

Package No:

0482-MI20-50PO-6700

Package Name:

**METERING SYSTEM**

Scope of Work

The minimum requirements for the design, engineering, manufacture, supply, inspection testing, painting, packing forwarding, & spare parts for construction/ commissioning, mandatory spares, two years operational & maintenance spares, special tools & tackles, transportation & documentation of the Metering System and its accessories required for the Floating, Production, Storage and Offloading Units (FPSO) to be

**SCOPE OF SUPPLY**

**A. LIQUID METERING PACKAGE**

Item No	Description	Unit	Qty.
<b><u>CONDENSATE METERING RUN CATEGORY</u></b>			
<b>1</b>	<b><u>Test Separator - Allocation Metering</u></b>		
a	<p>One Coriolis flow meter including of the following items in loose supply:</p> <ul style="list-style-type: none"> <li>Remote diaphragm seal type 2" flanged pressure transmitter</li> <li>Temperature transmitter</li> <li>BS&amp; W analyzer (on outlet header)</li> <li>Manual sampler (on outlet header)</li> </ul> <p>One spare identical Coriolis flow meter shall be provided.</p> <p>Manual sampler shall be provided c/w a needle valves, piece of tubing &amp; caps.</p> <p>All misc. items required to comply with the attached specification and system shall meet less than <math>\pm 0.5\%</math> accuracy as per API-MPMS OIIML R117.</p>	Lot	1 + 1 (Spare)
<b>2</b>	<b><u>HP Production Separator - Operational Metering</u></b>		
a	<p>Two Coriolis mass flow meters in 2x100% configuration including of the following items in loose supply:</p> <ul style="list-style-type: none"> <li>Remote diaphragm seal type 2" flanged pressure transmitter</li> <li>Temperature transmitter</li> </ul> <p>The associated PIT/TIT shall be provided with each meter.</p> <p>All misc. items required complying with the attached specification and system shall meet less than <math>\pm 0.5\%</math> accuracy as per API-MPMS OIIML R117.</p>	Lot	1
<b>3</b>	<b><u>Stabilized Condensate Offloading - Custody</u></b>		
a	<p>The following items in loose supply:</p> <ul style="list-style-type: none"> <li>BS&amp; W analyzer</li> <li>Manual sampler</li> <li>Automatic Sampler</li> </ul> <p>Manual and Automatic sampler shall be provided c/w a needle valves, piece of tubing &amp; caps.</p>	Lot	1
<b><u>DIESEL METER CATEGORY</u></b>			
<b>1</b>	Diesel Fiscal Meter, One Coriolis flow meter	Ea.	1

	All misc. items required to comply with the attached specification and system shall meet less than $\pm 0.5\%$ accuracy as per API-MPMS OIIML R117.		
<b><u>WATER METER CATEGORY</u></b>			
<b>1</b>	<b><u>Test Separator to Produced water treatment – Allocational</u></b>		
a	Magnetic Flow meter All misc. items required to comply with the attached specification and system to meet less than $\pm 5\%$ accuracy	Ea.	1+1 (spare)
b	Temperature transmitter shall be supplied loose and installed at downstream of water meter for temperature compensation	Ea.	1
<b>2</b>	<b><u>Second Stage Separator – Operational</u></b>		
a	Magnetic Flow meter All misc. items required to comply with the attached specification and system to meet less than $\pm 5\%$ accuracy.	Ea.	1
<b>3</b>	<b><u>Condensate Cpalescser – Operational</u></b>		
a	Magnetic Flow meter All misc. items required to comply with the attached specification and system to meet less than $\pm 5\%$ accuracy.	Ea.	1
<b>4</b>	<b><u>Produced water to overboard - Operational</u></b>		
a	Magnetic Flow meter All misc. items required to comply with the attached specification and system to meet less than $\pm 5\%$ accuracy.	Ea.	1

### **B. GAS METERING PACKAGE**

<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>
1	HP flare Fiscal Meter, Ultrasonic Flow Meter including following items: <ul style="list-style-type: none"> <li>Local field computer with 10mtrs of transducer cable length</li> <li>Pipe spool piece in accordance with pipe spec</li> <li>Impulse absolute pressure transmitter</li> <li>Temperature Transmitter</li> <li>Manual sample probe comes with one piece of tubing with cap.</li> <li>Flow sensors with inline retractable assembly</li> </ul> All misc. items required to comply with the attached specification and meet +/-5% system uncertainty.	Set	1
2	LP flare Fiscal Meter, Ultrasonic Flow Meter including following items: <ul style="list-style-type: none"> <li>Local field computer with 10mtrs of transducer cable length</li> <li>Pipe spool piece in accordance with pipe spec</li> <li>Impulse absolute pressure transmitter</li> <li>Temperature Transmitter</li> <li>Manual sample probe comes with one piece of tubing with cap.</li> <li>Flow sensors with inline retractable assembly</li> </ul> All misc. items required to comply with the attached specification and meet +/-5% system uncertainty.	Set	1

	3	<p>Export gas: Fiscal Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>• Removable Inlet / outlet straight pipe sections</li> <li>• Flow conditioner, Zanker Type</li> <li>• Orifice plates (2)-TBA</li> <li>• Impulse DP transmitters (2)-TBA</li> <li>• Impulse pressure transmitter</li> <li>• Temperature Transmitter</li> <li>• Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Gas Chromatograph for analyzing the composition of the export gas (Refer Engineering Note 20)</p> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FITs, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-1% system uncertainty.</p>	Set	1	
	4	<p>Import Gas: Fiscal Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>• Removable Inlet / outlet straight pipe sections</li> <li>• Flow conditioner, Zanker Type</li> <li>• Orifice plates (2) - TBA</li> <li>• Impulse type DP transmitter</li> <li>• Impulse type pressure transmitter</li> <li>• Temperature Transmitter</li> <li>• Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-1% system uncertainty.</p>	Set	1	
	5	<p>Total Fuel Gas: Fiscal Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>• Removable Inlet / outlet straight pipe sections</li> <li>• Flow conditioner, Zanker Type</li> <li>• Orifice plates (2) - TBA</li> <li>• Impulse type DP transmitter</li> <li>• Impulse type pressure transmitter</li> <li>• Temperature Transmitter</li> <li>• Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Gas Chromatograph for analyzing the composition of the Fuel gas (Refer Engineering Note 20)</p> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-2% system uncertainty.</p>	Set	1	
	7	<p>Gas from HP Production Separator: Operational Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>• Removable Inlet / outlet straight pipe sections</li> <li>• Flow conditioner, Zanker Type</li> <li>• Orifice plates (2)-TBA</li> <li>• Impulse type DP transmitter</li> <li>• Impulse type pressure transmitter</li> <li>• Temperature Transmitter</li> <li>• Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-2% system uncertainty.</p>	Set	1	

8	<p>Gas from Second Stage Separator: Operational Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>Removable Inlet / outlet straight pipe sections</li> <li>Flow conditioner, Zanker Type</li> <li>Orifice plates (2) - TBA</li> <li>Impulse type DP transmitter</li> <li>Impulse type pressure transmitter</li> <li>Temperature Transmitter</li> <li>Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-2% system uncertainty.</p>	Set	1
9	<p>Total Low Pressure Fuel Gas: Operational Meter, Dual Chamber Senior Orifice Fitting including following:</p> <ul style="list-style-type: none"> <li>Removable Inlet / outlet straight pipe sections</li> <li>Flow conditioner, Zanker Type</li> <li>Orifice plates (2)</li> <li>Impulse type DP transmitter</li> <li>Impulse type pressure transmitter</li> <li>Temperature Transmitter</li> <li>Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Accessories like isolation valves, drain valve, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-2% system uncertainty.</p>	Set	1
10	<p>Flare Pilot Gas: Operational meter, Integral orifice plate comply to ISO/TR 15377 including following:</p> <ul style="list-style-type: none"> <li>Removable Inlet / outlet straight pipe sections</li> <li>Impulse type DP transmitter</li> <li>Impulse type pressure transmitter</li> <li>Temperature Transmitter</li> <li>Manual sample probe comes with one piece of tubing with cap.</li> </ul> <p>Accessories like isolation valves, drain valves, tubing &amp; fittings to hook-up PIT/FIT, nuts, bolts and gaskets. All misc. items required to comply with the attached specification and meet +/-2% system uncertainty.</p>	Set	1

### **C. PANEL AND MISCELLANEOUS ITEMS**

Item No	Description	Unit	Qty
1	Metering Control System including of metering panel, flow computers, Allen Bradley PLC System (ControlLogix with 1756 series I/O modules and Ethernet network), local HMI monitor (24") local HMI server, etc. to be located in the E-house, Safe Area	Lot	1
2	Supplier shall include supply one remote HMI workstation with monitor (24") to facilitate monitoring and control of all metering runs/meters. The required accessories on RHMI cabinet side, i.e. Fiber optic converters, Ethernet switches (MOXA) and patch panel will be supplied by Others (ICSS supplier).	Lot	1
3	Diagnostic tool for Magnetic flow meters, Ultrasonic flow meters, flare meter and Coriolis Meters	Set	1

4	Commissioning Spares	Lot	1
5	2 years spares (option)	Lot	1
6	Complete set of spare orifice plates	Lot	1
7	Set of seal ring for each orifice plate and seal bar o-ring for each identical size of orifice fitting	Lot	1
8	ABS certification	Lot	1
9	FAT	Lot	1
10	Lump sum Pre-commissioning assistance for 20 days in China (20 working days, excluding of weekend and holiday)	Lot	1
11	Lump sum SAT in Integration yard (Singapore/China) for 20 days (20 working days, excluding of weekend and holiday)	Lot	1
12	Day Rate for Onshore site assistance	Lot	1
13	Day Rate for Off-shore site assistance	Lot	1
14	Constant pressure sample cylinders rated for 900# and 1500#. Each sample cylinder should be supplied with piston and sampling inlet/purge/pre-charge N2 connections. Isolation valves, 2m flexible hoses with quick connectors and suitable adaptors shall be provided for tie-in connection with sample tubing, purge valve and N2 charging. The material for constant pressure sample cylinder shall be duplex SS.	Unit	2

Contract Award Q3 2020; Delivery Q3 2021 all units

## Project Registration

ConocoPhillips is committed to ensuring Australian Industry full, fair and reasonable opportunity to participate in the Barossa Offshore Project. Expressions of Interest are invited from contractors and suppliers with the relevant capability and capacity to undertake the scope of work.

This is a request for specific expressions of interest. Contractors and suppliers will be considered for prequalification and tender if suitably qualified against this package.

**Note** that an important part of the project registration process is to register an Expression of Interest at the correct Scope level.

Scope level definition:

**Full scope:** Able to produce / supply the entire package.

**Partial scope:** Able to produce / supply one or more of the sub-packages.

All registrations are to be completed via ICN Gateway [BarossaOffshore.icn.org.au](http://BarossaOffshore.icn.org.au). Please contact the ICNNT if registration assistance is required. Contact details: (08) 8922 9422 or [admin@icnnt.org.au](mailto:admin@icnnt.org.au).

Project  
Website: [ConocoPhillips Australia](http://ConocoPhillips Australia)