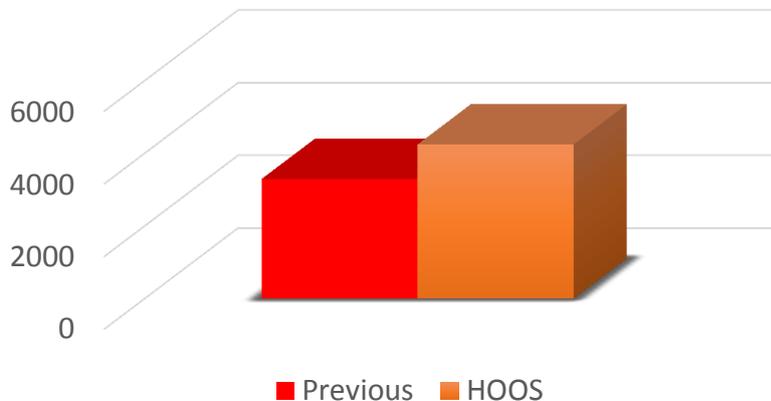
Proactive technical belt improvement activities by using adapted belt sewing techniques.



### De-26 net production comparison

Previous technology	HOOS
Production per day: 200 l Days in month: 30 d Average operating time: 60% <u>Production in month: 200l x 30d x 60% = 3600 l</u> Free water: 30 %	<u>Production in month: 4880 l</u> Free water: 13 %
<b>Net production: 3295 l</b>	<b>Net production: 4245</b>

### Net oil comparison in May





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## **Testing HOOS technology**

We are open for a testing period on client premises. The test will be performed by a set of KPI's that will be agreed prior to the test period. The KPI's are calculated related to the previous results of the test wells and they usually refer to electrical power consumption, water cut reduction, workover reduction, and production to well potential.

We propose 2 business approaches for the testing:

- If the test is a stage in a commercial contract, it is done for free. This means that after the test period, if the KPI's are reached, we start the delivery stage of the contract.
- If the test is not part of a commercial contract (the commercial contract is a subject of a later discussion), there will be a fee in order to cover the test costs. The fairest way is to set a service cost for the oil lifted during the test (a price per oil barrel). Later on, if the test convinces the client and a commercial contract will be signed, there will be a supplementary discount to the total price that will equal all the fees paid in the test contract.