Innovations in Blockchain

PESA Supply Chain Conference

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OOC Oil & Gas Blockchain Consortium – Board of Directors Member
Eventually **everything connects** - people, ideas, objects. The quality of the connections is the key to quality per se.

*Charles Eames*, American Designer, 1907-1978
It **IS NOT** about just digitizing the current process, or adding new technologies on top of legacy systems/processes.

It **IS** about transforming **how we work**, across **processes, people, and technologies**.
Oil & Gas Adopting Blockchain in Partnerships and Investments

CHANGING
How We Work

Energy Partnerships

- Consortium comprising energy companies and tech vendors, predominantly in Europe and Asia Pacific, including Shell, Total and Equinor
- First O&G blockchain consortium in the U.S. with ten operator members advancing four initial use cases in upstream activities
- VAKT reaches one year in production and grows membership to 12 major traders; expanding commodity and geographic scope
- BP, Mercuria and Shell developing new JV venture, potentially leveraging VAKT for natural gas post-trade activity in North America
Blockchain: Building a Network for Transformation

U.S. Oil & Gas Blockchain Consortium

1Q18
First Oil & Gas Blockchain Forum meeting

4Q18
Operator-led Consortium agreements signed

1Q19
Established Consortium structure and projects

By YE19
First pilot(s) in execution

By YE20
Complete pilots and explore other use cases

2021+
Influence industry blockchain standards setting

ADVANCING 4 PILOT PROJECTS TO SOLVE COMMON PAIN POINTS

Truck Ticketing  EQN Lead  AFE Balloting  COP Lead  Seismic Entitlement  REP Lead  JIB Exchange  COP Lead

Pilot

Proof of Concept

Design

Consolidated with AFE Balloting

10 OPERATOR MEMBERS

- Chevron
- ConocoPhillips
- Equinor
- ExxonMobil
- Hess
- Marathon
- Noble Energy
- Pioneer
- Repsol
- Shell
Case for Blockchain - Characteristics of a Good Process for Blockchain

- Shared data
- More than one participant
- Transaction dependency
- Opportunity for disintermediation
- Lack of digital trust

**WHY PARTNER WITH INDUSTRY?**

- **POWER IN NUMBERS**
- **TWO HEADS (OR MORE) ARE BETTER THAN ONE**
- **DERISKING TECHNOLOGY EVALUATION**
In overall US onshore operations

About 20 billion barrels of water produced each year.

90:10 Split between salt water disposal by pipeline and trucking.

This produces over 100M SWD trucking field tickets each year.
Truck Ticketing Pilot - Transforming the SWD payment cycle

### Scenario

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<tr>
<th>Scenario</th>
<th>Days</th>
<th>Steps</th>
<th>Manual Intervention</th>
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<tr>
<td>SWD Pilot</td>
<td>6-12</td>
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<td>E-Commerce</td>
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**ROLE INVOLVED**

- Trucking
- Well Pad
- SWD
- Operator
- Shared ecosystem
Truck Ticketing Pilot - Transforming the SWD payment cycle

Equinor expects to realize over **25%** operational cost savings, and significant time savings with salt water alone...

...and suppliers can expect to (finally) be paid on time, while also realizing their own cost and time savings*. 

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* Based on full scale implementation.
Truck Ticketing Pilot – Lessons learned

- **Timing is key.**
- **Strong stakeholder management.**
- **Ways of working...**
- **Integrated view of Systems, data and processes**
It is about more than just truck ticketing.

This is paving the way for automated **vendor validation** of any deliver of **goods** or **services**.
“Learn how to see. Realize that everything connects to everything else.”

*Leonardo Da Vinci, Italian Polymath, 1452-1519*