

Business opportunities
in the oil and gas industry
In-Country Value

18 December 2013, Sultanate of Oman



الفرص الاستثمارية في
قطاع النفط و الغاز
القيمة المحلية المضافة
١٨ ديسمبر ٢٠١٣، سلطنة عمان



Water treatment from brackish water for Frac activities

Presented by:

18th of December 2013



شركة تنمية نفط عمان
Petroleum Development Oman



Safety briefing and lodging



Emergency contacts

Mr. Kashif - loss prevention manager - Mob : 98089044

Emergency alarm / fire drills

Fire drills, emergency alarms (if any), assembly points to be announced by then hotel loss prevention staff

Prayer rooms

ladies prayer room & gents Prayer room are located in the Third floor

Toilets

available in Oman Auditorium & Boshar area

Coffee / tea

Provided outside the workshop room

Arrangements for smokers

allowed only outside the hotel Promises

Meeting agenda



1. Purpose of this workshop
2. Context and background
3. Scope of the opportunity
4. Industry Data
5. ICV creation through the opportunity
6. Specifications
7. Targeted parties
8. Contact details
9. FAQ
10. Q&A session

Purpose of this workshop



Purpose of the workshop

- To share the scope of one of the priority opportunities with the business community
- To register interest of the business community
- To set an initial dialogue between the oil and gas industry and business community
- To exchange ICV development best practices
- This workshop is NOT an contractual commitment with any business entity

More information on the ICV blueprint or on other opportunities could be found in the brochure and catalogue distributed today or by visiting www.incountryvalueoman.net

Context and background



- Oil & Gas industry is still growing in Oman. With this growth comes a growth in demand for resources/services.
- Water is a key resource in almost all activities in this sector.
- Fresh water is not available in quantities that meet the demand, hence comes the need to filter and treat the well's water.
- A major water consumer in the oil & gas sector is the "Fracturing Operation" that require fresh water to mix the Frac fluids.
- This opportunity aims to provide an additional mean of water treatment that should output fresh water to cope with increased demand.
- The forecast sums an overall direction towards increasing the "Fracturing Operations" in the country's different OG fields which brings a direct increase to water demand.



Scope of the opportunity



Opportunity

Mobile Water Treatment Plant

The water treatment plant should treat the wellsite water to make it fit for use in the Fracturing Operations and any other relevant operations.

The scope includes:-

- **PROCESS:** taking the wellsite water as an input and treat it to fresh-like water.
- **DELIVERY:** the plant should have both options:-
 - truck the full output to the Frac wellsite. (e.g. trucks, tankers,..etc)
 - pump the full output to the Frac wellsite. (e.g. hoses, pumps, boosters, ..etc)
- **STORAGE:** the plant should be able to store all the output water.
- **MOBILITY:** the plant should be mobile (e.g. can move from one field to another)
- **WASTE:** the plant should account for the waste disposal (i.e. filtered solids/liquids) with the Operator's assistance.

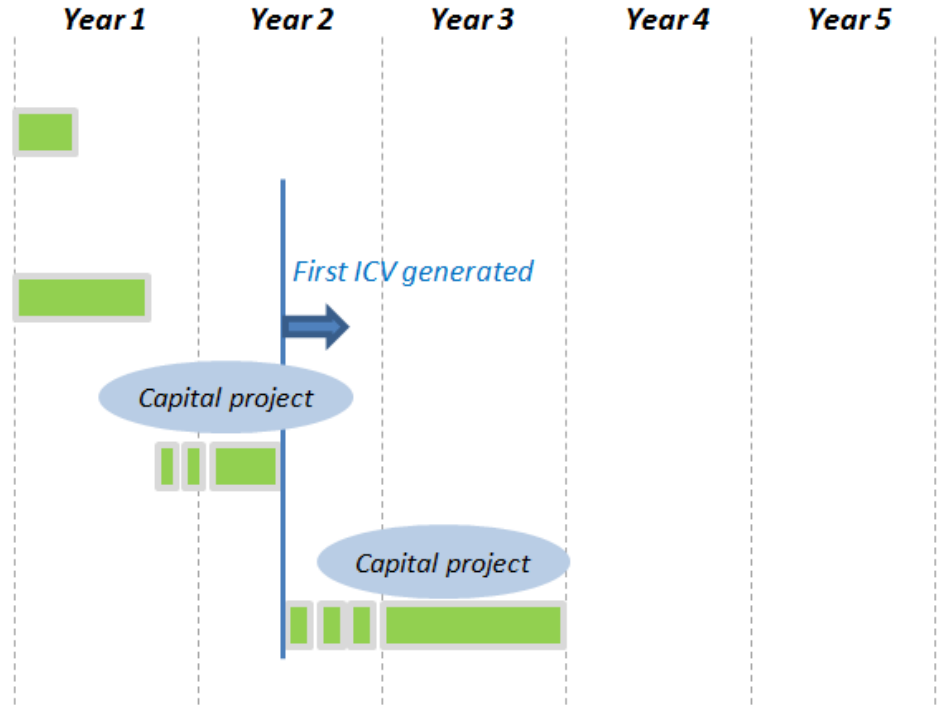
The scope does not include:-

- Drilling the water well.
- Preparing the location of the plant.

Gantt Chart – Water Treatment ICV Opportunity

Development Phases / Streams

1. Set up working group between operators and major contractors for the service to define water treatment specs and target
2. Communicate and provide business case results to investors
3. Set-up, launch and commission the water treatment plant facility
5. Promote new water treatment plant across operators



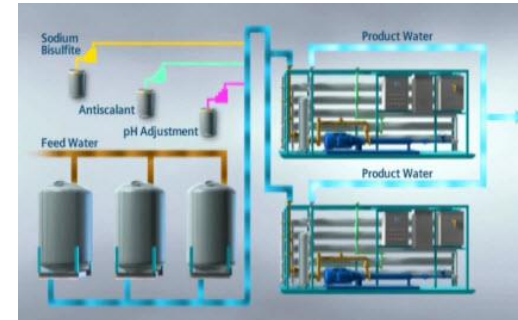
Specifications



- Output of the plant should have the following parameters:-

Chloride (mg/l)	Bicarbonate (mg/l)	Sulfate (mg/l)	Sodium (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Iron (mg/l)	pH	Density (g/cm ³)
64	24	22	14	36	3	0	7.8	1.0024

- The plant should be capable to output ~1000m³ per day.
- The plant should be <20km from the Frac wellsite.
- The plant should be able to truck or pump the full output to the Frac wellsite.
- The plant should have storage space for the full output.
- The Frac unit is responsible of the water storage in the Frac wellsite.
- The plant should be able to move in between fields following the Frac unit.
- The plant should be able to treat all range of wellsite water wells in the operators concession.
- The plant should provide means to manage the treatment waste.
- The operator shall provide all data of the input water.
- The operator shall comply and adhere to Operator's regulations and procedure.



Industry and ICV demand data



DEMAND FORECAST

- 8-year **PDO** demand forecast: **\$23M-\$27M**
- Avg annual **PDO** demand: **\$3M-\$3.7M**
- Growth guaranteed.

CATEGORY OVERVIEW

- There should be fair visibility of capacity and capability of local suppliers.
- The demand of RO water is increasing by magnitudes (especially for Frac operations)
- RO plants exist in OG industry but they are not mobile.

ICV CREATION

- Potential job creation: good potential for creation of jobs due to increasing demand of farcing services
- Potential ICV: medium due to localization of service
- Feasibility of implementation: High feasibility

Target parties



- SMEs
- International investors
- International EPC contractors
- Local EPC contractors
- GCC investors
- GCC manufacturers
- Local manufacturers
- Local fabrication workshops
- Local assembler
- Local agents
- Local suppliers
- Local entrepreneurs
- Omani Banks

Contact details and support



Lead operator(s) contact details:

SALEH AL-ABRI
FRAC WELL ENGINEER
PETROLEUM DEVELOPMENT OMAN

Operators support:

- *Wellsite water data (input water)*
- *Field geography*
- *Operator's Regulations & Procedures*

Other stakeholders:

1. Petrogas
2. OGC
3. Oxy
4. Daleel
5. OLNG
6. Orpic
7. OOCEP
8. OPAL
9. MOG

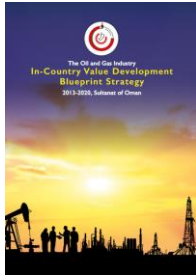
ICV PMO contact details

Website: www.incountryvalueoman.net

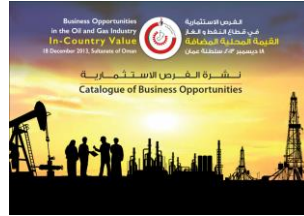
Materials and follow-up



For more information:



Brochure



Catalogue of opportunities



Website

For follow-up:

Register interest by contacting the PMO on: www.incountryvalueoman.net

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Thank you for your contribution!

Our mission:

***Developing a competitive and sustainable local supply
market... Together!***



Back up – not part of the main presentation deck