

# Overview Presentation



Together, creating pure  
oil, gas and water.

## OVERVIEW

### ProSep

#### Together Creating Pure Oil, Gas and Water

ProSep is a technology-based process solutions provider for the upstream oil and gas industry. The Company designs, develops, manufactures and commercializes technologies to separate oil, gas and water generated by oil and gas production.

ProSep's technology offering creates value for its customers by providing solutions that result in reduced OPEX, CAPEX and lower life-cycle costs.

ProSep received various industry recognition for some of its flagship technologies and is also a laureate of the Canadian and North American Deloitte Technology Awards.



## KEY ATTRIBUTES

### TECHNOLOGY BASED

- Fast growing technology-focused process solutions provider

### GLOBAL OPERATIONS

- Canadian-based with international operations in Norway, the USA, Malaysia and South Korea

### SUBJECT MATTER EXPERTS

- Industry leading process engineers averaging more than 20 years of upstream oil & gas experience

### COMPLETE PORTFOLIO OF SOLUTIONS

- Comprehensive suite of process equipment to treat oil, gas and produced water



### A SOLID PARTNER

- Exceptional HS&E track record
- Hybrid fabrication model combining control over its state-of-the-art fabrication facility (US) and flexibility of extensive network of local fabricators
- Premier R&D facility allowing JIP with majors such as Total, Statoil and ConocoPhillips
- Financial support of large institutional shareholders

# HISTORY

2006

- Company listed on Toronto Stock Exchange (Canada)
- Sold large produced water treatment system to Kuwait Oil Company to treat 260,000 BPD

2007

- TORR Canada merged with Pure Group (Norway) to become ProSep
- Became complete process solutions provider with over 100 employees
- Opened South East Asia business unit

2008

- Completed one of the industry's most comprehensive produced water treatment offering
- Recorded revenues of \$52 million

2009

- Opened state-of-the-art fabrication facility, increasing capacity to 55,000 sq ft
- Expanded South East Asia operation

2010

- Concluded JV in Korea for FPSO market with Kolon Group (\$7 billion group)
- New global strategic initiative (Engineering, Procurement and Sales)
- Record bidding activity

## 2011 – NEW STRATEGIC PLAN

### OPPORTUNITY

- Global E&P spending on the rise
- NATCO acquisition by Cameron

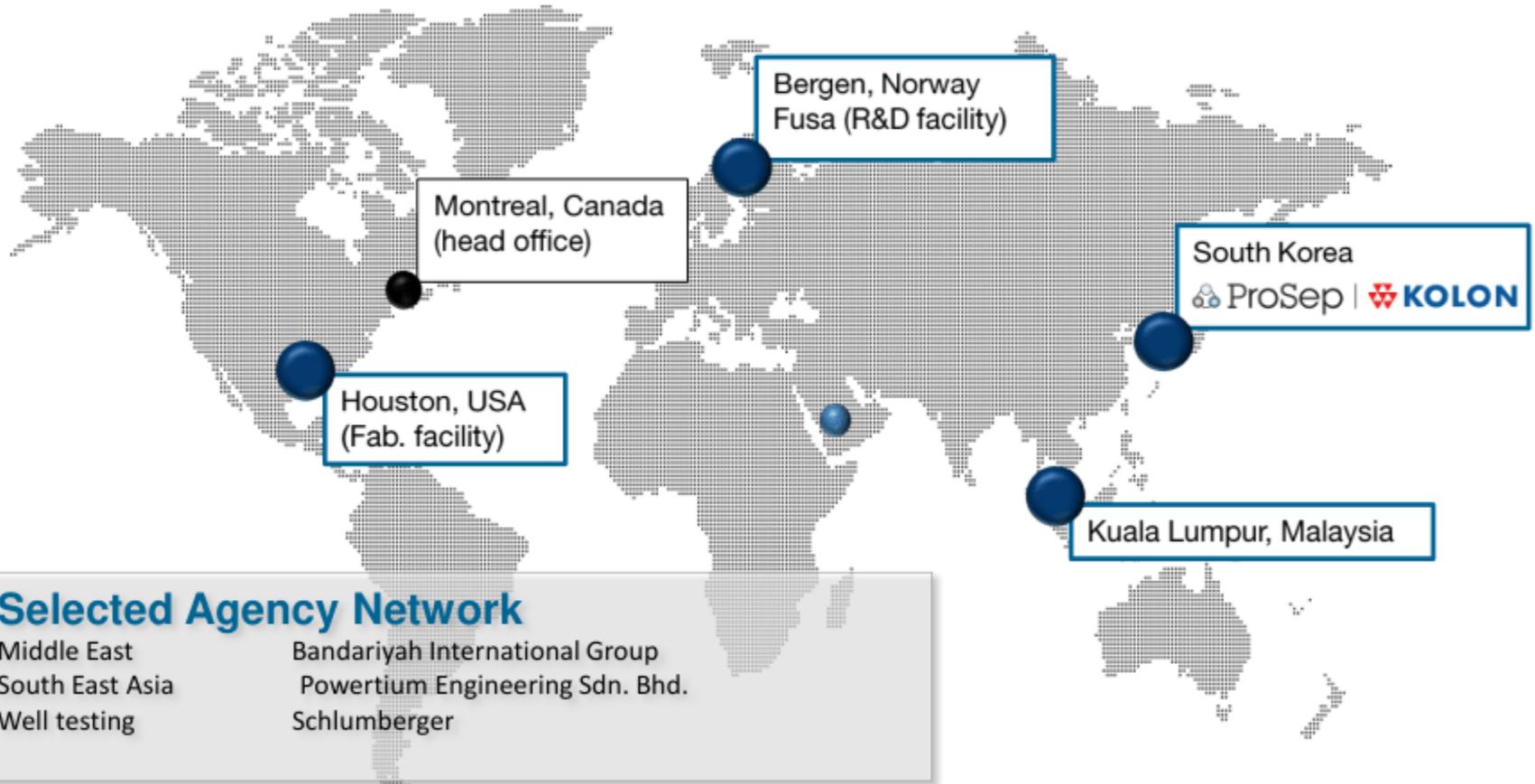
### PLAN

- Global integration of sales, marketing, engineering and operations.
- Invest in human resources (sales and process engineering)
- Invest in promising markets (ProSep Kolon joint venture, Middle-East)

### OBJECTIVE

- Become the next leading independent technology-focused process solutions provider.

# GLOBAL OPERATIONS



# STRONG EXPERTISE

## FOCUSING ON EXECUTION

- Delivered over \$240 million of equipment worldwide
- Executed over 150 projects
- Provide full process warranties
- Exceptional track record

## BUILDING STRONG INDUSTRY RELATIONSHIPS

- Joint industry partnerships with Statoil, Total, ConocoPhillips
- Field trials, pilot testing and characterizations for Statoil, Saudi Aramco, BP, Maersk, KOC, QP, etc.

## DEVELOPING STEP-CHANGE TECHNOLOGIES

- Over 60 patents
- Best available technologies for zero harmful discharge (produced water)
- Major industry awards (OTC Spotlight on New Technology, Statoil HSE and ONS Innovation awards and nominations)

## PROVIDING COMPLETE SOLUTIONS

- Industry's most comprehensive produced water treatment offering
- Portfolio of conventional and proprietary technologies to treat oil, gas and water

## ATTRACTING STRONG STAKEHOLDERS

- Large institutional shareholders, stakeholders and clients
- Reputed engineers averaging over 20 years of industry experience, with subject matter experts

# COMMITTED TEAM

## EXECUTIVE COMMITTEE

**Jacques L. Drouin**  
President & CEO, Director

**Patrice Daignault, ca**  
CFO & Corporate Secretary

**Doug A. Campbell, P.eng, MBA**  
EVP Sales and Business Development

**Parag Jhonsa**  
EVP Operations

**Harald Linga, PhD**  
Senior VP Technology

**Lew Mologne, P.eng**  
General Manager, USA

**Matthew Rummer, P.eng**  
General Manager, Malaysia and COO ProSep Kolon

**Kjell-Inge Arnevig**  
General Manager, Norway

## BOARD OF DIRECTORS

**Anthony Rustin (Chairman)**  
Former Executive VP, SNC-Lavalin

**G rard Caron**  
Former Director and Secretary General  
of Quebec Chartered Accountants Association

**Paul Coppinger**  
President CIRCOR Energy Products

**Claude Fontaine**  
Former Partner Northern Rose and Director Petro-Canada

**David Laidley**  
Chairman Emeritus Deloitte & Touche

**Richard Lint**  
Former Deputy Chairman and Head of Oil, Gas &  
Pipeline Group, Scotia Capital and CEO of Citibank  
Canada

**Joseph Wilson**  
Former Senior VP NATCO

# PROSEP'S OFFERING



Oil



Gas



Water

## CREATING VALUE THROUGH TECHNOLOGY SOLUTIONS

- Reduced CAPEX & OPEX
- Fresh water & chemical savings
- Low maintenance
- Small footprint
- Increase efficiency

## CUSTOMER BASE (PARTIAL)

- BP
- ConocoPhillips
- Ecopetrol
- Eni
- Kuwait Oil Company
- Occidental Petroleum
- Pan American Energy
- Pemex
- Petronas
- Saudi Aramco
- Statoil
- Whitting Petroleum

# Crude Treatment Solutions



Together, creating pure  
oil, gas and water.

# CRUDE TREATMENT



**Al-Rashed / Kuwait Oil Company:  
Ratqa-Abdali Production Facility  
120,000 bpd**

## PRIMARY SEPARATION

- Single and Multistage
- FWKO
- Vane Inlet Devices
- Inlet Cyclonic Device
- Swirl Device

## DEHYDRATION

- Heater Treater
- Mechanical & Electrostatic Dehydration

## DESALTING

- Single and Multi-Stage

## PROPRIETARY DESALTING

# CRUDE DESALTING

## ProSalt™

Compact one-shot high-performance mixer for optimal distribution of wash water into salt crude pipe flow.

### APPLICATION:

Salt removal from crude.

### TECHNICAL ADVANTAGE:

- Reduces wash water consumption by 40%
- Reduces pressure drop by 60%
- Reduces downstream oil-in-water content by 40%
- Enhances crude-and wash water processing capacity



### COST SAVINGS EXAMPLE:

Onshore separation plant, 770,000bpd with 7% water cut. Reduced annual demulsifier consumption by 22%, electricity by 15% for total annual savings of \$9.65 Million.

### SELECTED USERS:

- Saudi Aramco, Statoil, Pemex, ConocoPhillips, KOC, GSA

### AWARDS:

- OTC 2009 Spotlight on New Technology Award

# CRUDE SEPARATION

## ProMix™

Compact one-shot high-performance mixer for optimal distribution of production chemicals into well stream and crude-water flows.

### APPLICATION:

Demulsification of crude – water flow for improved separability

### TECHNICAL ADVANTAGE:

- Reduces chemical consumption by 40%
- Improves process performance compared to conventional injection and mixing devices (valves, quills and static mixers)
- Improves secondary separation process (water treatment)
- Enhances processing capacity
- Low pressure drop
- High turn-down ratio



### SELECTED USERS:

- Pemex, Saudi Aramco, Statoil

# Gas Treatment Solutions



Together, creating pure  
oil, gas and water.

# GAS TREATMENT



**Occidental Petroleum:  
Elk Hills Gas Quality Project  
150 MMSCFD – 900 psia  
3% CO<sub>2</sub> in Nat. Gas down to ≤  
1.5%**

## SWEETENING

- CO<sub>2</sub> Separation Membranes (UOP/Grace, Medal)
- Amine
- Scavengers

## CONDITIONING

- Membrane and Non-Membrane Hydrocarbon Dew Pointing
- Fuel Gas Conditioning
- TEG

## SCRUBBERS & DEMISTERS

- Mesh Pad
- Vane Pack
- Demisting Cyclones

## PROPRIETARY SWEETENING AND DEHYDRATION

# PROPRIETARY SWEETENING - I

## ProScav™

Compact high-performance mixer for injecting and mixing chemicals for H<sub>2</sub>S scavenging.

### APPLICATION:

Removal of H<sub>2</sub>S from gas from intermediate to low concentrations: ~ 2 ppm

### TECHNICAL ADVANTAGE:

- Reduces chemical consumption by 30-40% as compared to conventional technologies
- Compact spool-piece mounted unit
- Low pressure drop
- Robust, low maintenance
- Reduced risk for scale formation
- Option with combined flow metering and solvent mixing

### SELECTED USERS:

- Statoil, BP, Maersk



### COST SAVINGS EXAMPLE:

North Sea platform, 460 MSCFD, 40ppm H<sub>2</sub>S inlet to 2.5ppm outlet spec. Reduced annual scavenger consumption by 30% or \$1.8 Million per year.

### AWARDS:

- Statoil's Executive HSE prize 2004 for the contribution to reaching the goal of "zero harmful discharges to the sea".
- OTC 2005 Spotlight on New Technology Award

## PROPRIETARY SWEETENING - II

### ProCap™

Compact high-performance mixer for injecting and mixing regenerative solvents into gas for H<sub>2</sub>S removal.

#### APPLICATION:

Selective removal of H<sub>2</sub>S from gas at minimum CO<sub>2</sub> co-absorption.

#### TECHNICAL ADVANTAGE:

- Reduces amine circulation rate by 70% for typical CO<sub>2</sub> rich natural gas
- Reduced size, weight and energy consumption as compared to conventional technologies.
- Uses non-proprietary amine solvents such as MDEA
- More competitive the higher the CO<sub>2</sub> concentration
- Debottlenecking of refinery applications



#### TYPICAL COST SAVINGS:

Compared to conventional amine plant, 50ppm down to 2.5 ppm, 24MSm<sup>3</sup>d, reduced equipment weight and electricity consumption by half results in \$4.7 M annual cost savings

#### PILOT – REFERENCES:

- Statoil Mongstad Refinery (2001). Gaz de France Gas Treatment Plant Chemery (2004-2005).

#### AWARDS:

- 2008 ONS Innovation Award - nominated

# PROPRIETARY DEHYDRATION

## ProDry™

Compact process for gas dehydration with glycol.

### APPLICATION:

Moderate dew point reduction based on the novel co-current ProPure gas-liquid contactor and a regenerative solvent.

### TECHNICAL ADVANTAGE:

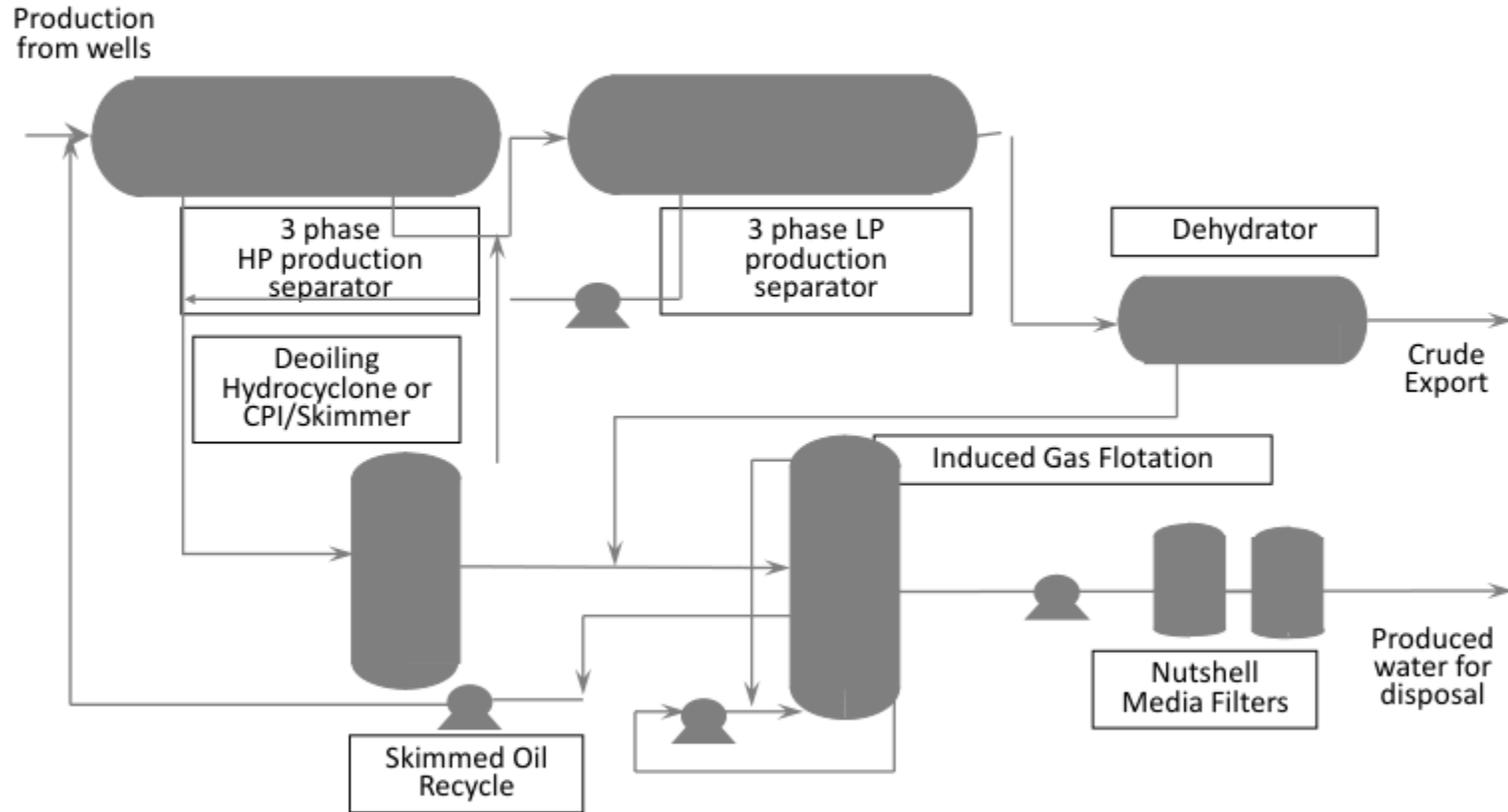
- Major size and weight reduction at moderate dew point reduction; (below 30° C /54 °F reduction)
- Eliminates risk of flooding and foaming in the contact tower
- Most competitive at higher absolute pressure and flow rates
- Operational robustness towards hydrocarbon liquid entrained with feed gas
- Subsea applications



### PILOT - REFERENCES

- Total Gas Processing Plant Lussagnet 2009-2010; Technology qualification program as supported by Total, Statoil and ConocoPhillips

# PRODUCED WATER TREATMENT SOLUTIONS



# PRODUCED WATER TREATMENT



**SKEC / Kuwait Oil Company:**  
Seven Systems to Treat 260,000 bpd  
Onshore

## PRIMARY SEPARATION

- “ProPlate” Corrugated Plate Interceptor (CPI)
- “ProSkim” Vertical Skimmer
- “ProSpin” Liquid-Liquid Hydrocyclone

## SECONDARY SEPARATION

- “ProFloat” Flotation Systems
  - Vertical Induced Gas Flotation (IGF)
  - Horizontal Multi-Cell Hydraulic Flotation Unit

## TERTIARY SEPARATION

- “ProShell” Deep Bed Nutshell Filter

## PROPRIETARY POLISHING SOLUTIONS

# PROPRIETARY PRODUCED WATER TREATMENT - I

## CTOUR™

Compact high-performance mixer for injecting and mixing condensate as a solvent to improve coalescence of dispersed oil droplets.

### APPLICATION:

Removal of dispersed and dissolved hydrocarbons from large volumes of produced water where condensate is available.

### TECHNICAL ADVANTAGE:

- Proven to provide a “step-change” in produced water management; 1- 5 ppm oil-in-water achieved
- Effective in removing both dispersed and dissolved hydrocarbons
- Suitable for revamp / retrofit applications (easy to retrofit with IGF and hydrocyclones)

### KEY BENEFIT:

- Avoid penalties for non-compliant produced water discharges



### SELECTED USERS:

- Statoil, BP, ConocoPhillips (polishes 70% of the produced water in the Norwegian Continental Shelf)

### AWARDS:

- Statoil's Executive HSE price 2004 for the contribution to reaching the goal of “zero harmful discharges to the sea”.
- OTC 2006 Spotlight on Technology Award

# PROPRIETARY PRODUCED WATER TREATMENT - II

## SorbFloc™

“Green” biodegradable flocculant for efficient treatment of produced water.

### APPLICATION:

Removal of dispersed and dissolved hydrocarbons along with heavy metals and nano-particles from produced water.

### TECHNICAL ADVANTAGE:

- Full spectrum removal of harmful components;
  - dispersed and dissolved hydrocarbon
  - heavy metals
  - submicron particles
- Instant flocculant mixing by proprietary ProPure equipment for “green” flocculant for selective and robust flock generation



### REFERENCES:

- Technology transfer utilized from industrial partner Sorbwater for water treatment application areas; slop water, sewage water and grey water. Qualification tests in progress.

### KEY BENEFIT:

- Avoid penalties for non-compliant produced water discharges

# PROPRIETARY PRODUCED WATER TREATMENT - III

## Sorbsep™

Compact gas flotation separator.

### APPLICATION:

Removal of dispersed oil and flocks containing hydrocarbons, heavy metals and particles from produced water.

### TECHNICAL ADVANTAGE:

- Exceeds strictest environmental regulation
- Removes residual oil from produced water down to less than 3 ppm
- Tailor-made solution for SorbSep flocculant treatment of water
- Robust and reliable



### REFERENCES:

- Qualification tests in progress. Successful field test at ConocoPhillips Eldfisk 2009

### KEY BENEFIT:

- Avoid penalties for non-compliant produced water discharges

# PROPRIETARY PRODUCED WATER TREATMENT - IV

## TORR™

Compact high-performance modular cartridge system using coalescence towards hydrocarbon wetted surface.

### APPLICATION:

Removal of dispersed hydrocarbons from produced water without the use of chemicals.

### TECHNICAL ADVANTAGE:

- Exceeds strictest environmental regulation
- Removes residual oil from produced water down to less than 5 ppm
- Modular standardized cartridge vessels including RPA™ cartridges
- Robust toward upset in feed conditions
- Large PW turn-down; 1:100



### SELECTED USERS:

- KOC, Wood Group / HESS (Triton Platform), ENI, Schlumberger

### KEY BENEFIT:

- Avoid penalties for non-compliant produced water discharges

# ProSep: A Solid Partner



Together, creating pure  
oil, gas and water.

# FABRICATION FACILITY

## 56,000 SQUARE-FOOT SHOP

- Fabrication, assembly and packaging
- Located on 5.25 acres in Houston, Texas, USA
- Three bays, warehouse and eleven bridge cranes:
  - 4 x 35-ton with 5-ton auxiliary cranes
  - 4 x 10-ton
  - 3 x 5-ton

ProSep's shop features high lifting capacity, hook height and floor space to handle large projects with quick delivery.



# RESEARCH AND DEVELOPMENT

## 60+ PATENTS

**JIP:** Total, Statoil, ConocoPhillips, Saudi Aramco

## R&D Facility

- Access to a state-of-the-art facility in Fusa, Norway allowing for vertical testing in a submerged marine environment



# Health, Safety and Environment

## HEALTH AND SAFETY

- Near zero TRIR rate in 2010 at new fabrication facility in Texas, zero in Norway
- ISO 9001:2008 certification in Norway, Malaysia and underway in Texas
- Regular internal and external third party independent safety audits
- Rigorous safety program followed by all shop employees



## ENVIRONMENT

- Committed to develop step-change technologies that provide near zero harmful discharge (Ctour™)
- Dedicated to reduce chemical and energy consumption while providing optimal process efficiencies
- Received 3 consecutive Deloitte Green Fifteen awards recognizing Canada's preeminent green technology companies

## FINANCIAL SUPPORT

### TORONTO STOCK EXCHANGE

- Listed since 2006

### STRONG SHAREHOLDERS

- Fondaction, a \$1 billion Canadian labor-sponsored fund
- Cycle Capital, a large Canadian cleantech venture fund
- Statoil and other large institutions
- Employees and directors

### OTHER FINANCIAL PARTNERS

- Export Development Canada
- Norwegian bank DnB Nor



ProSep ranks among Deloitte's Technology Fast 50™, North American Fast 500™ and Technology Green 50™ recognizing companies that have achieved strong revenue growth and are leaders in the field of green technology.

# Together Creating Pure OIL GAS and WATER





CANADA

KOREA

MALAYSIA

MIDDLE EAST

NORWAY

UNITED STATES