

Colibri Cable-Deployed Rigless ESP

Extending ESP Application



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Agenda

1. Evolution in rigless technology
2. Evolution of the PMM and the high-speed ESP
3. Extending the ESP application beyond production
4. Ideas from the audience

Evolution of rigless technology

Coiled tubing (CTDESP)

Rig required

Cable inside coil (CTDESP)

Rig required

Downhole wet connect

Rig required

**Downhole wet connect
Coiled tubing (CTDESP)
Cable inside coil (CTDESP)**

Rig required

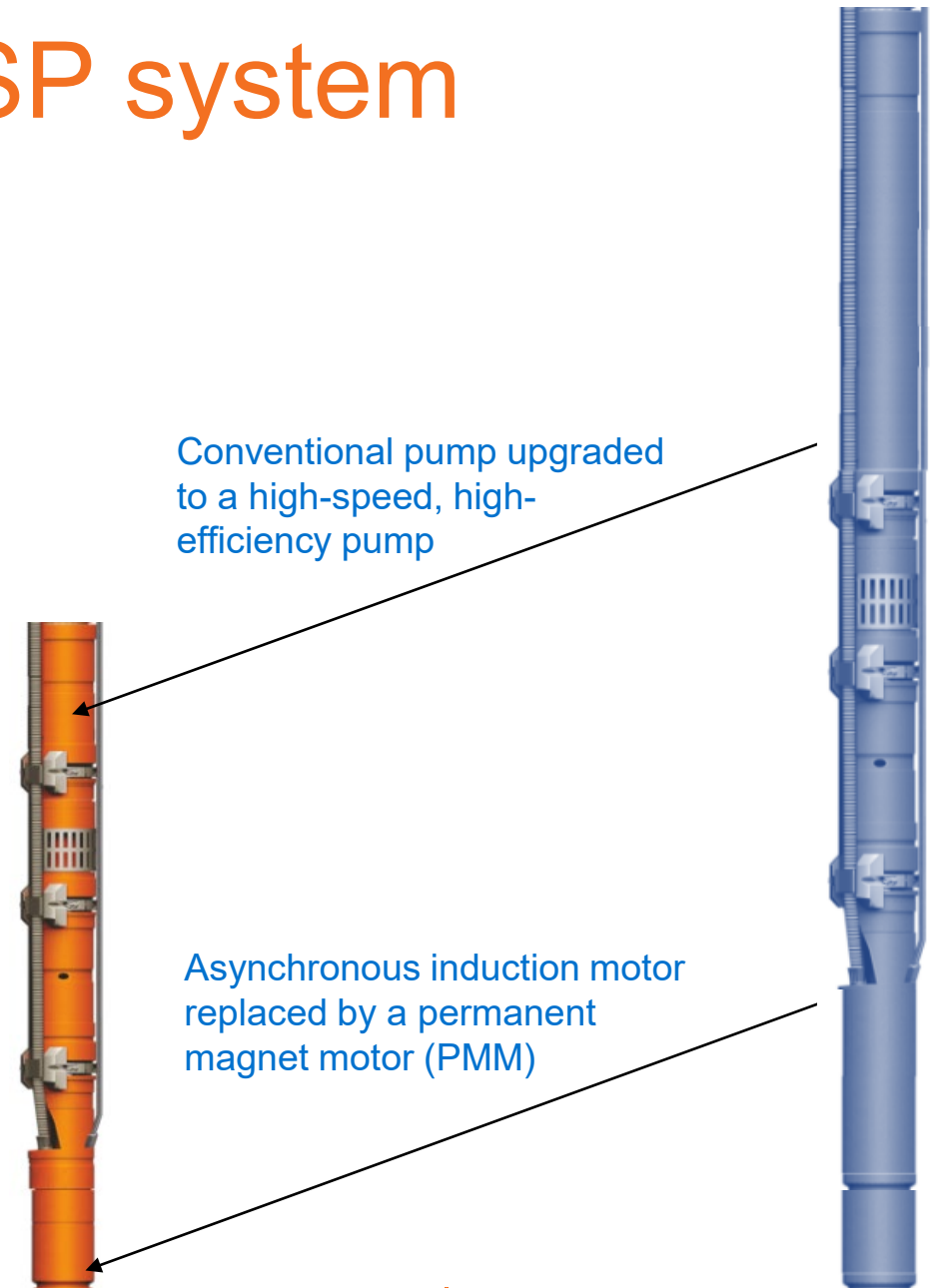


Evolution of the PMM and the high-speed ESP

Evolution of the high-speed ESP system

Reduced ESP footprint

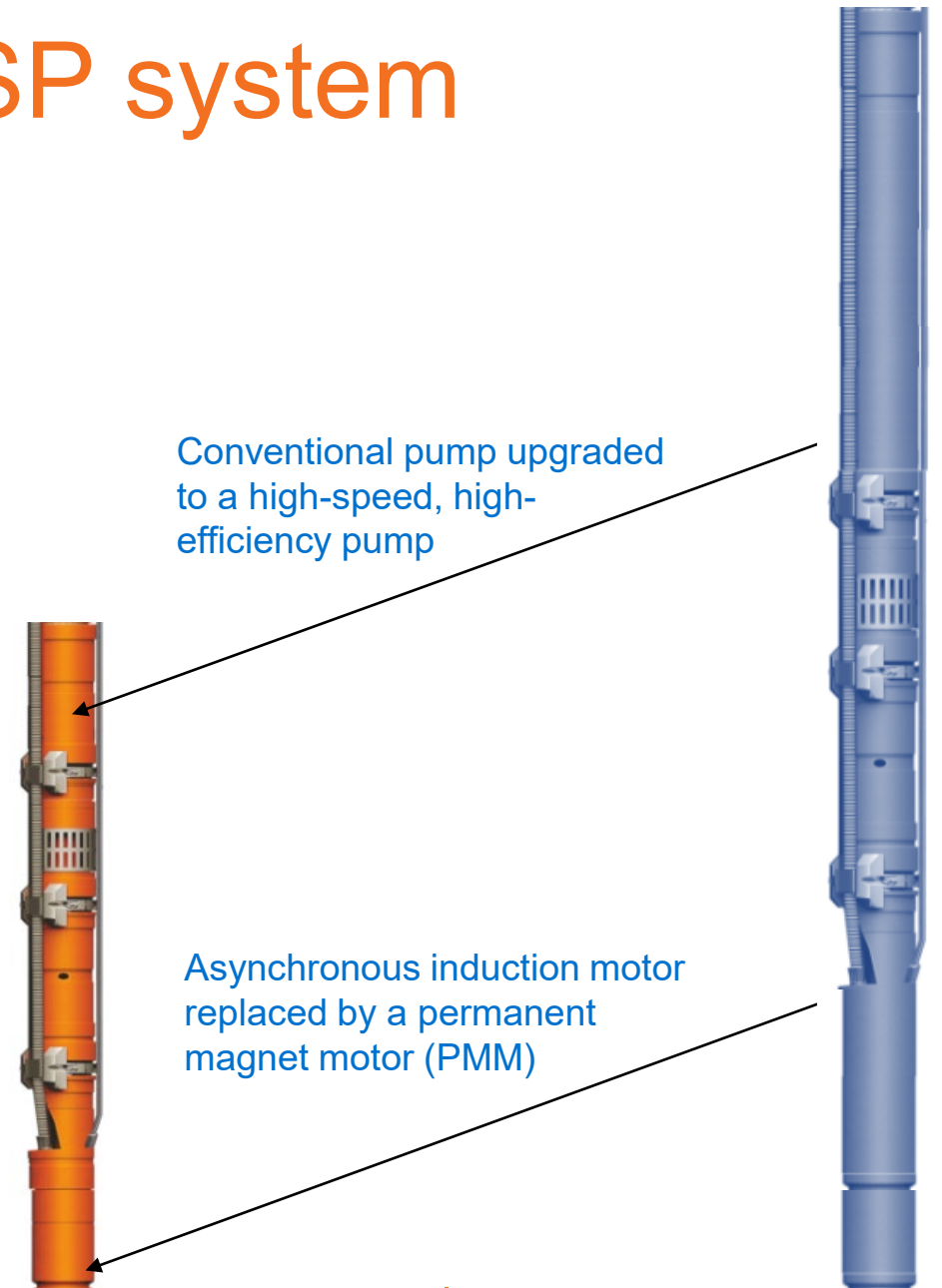
- a) High-speed 8500-RPM PMM
- b) Reduced number of stages by 50%



Evolution of the high-speed ESP system

Reduced power consumption by 25%

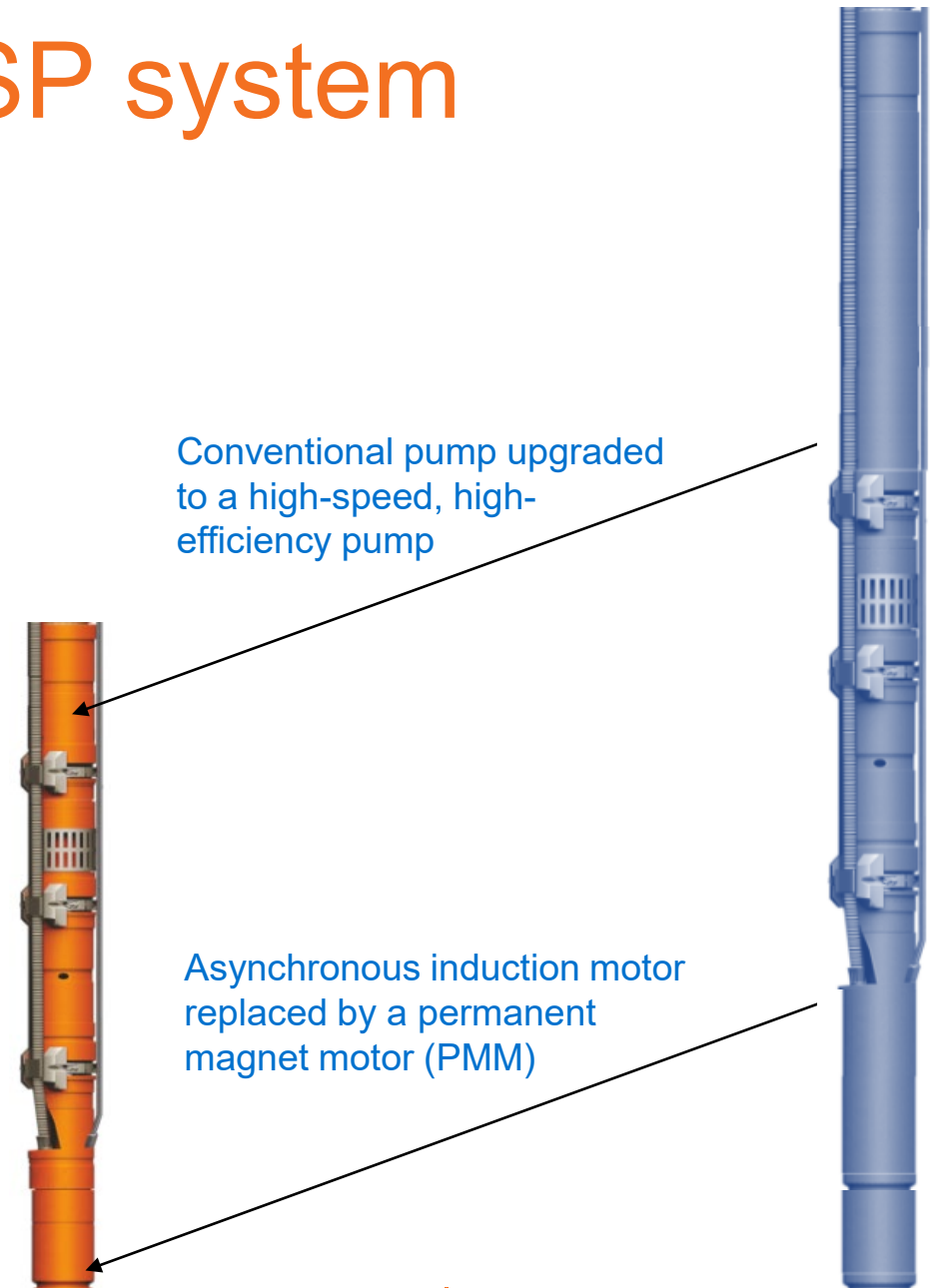
- a) PMM with high-efficiency pumps
- b) Lower current requirement for PMM
reduced size of the power cable



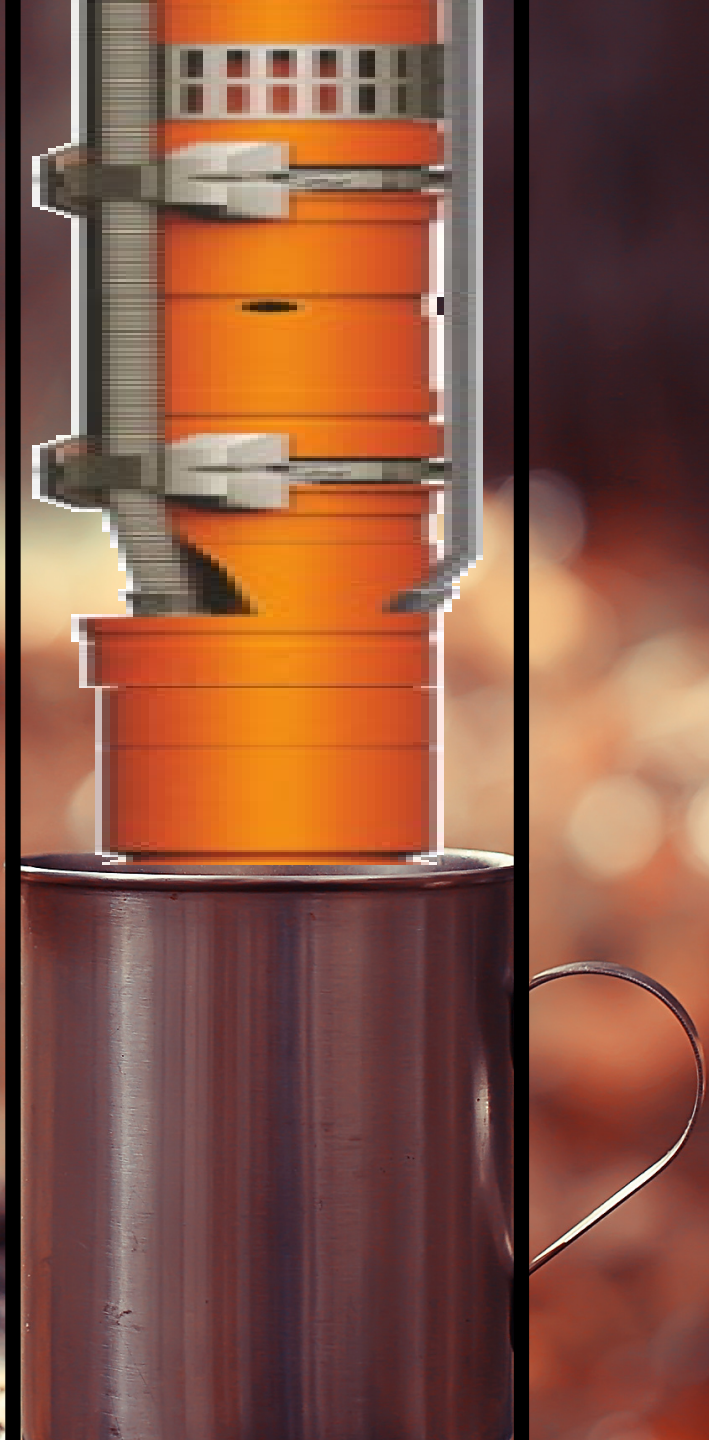
Evolution of the high-speed ESP system

Reduced OD of the ESP

a) Smallest OD—2.17 in. (55 mm)



2 7/8" TUBING



Evolution of the TRULY Ringle\$\$ ESP

KEEP IT SIMPLE.

MAKE IT QUICK!

LOSE THE RIG, NOT THE WELL.

Low Capex

Less equipment

Low Opex

Less time



Loose the rig, not the well

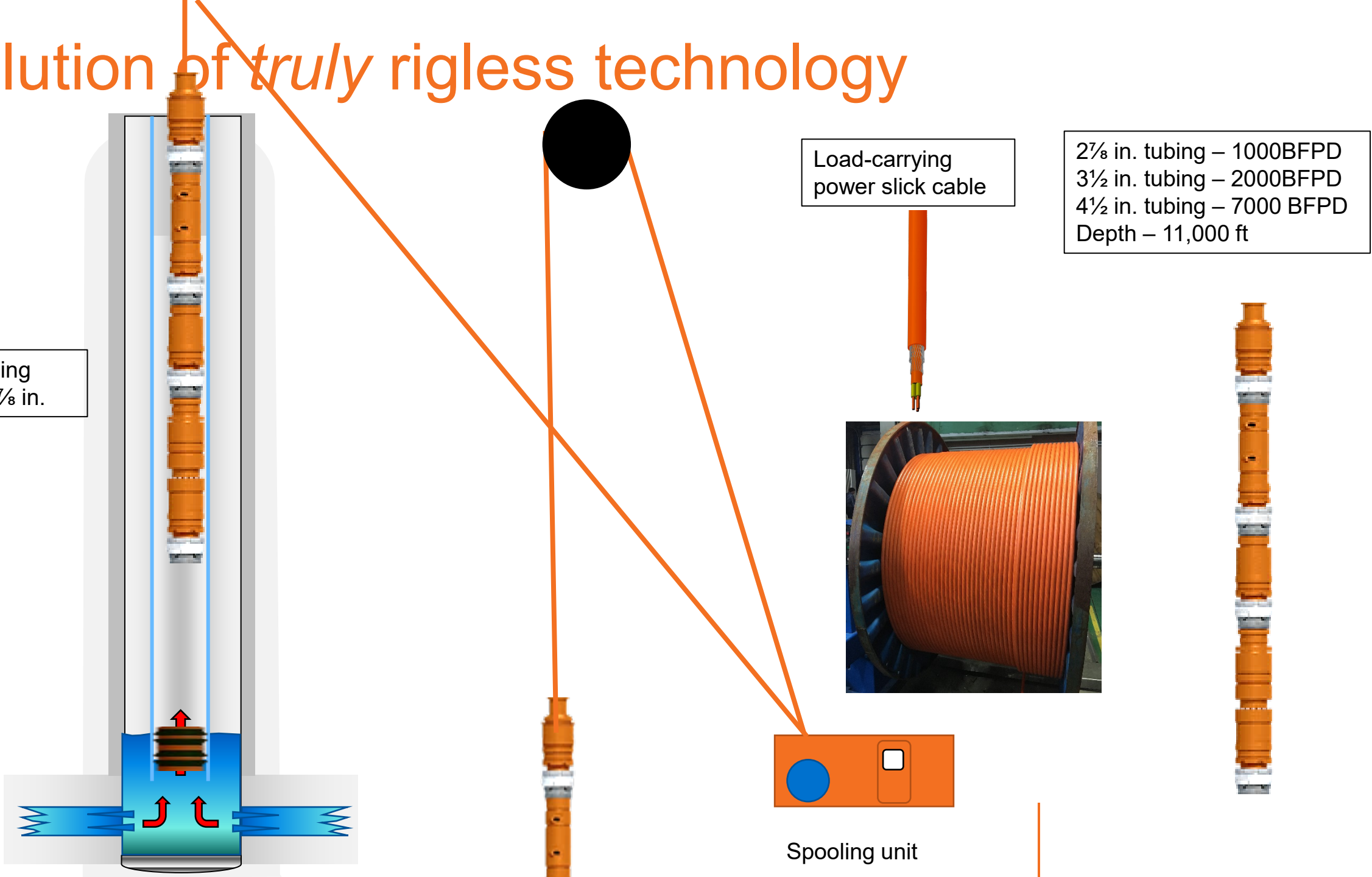
Standard ESP installation with a rig



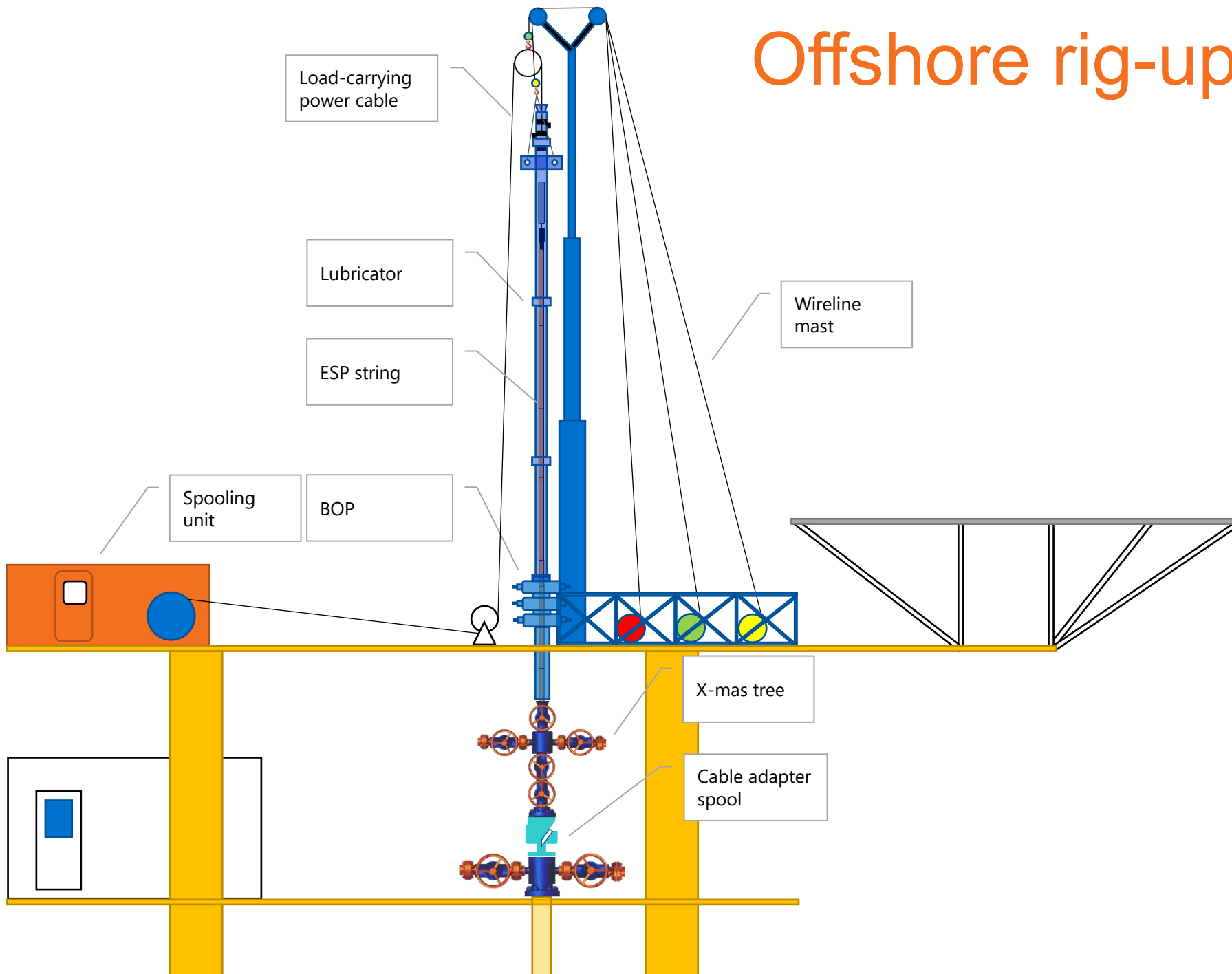
Cable-deployed ESP installation with a crane and slickline reel



Evolution of *truly* rigless technology



Offshore rig-up layout



Extending the cable-deployed ESP to other applications

TIME TO UPGRADE

Expanding cable- deployed ESP applications

- This technology has enabled use in non-production applications
 - Reactivation of shut-in wells
 - Temporary production when waiting for rig
 - Well unloading
 - Well testing
 - Dewatering of Gas wells or Water loading
 - Well unloading in plug-and-abandonment operations

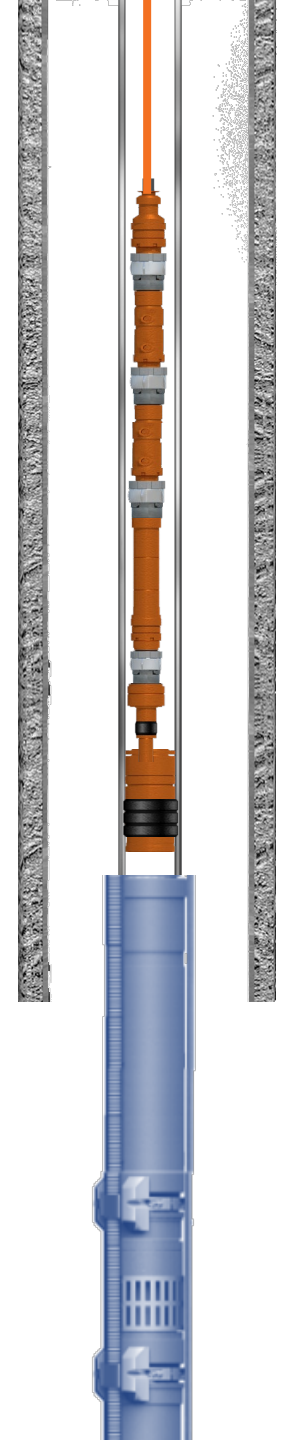
Temporary Production

Well with ESP failure and
waiting for Rig

RIH cable-deployed ESP

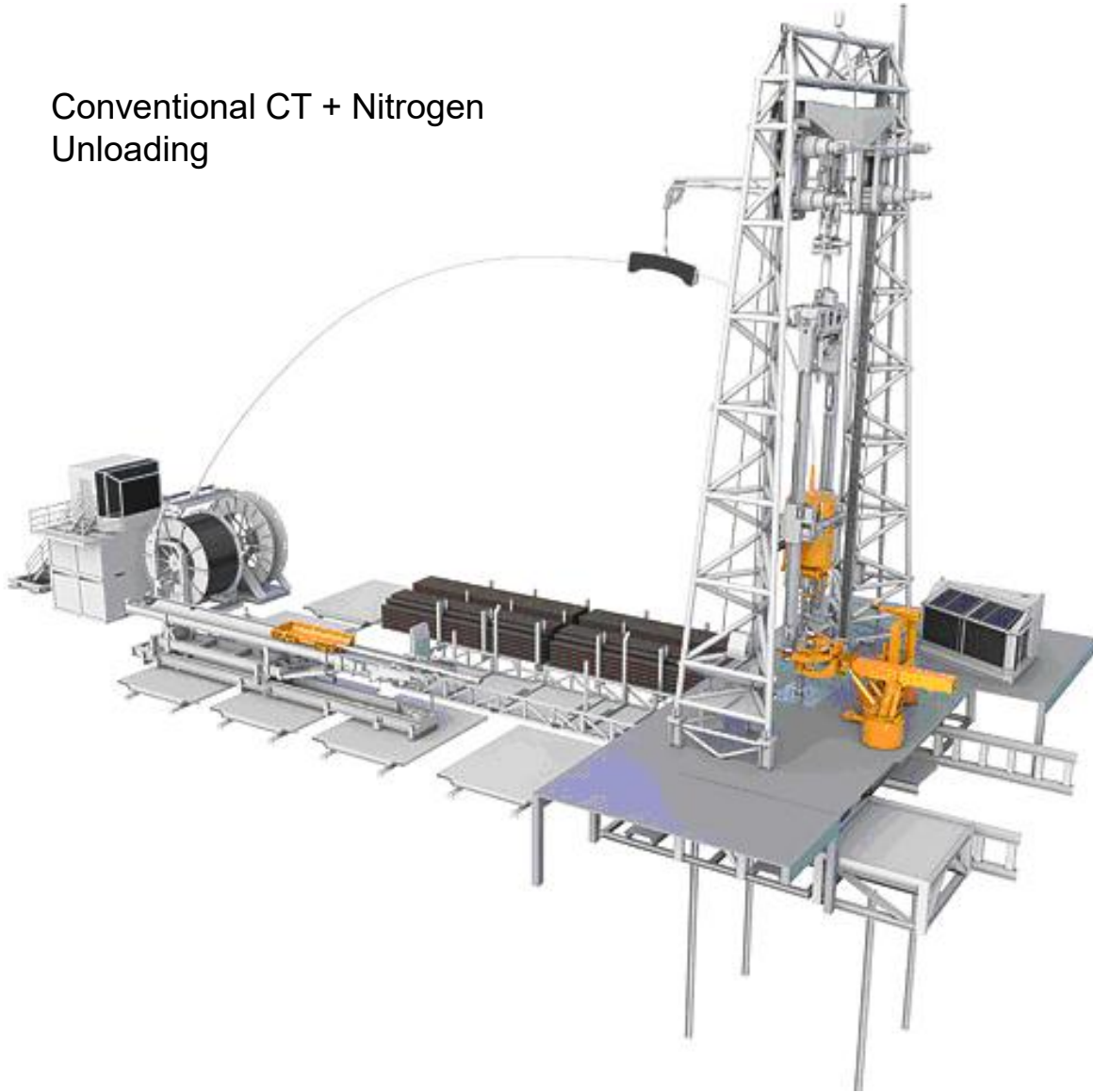
RIG up BOP and lubricator

RIH SL-retrievable anchor



Unloading or well testing

Conventional CT + Nitrogen
Unloading



REACTIVATION OF WELL



REACTIVATION OF WELL



Cable Deployed ESP



OUT OF THE BOX

1. Enhancing Scope of Cable deployed ESP
 - a) Rate of Innovation will speed up.
2. Making ESP Production similar to an Rig less Well Intervention
3. Reducing Operator Opex and Capex

THANK YOU

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