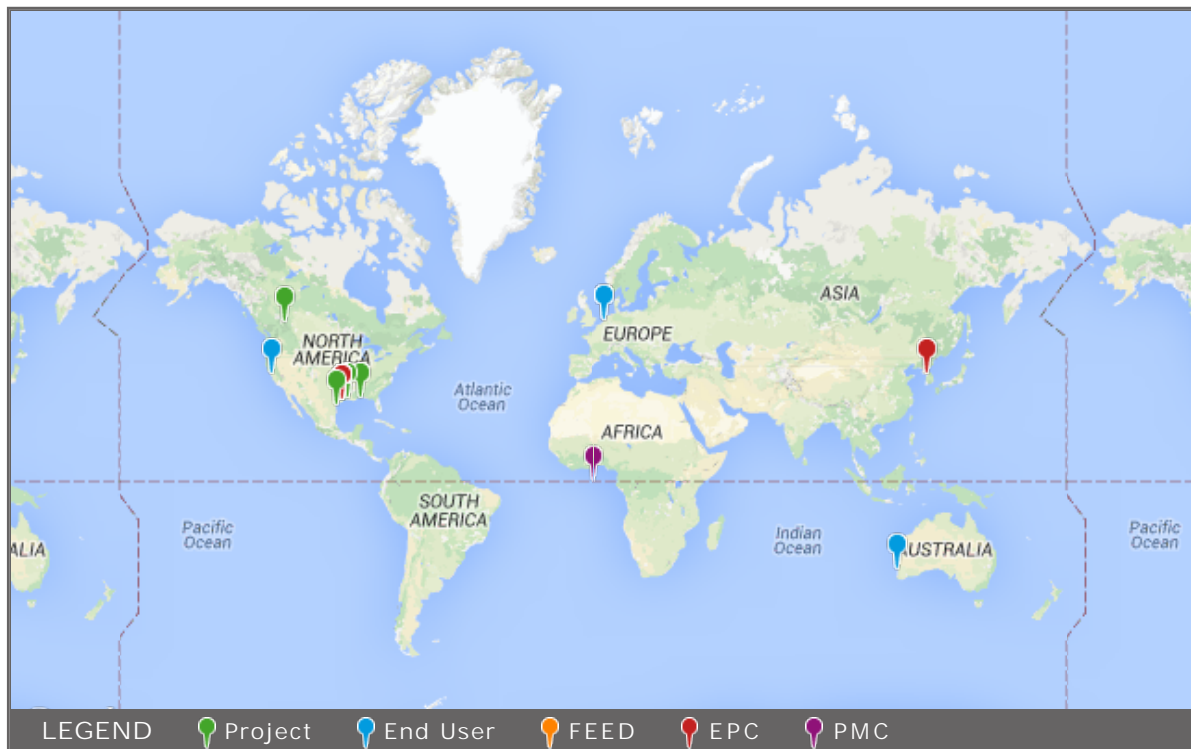




Report Name: KBR Manufacturers EPC All awarded Report June 14th 2015 ; Project Status : Active ; EPC : All awarded ; Company : KBR ; Type of plant : FLNG,FPSO,LNG Train,Gas Pipeline,Oil Terminal,Clean Fuels - DHDS -DeHydroDeSulfurization,Ethylene Cracker (PolyEthylene HDPE LDPE LLDPE Ethanol EO EG EA PVC),Methanol ; Packages: Above NEMA Motors, Actuators, All processes, Analytical Shelters, Automatic On/Off Valves, Automation Services Telecom Services Advanced Management System Services, Building Management System, Cable trays and Ladders, Cabling accessories, Centrifugal Pumps, Chromatographs, Communication Systems, Compact Substation Containerization, Control, Control Package, Control Valves, Data Transmission System, DCS, Diesel & Gas engines, Diesel Generators, Distribution System, Distribution Transformers, Electrical Cables, Emergency Generators, Equipment Instrumentation, Fire & Gas device, Flow Measurement, Gas Expender Turbo Generators, Heat Tracing, HV & MV Products and Panels, HV/MV Bus ducts, HVAC, IEC High or Medium Voltage Motors, IEC Low Voltage Motors, Junctions, Level Measurement, Lighting accessories, Lighting for Hazardous areas, Lighting for safe areas, Lighting panels, Low Voltage Bus ducts, Low Voltage Control Panels, Low Voltage Variable Frequency Converters, Management System, Medium Voltage Variable Frequency Converters, Miscellaneous Material, Multi Phases Pumps, NEMA Low Voltage Motors, Power Management System (PMS), Power Transformer, Pressure Measurement, Process Analyzers, Protection Systems, Public Address and General Alarm (PA/GA) System, Radio System, Reciprocating pumps, Recorders and Controllers, Refining Processes, Rotary pumps, Safety System & Security System, Safety Valves, Scada, Security System, Sockets, Special control valves, Special pumps, Special Transformers, Technical room equipment's, Temperature Measurement, Testing apparatus, Turbine Generators, Turbo Generators, Up lifting pumps, UPS System, Vacuum pumps, Batteries, GIS





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 SIRET : 540040086 00014 - Intra-community VAT Number : FR 80 540040086 - SAS CAPITAL : 50000 € - Code APE : 7022Z

Document reference |

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Project Status : Active ; EPC : All awarded ; Company : KBR ; Type of plant : FLNG,FPSO,LNG Train,Gas Pipeline,Oil Terminal,Clean Fuels - DHDS -DeHydroDeSulfurization,Ethylene Cracker (PolyEthylene HDPE LDPE LLDPE Ethanol EO EG EA PVC),Methanol ; Packages: Above NEMA Motors, Actuators, All processes, Analytical Shelters, Automatic On/Off Valves, Automation Services Telecom Services Advanced Management System Services, Building Management System, Cable trays and Ladders, Cabling accessories, Centrifugal Pumps, Chromatographs, Communication Systems, Compact Substation Containerization, Control, Control Package, Control Valves, Data Transmission System, DCS, Diesel & Gas engines, Diesel Generators, Distribution System, Distribution Transformers, Electrical Cables, Emergency Generators, Equipment Instrumentation, Fire & Gas device, Flow Measurement, Gas Expender Turbo Generators, Heat Tracing, HV & MV Products and Panels, HV/MV Bus ducts, HVAC, IEC High or Medium Voltage Motors, IEC Low Voltage Motors, Junctions, Level Measurement, Lighting accessories, Lighting for Hazardous areas, Lighting for safe areas, Lighting panels, Low Voltage Bus ducts, Low Voltage Control Panels, Low Voltage Variable Frequency Converters, Management System, Medium Voltage Variable Frequency Converters, Miscellaneous Material, Multi Phases Pumps, NEMA Low Voltage Motors, Power Management System (PMS), Power Transformer, Pressure Measurement, Process Analyzers, Protection Systems, Public Address and General Alarm (PA/GA) System, Radio System, Reciprocating pumps, Recorders and Controllers, Refining Processes, Rotary pumps, Safety System & Security System, Safety Valves, Scada, Security System, Sockets, Special control valves, Special pumps, Special Transformers, Technical room equipment's, Temperature Measurement, Testing apparatus, Turbine Generators, Turbo Generators, Up lifting pumps, UPS System, Vacuum pumps, Batteries, GIS

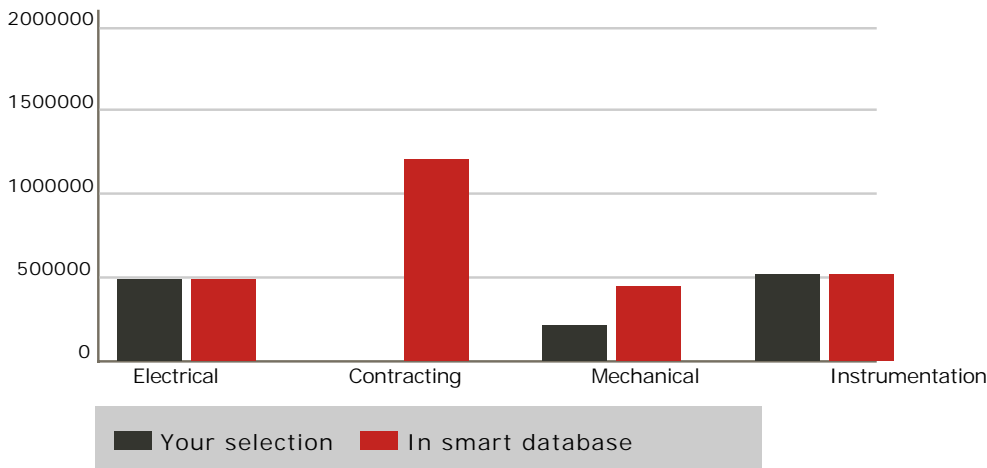
MARKET DATA	
Number of projects	5
Number of countries per project site location	2
Number of countries per engineering companies location	2
Number of FEED : (Front End Engineering & Design)	5
Number of PMC : (Projet Manager Consultant)	5
Number of EPC : (Engineering, Procurement & Construction)	1



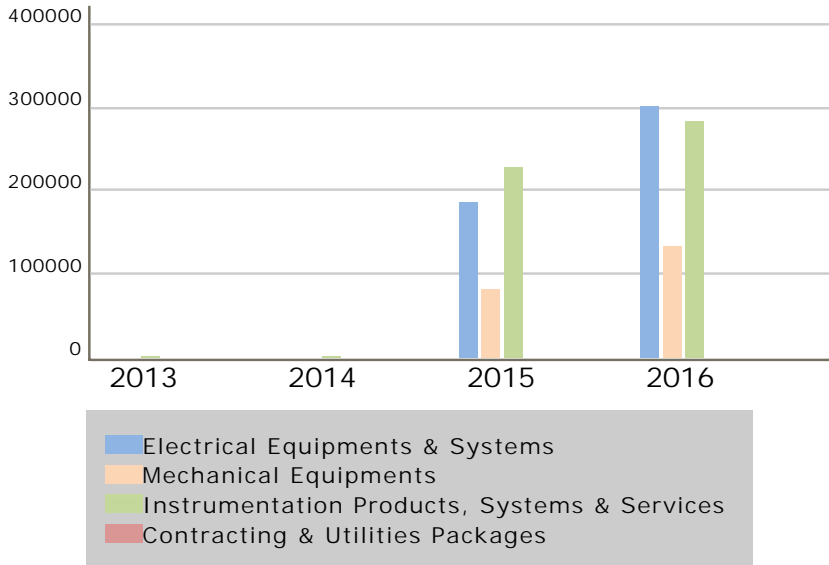
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Project Status : Active ; EPC : All awarded ; Company : KBR ; Type of plant : FLNG,FPSO,LNG Train, Gas Pipeline, Oil Terminal, Clean Fuels - DHDS -DeHydroDeSulfurization, Ethylene Cracker (PolyEthylene HDPE LDPE LLDPE Ethanol EO EG EA PVC), Methanol ; Packages: Above NEMA Motors, Actuators, All processes, Analytical Shelters, Automatic On/Off Valves, Automation Services Telecom Services Advanced Management System Services, Building Management System, Cable trays and Ladders, Cabling accessories, Centrifugal Pumps, Chromatographs, Communication Systems, Compact Substation Containerization, Control, Control Package, Control Valves, Data Transmission System, DCS, Diesel & Gas engines, Diesel Generators, Distribution System, Distribution Transformers, Electrical Cables, Emergency Generators, Equipment Instrumentation, Fire & Gas device, Flow Measurement, Gas Expender Turbo Generators, Heat Tracing, HV & MV Products and Panels, HV/MV Bus ducts, HVAC, IEC High or Medium Voltage Motors, IEC Low Voltage Motors, Junctions, Level Measurement, Lighting accessories, Lighting for Hazardous areas, Lighting for safe areas, Lighting panels, Low Voltage Bus ducts, Low Voltage Control Panels, Low Voltage Variable Frequency Converters, Management System, Medium Voltage Variable Frequency Converters, Miscellaneous Material, Multi Phases Pumps, NEMA Low Voltage Motors, Power Management System (PMS), Power Transformer, Pressure Measurement, Process Analyzers, Protection Systems, Public Address and General Alarm (PA/GA) System, Radio System, Reciprocating pumps, Recorders and Controllers, Refining Processes, Rotary pumps, Safety System & Security System, Safety Valves, Scada, Security System, Sockets, Special control valves, Special pumps, Special Transformers, Technical room equipment's, Temperature Measurement, Testing apparatus, Turbine Generators, Turbo Generators, Up lifting pumps, UPS System, Vacuum pumps, Batteries, GIS

Your Selection (in KUSD)



Business Pipeline (in KUSD)



		Business Pipeline in KUSD				
		Smart Data	2013	2014	2015	2016
Packages in KUSD	Electrical Equipments & Systems	489 920	0	0	186 840	303 080
	Mechanical Equipments	217 160	0	0	82 470	134 690
	Instrumentation Products, Systems & Services	522 610	2 810	4 280	230 990	284 530
	Contracting & Utilities Packages	0	0	0	0	0
	Total of all the Packages	1 229 690	2 810	4 280	500 300	722 300



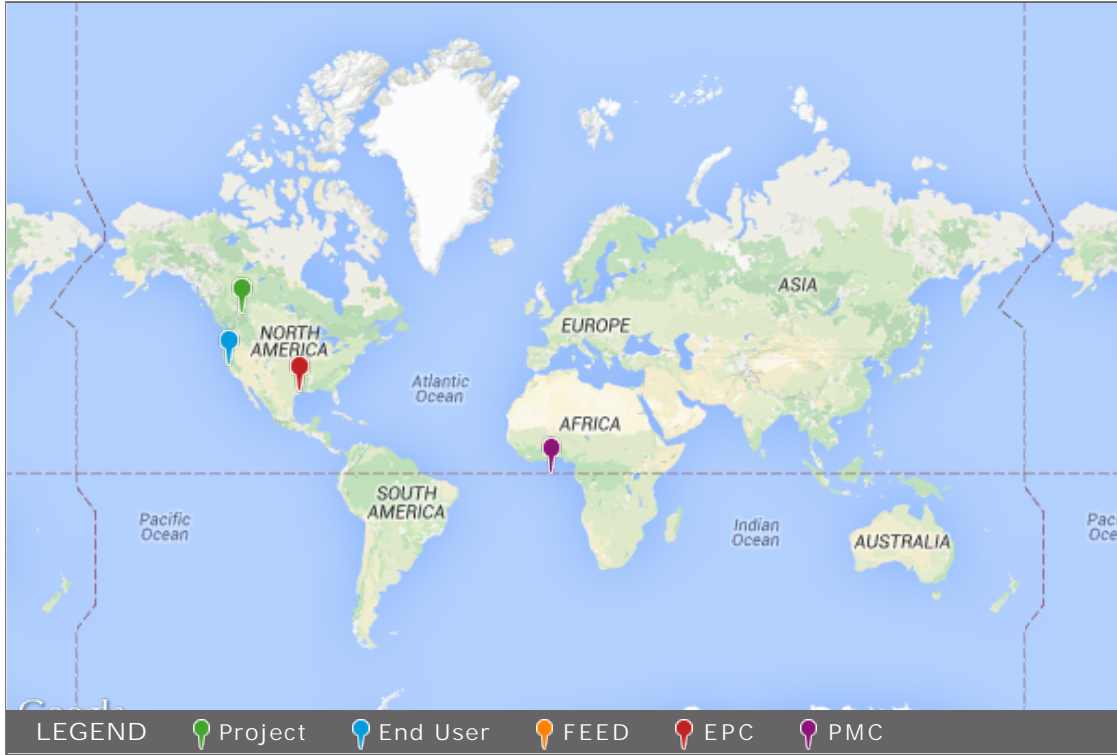
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Generic name	End User Name	Country of project site location	Capital expenditure MUS\$	Business Opportunities according to your selection KUSD	FEED Year	EPC Year	Expected year of completion	Page
Chevron Kitimat LNG	Chevron	Canada	5 000	351 990	2013	2015	2018	6
Kinder Morgan Gulf LNG Export Terminal	Kinder Morgan Inc.	USA	6 000	480 410	2014	2016	2019	12
LNG Magnolia LNG Lake Charles	LNG Ltd	USA	4 000	247 660	2015	2016	2019	18
LyondellBasell Channelview Ethylene Second Expansion	Lyondellbasell	USA	200	63 070	2014	2015	2017	25
LyondellBasell Corpus Christi Ethylene Expansion	Lyondellbasell	USA	430	86 560	2014	2015	2016	31

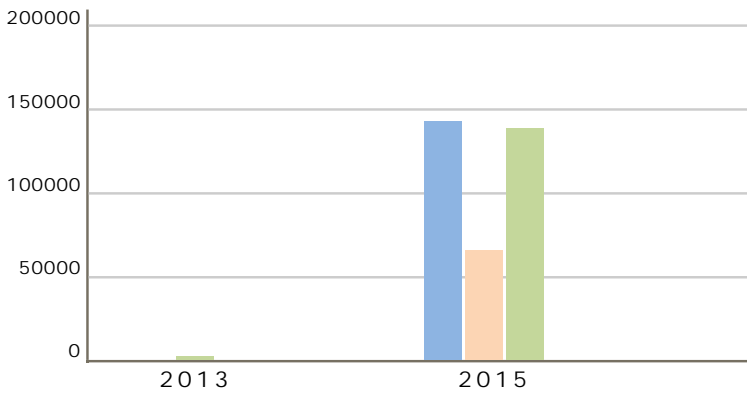


Document reference |

CHEVRON KITIMAT LNG



Business Pipeline (in KUSD)



		Business Pipeline in KUSD		
		Smart Data	2013	2015
Packages in KUSD	Electrical Equipments & Systems	143 750	0	143 750
	Mechanical Equipments	65 710	0	65 710
	Instrumentation Products, Systems & Services	142 530	2 810	139 720
	Contracting & Utilities Packages	0	0	0
	Total of all the Packages	351 990	2 810	349 180



Document reference |

CHEVRON KITIMAT LNG

	Last up date	Date	29/12/2014		
	Last up date year			2014	
	Status			Active	
	Project Names	Chevron Kitimat LNG	Apache LNG	KMLNG	
	Project Site Country			Canada	
End User	Project End user Name	Chevron			
	End Users & Stakeholders	Chevron	Woodside Petroleum		
	End Users Countries	USA	Australia		
	Key Stakeholders	Operational Leader	Financial Minority		
	Expected year of Completion	2018			
"Feed Engineering Company (Front End Engineering & Design)	Bidders				
	Awarded	KBR			
	FEED Companies Country	USA			
	FEED Stage year	2013			
"PMC or EPCM Company Engineering Company (Project manager Consultant or EPC Manager) if appointed"	Name				
	PMC or EPCM Country				
	Year of appointment	0			
"EPC Company (Engineering, Procurement & Construction)"	Bidders				
	Awarded	Fluor - JGC			
	EPC Company Country	USA			
	EPC Stage year	2015			
Main Standards	ANSI/NEMA				
Sourcing Strategy	Global				
Project Market Data	General Information about the project				
	Liard Basin tops best shale gas fields in North America				
	The Houston, Texas-based, Apache Corporation (Apache) announced the shale gas Liard Basin in British Columbia (BC), Canada, to contain 48 trillion cf of marketable natural gas.				
	Apache estimates that the Liard Basin field may contain up to 210 trillion cf (tcf) of natural gas out of which 48 tcf may be extracted and monetized.				
	By way of comparison, all companies active in the Horn River Basin, have a total of marketable natural gas of 78 trillion cubic feet.				
	With 48 tcf, Apache would then own more than two-thirds the size of the entire Horn Basin.				
	The other two wells drilled since the first tests produced at the same level in quantity and quality as the first one.				
	Actually the natural gas from the Liard wells is already being sold by Apache through a pipeline connecting them to Fort Nelson.				
	Apache to convince Encana and EOR to double Kitimat LNG				
	A fourth well is on going considering that each well in the shale gas Liard Basin costs \$35 million capital expenditure until completion for natural gas production.				
	Despite this high cost, Apache made the calculation of a break-even price for the natural gas at the wellhead around \$2.57 per thousand cf.				
	Thus the Liard Basin should be competitive compared with actual market conditions where natural gas is traded at \$1.78 per thousand cf at the Alberta hub, below the U.S prices at \$2.60 a thousand cf.				
	The find by Apache Corp., one of three partners with Encana and EOG Resources in the \$4.5 billion Kitimat LNG terminal and pipeline proposal, is estimated to contain enough natural gas in itself to justify doubling the size of the Kitimat LNG terminal.				
	Apache and its partners plan a five-million-tonne-a-year LNG plant and export terminal in Kitimat which, if supply and demand warrant it, could be doubled to 10 million tonnes a year.				
	The Liard Basin alone could provide that additional five million tonnes of LNG for many years.				
Considering that the LNG is contracted in Asia around \$16 per thousand cf, Apache should not have too much difficulties to convince his partners, Encana and EOG Resources, to double capital expenditure in Kitimat LNG after the shale gas Liard Basin discovery.					
January 2013					
Chevron takes over EOR and Encana interests in Kitimat LNG and Apache buys 10% stakes to Chevron so that Chevron and Apache hold 50% each of the joint venture.					
in opposite way, Chevron pays \$550 million to Apache to take 50% shares in the Horn River and Liard basins.					
With this new financial set up, Chevron will also take 50% interests in the Pacific Trail Pipeline.					
Chevron Canada will assume operatorship of the LNG plant and the pipeline. Apache Canada increased its ownership in the LNG plant and pipeline from 40 percent and will operate the upstream assets.					
The Kitimat LNG trains will be located at Bish Cove, 650 kilometers north of Vancouver.					
-- October 2013 -- Chevron's plans for a Kitimat liquefied natural gas terminal will only be finalized if the company finds tax certainty in B.C., and workable Asian contracts for the \$4.5-billion project,					
-- January 2014 -- Fluor, in joint venture with JGC, was awarded the EPC contract for the proposed Kitimat LNG project in Bish Cove, British Columbia, Canada.					
The project scope includes completion of the existing FEED package by finalizing value-improving concepts for the proposed LNG facility.					
The scope of work also includes detailed engineering and procurement services for the initial phases of the project.					
The project will be performed by Fluor and its joint venture partner, JGC, leveraging the global capabilities and expertise from both companies with project work to be executed from their North America and Asia Pacific offices.					
-- August 2014 -- Apache announced to be willing to sell its 50% stake in Kitimat LNG, putting the project on hold.					
-- December 2014 -- Apache has sold off its interest in the Kitimat liquefied natural gas project in northern British Columbia to an Australian company, Woodside Petroleum Ltd.					
Woodside bought the Kitimat project and Apache interest in the Wheatstone LNG terminal in Western Australia, as well as accompanying upstream oil and gas reserves, for \$2.75 billion US					



Document reference |

CHEVRON KITIMAT LNG

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities	
Copyright 2B1st Consulting				KUSD	
Electrical Equipments & Systems	Electrical Equipments & Systems			143 750	
	Cables & Cabling accessories			12 540	
	Cable trays and Ladders	All frames and trays supporting the cables		2015	1 980
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations		2015	450
	Electrical Cables	HV Power cables above 44kV HV Power Cables > 1kV and < 44kV LV Power and Distribution cables < 1kV Lighting cables and splicing boxes Special cables		2015	10 110
	Heat Tracing			10 330	
	Heat Tracing	Electrical Heaters Electrical tracing or heating systems DC bus ducts		2015	10 330
	High Voltage Equipment above 44kV			3 040	
	GIS	Gas Insulated Switchgears/Panels above 44kV including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	3 040
	Lighting & Lighting installation			6 870	
	Lighting accessories	Lighting fixtures Lighting junction boxes Convenience outlets		2015	1 190
	Lighting for Hazardous areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	3 470
	Lighting for safe areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	1 870
	Lighting panels	Lighting panels		2015	340
	Low Voltage Equipment < 1kV			13 330	
	Low Voltage Bus ducts	Low Voltage bus ducts		2015	4 520
	Low Voltage Control Panels	Located in safe areas Low Voltage Apparatus, MCC and distribution boards in panels Withdrawable or Fixed type Intelligent Low Voltage control system Motor Control Center		2015	8 810
	Medium Voltage Equipment and Sub-station (>1kV<44kV)			60 530	
	Compact Substation Containerization	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.		2015	51 160
	HV & MV Products and Panels	Air Insulated Panels/Switchboards (Metal clad, Compartmented, Metal enclosed, Compact switchgear, Flame-proof switchgear) Gas insulated panels/switchboards including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	9 370
	HV/MV Bus ducts	Bus ducts non included in panels		2015	0
	Motors, Generators & Variable Frequency Converters			20 010	
	Above NEMA Motors	Electrical AC or DC, Synchronous or Asynchronous Motors above 250HP for safe areas and hazardous areas		2015	4 400
	Diesel Generators	Medium Voltage or Low Voltage generators driven by a thermal engine		2015	710
	Emergency Generators	Medium Voltage or Low Voltage generators to be started up in emergency		2015	240
	IEC High or Medium Voltage Motors	Electrical AC or DC, Synchronous or Asynchronous, motor above 1kV for safe areas and hazardous areas		2015	0
	IEC Low Voltage Motors	Low Voltage IEC Motors in the Frame size range 56 -450. Output range 0,1 - 1000 kW Motors for Safe areas and Hazardous areas		2015	0
Low Voltage Variable Frequency Converters	Low Voltage Variable Speed Drives Variable Frequency Converters Soft starters		2015	600	
Medium Voltage Variable Frequency Converters	High power DC converters for electro-chemical or electrolysis processes Static excitation systems, voltage regulators and synchronizing equipment for synchronous machines. Medium Voltage AC drive systems(LCI or VSI technologies)		2015	6 730	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	NEMA Low Voltage Motors	Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	760
	Turbine Generators	High or Medium Voltage generators driven by a turbine	2015	6 570
	Power Systems & Distribution Control Systems			2 180
	Distribution System	Central Control & Supervisory Medium Voltage and/or Low Voltage Distribution System Power or Energy Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system Load Shedding & Power Balance of plant	2015	1 650
	Power Management System (PMS)	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.	2015	530
	Small Power Bulk & Various Electrical			990
	Control	Local control button Push button	2015	260
	Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	330
	Sockets	For safe areas and hazardous areas	2015	400
	Transformers			9 940
	Distribution Transformers	HV/LV Oil or Dry Transformers including lighting transformers	2015	1 600
	Power Transformer	HV/HV Oil Transformers	2015	7 200
	Special Transformers	Power conversion Transformers Large Drives Transformers	2015	1 140
	UPS System & Batteries included			3 990
	Batteries	Batteries For UPS System	2015	2 830
	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	1 160
Mechanical Equipments	Mechanical Equipments			65 710
	Compressors & Vacuum pumps			1 330
	Vacuum pumps	Vacuum pumps	2015	1 330
	Fans & Blowers & HVAC			2 470
	HVAC	Heat Ventilation and Air Conditioning for buildings	2015	2 470
	Pumps			21 620
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	18 950
	Multi Phases Pumps	PMP Pumps	2015	0
	Reciprocating pumps	Reciprocating pumps	2015	0
	Rotary pumps	Screw pumps Other rotary pumps	2015	0
	Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	2 670
	Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0
	Turbines - Engines - Gears			40 290
	Diesel & Gas engines	Generating sets	2015	4 720
	Gas Expender Turbo Generators	Gas Expender Generators	2015	2 740
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2015	32 830
Instrumentation Products, Systems & Services	Instrumentation Products, Systems & Services			142 530
	Advanced Management Systems			2 810
	All processes	Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System	2013	2 810
	Refining Processes	Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling	2013	0
	Automation - ICSS			36 460
Building Management System	Building Management System Clock synchronization	2015	770	
Control Package	Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature monitoring system Tank gauging system	2015	1 440	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	DCS	Distributed Control System Programmable logic controller DCS Operator Workstation Multi-purpose computers, Printers DCS System & Control Cabinet DCS I/O cards, converters, cabinet Marshaling cabinet Batch sequential controller DCS network control cabinet and network equipment DCS system cables Supervision computer	2015	19 180
	Management System	Management information system Training simulator Advanced control system Overall flow metering system	2015	0
	Safety System & Security System	High Integrity Protection System (HIPS) Emergency Shut Down (ESD) system ESD network equipment, Processing cards, I/O cards, I/O converters, System cables Fire & Gas (F&G) system and cabinet F&G Network equipment, processing cards, I/O cards, I/O converters, System cables Building fire detection and alarming system	2015	14 410
	Scada	Remote Terminal Units Telecom equipments Supervisory Control Advanced Flow Computation and Overall Flow Management System Leak Detection System	2015	0
	Technical room equipment's	Instrumentation panels board, Console desk, Auxiliary instrument cabinet, Power supply distribution cabinet, Analyzer controller cabinet, Converter & Barriers cabinet, ESD-Interlock relay cabinet, Hard wired safety matrix panels, Optic fiber patch panel, Electrical interface relay cabinet Instrumentation, Converter Function relay, Multi-pen recorder, Multi-temperature recorder, Galvanic isolation barrier, Zener barrier Alarm management, Sequence of event system	2015	660
Instrumentation - Measurement				6 240
	Equipment Instrumentation	Speed transmitter, Acceleration transmitter, Vibration transmitter, Axial displacement transmitter, Temperature transmitter on rotating machine, Position transmitter, Weight transmitter, Proximity detector, Pig signaler Speed switch, Vibration switch, Axial displacement switch, Temperature switch for rotating machine, Position switch Speed indicator, Burner flam detector, Coupon monitoring	2015	960
	Fire & Gas device	Gas detector, Flame detector, Smoke detector, Manual alarm call point, Beacon/flashing light, Horn, Buzzer Siren, Heat detector, VESDA system, Thermo-sensible cable, Fire CCTV	2015	960
	Flow Measurement	Magnetic flow meter, Vortex meter, Mass and swirl flow Coriolis meter, Rota meter, Turbine meter, PD meter, Ultrasonic flow meter, Thermal mass flow meter, Portable flow meter, Insertion turbine meter, Variable area meter Pressure differential and specialized differential flow elements, flow secondary electronics, conventional, smart and fieldbus transmitters, Integral orifice Transmitter, Flow switch	2015	1 920
	Level Measurement	Displacement level transmitter, Float level transmitter, Capacity level transmitter, Conductive level transmitter, Ultrasonic level transmitter, Gamma ray level transmitter, Microwave (radar) level transmitter, Laser level transmitter, Displacement pneumatic level transmitter, Tank gauging transmitter Float level switch, Microwave (radar) level switch, Ultrasonic level switch, Conductive level switch, Capacitive level switch, Rotating paddle switch, Vibrating fork level switch, Gamma ray level switch Level profiler, Level glass, Tank level tape, Float level indicator, Magnetic level gauge	2015	660
	Miscellaneous Material	Local Panels & boards, Local I/O or analyzer cabinets, Tubing, Fitting, Seal pot, Condensate pot, Pig tail, Steam trap, Cable tray and accessories, Multi Cable Transit (MCT), Conduits and pipes, Manifolds Protection enclosures, Sunshade Instrument cables, Telecom cables, Optic fiber cables, Optic fiber splice boxes, Pneumatic tube, Cable connection Junction boxes, Push button, Cable glands, Plugs and sockets, Fieldbus and Wireless network accessories HVAC Instruments	2015	560
	Pressure Measurement	Electronic pressure transmitter and differential pressure transmitter, Gauge, Absolute pressure transmitters Pneumatic pressure transmitter and differential pressure transmitter Gauge and differential pressure gauge, Draft gauge Switch and differential pressure switch Pressure transducers, associated manifolds, fittings & accessories, conventional, smart and fieldbus transmitters	2015	800
	Recorders and Controllers	Local controller, Local recorder, Local millimeter Strip chart, circular chart and paperless recording instrumentation; 1/16 DIN, 1/8 DIN, 1/4 DIN and 6x3 panel board controllers; indicators.	2015	60
	Temperature Measurement	Thermocouple (RTD with well) and multiple thermocouple, Skin thermocouple, Flexible thermocouple/RTD for reactor, Thermometer with well, Thermowell, Optic pyrometer Temperature converter, Pneumatic bulb temperature transmitter Temperature sensing elements, fittings, housings and specialized cabling, conventional, smart and fieldbus transmitters.	2015	320
Process Analytic - Analyzers - Shelters				7 070
	Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2015	4 170
	Chromatographs	Process gas chromatographs, Gas chromatograph transmitters	2015	1 120
	Process Analyzers	Water analyzers, CO/CO2 analyzers, H2 process analyzers, SO2 process analyzers, Moisture analyzers, Water in oil analyzers, O2 Process analyzers, NOx/SOx analyzers, H2S/ SO2 analyzers, Sulphur analyzer, Chlorine analyzers, Hydrocarbone analyzers,Mass spectrometer, X-ray spectrometer, Percent solid analyzers On-line, at-line, specialty and laboratory analytical instruments such as gas chromatographs, IR/UV photometers, FTIR/FTNIR spectrometers, mass spectrometers, physical property analyzers, continuous gas analyzers.	2015	1 120
	Testing apparatus	Oil & Gas, Petrochemicals, Polymers and Chemicals testing apparatus Optical testing apparatus Water testing apparatus Physical testing apparatus Metrological testing apparatus	2015	660
Services				35 940
	Automation Services Telecom Services Advanced Management System Services	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissioning and Start up assistance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	35 940
Telecommunications Package				15 080
	Communication Systems	Telephone system, Paging system, Video conference system, Fax system, Intercom system	2015	1 400

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2015	3 610
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability system, Radio localization system, Gyro compass, Ship to shore link, ship to ship link Survival craft communication system, Berthing aid system, Acoustic Doppler current profiler	2015	0
	Public Address and General Alarm (PA/GA) System	Loud speakers, Horn & beacon, PA/GA system cabinet and console	2015	4 560
	Radio System	Trunk radio system, Aeronautical VHS system, Non directional beacon (NDB) radio system, VSTA system Voice recorder, Point to point link system and Point to multi-point radio link system Radar system, MF/HF radio system, Radio telecom tower Marine VHF radio system, Inmarsat system, Marine racon system, Global Marine Distress and Safety System (GMDSS) Automatic identification system (AIS)	2015	0
	Security System	Fence Intrusion detection system Access control system CCTV system	2015	5 510
	Valves			38 930
	Actuators	Hydraulic unit, Pneumatic actuator, Electric actuator, Hydraulic actuator, Wellhead control panel	2015	4 280
	Automatic On/Off Valves	Pneumatic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, diaphragm valve, piston valve Electric on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, piston valve Hydraulic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve Deluge valve, Deluge skid	2015	18 740
	Control Valves	Control valve, Severe service control valve, Butterfly control valve, Anti-surge control valve, Plug control valve Angle 2-ways control valve, 3-ways control valve, Chock valve Position transmitter, E/P Positioner, Smart positioner, Pneumatic positioner	2015	6 880
	Safety Valves	Safety relief valve, Piloted safety relief valve, vent valve, Thermal relief valve, Buckling pin valve, Breather valve Flame arrestor, Rupture disk, Burst disk	2015	1 870
	Special control valves	In line solenoid valve, De-super heater, Self actuated valve, Blanketing system Pipeline self actuated block valve, Spray rinse valve	2015	7 160

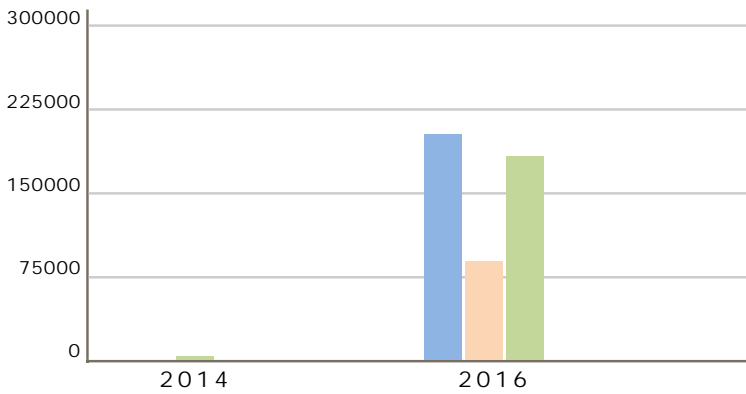


Document reference |

KINDER MORGAN GULF LNG EXPORT TERMINAL



Business Pipeline (in KUSD)



		Business Pipeline in KUSD		
		Smart Data	2014	2016
Packages in KUSD	Electrical Equipments & Systems	203 810	0	203 810
	Mechanical Equipments	89 300	0	89 300
	Instrumentation Products, Systems & Services	187 300	3 890	183 410
	Contracting & Utilities Packages	0	0	0
	Total of all the Packages	480 410	3 890	476 520



Document reference |

KINDER MORGAN GULF LNG EXPORT TERMINAL

Project Market Data	Last up date		Date	28/12/2014			
	Last up date year		2014				
	Status		Active				
	Project Names		Kinder Morgan Gulf LNG Export Terminal				
	Project Site Country		USA				
	End User	Project End user Name		Kinder Morgan Inc.			
		End Users & Stakeholders		Kinder Morgan Inc.	GE		
		End Users Countries		USA	USA		
		Key Stakeholders		Operational Leader	Financial Minority		
		Expected year of Completion		2019			
	"Feed Engineering Company (Front End Engineering & Design)"	Bidders					
		Awarded		KBR			
		FEED Companies Country		USA			
		FEED Stage year		2014			
	"PMC or EPCM Company Engineering Company (Project manager Consultant or EPC Manager) if appointed"	Name					
		PMC or EPCM Country					
		Year of appointment					
	"EPC Company (Engineering, Procurement & Construction)"	Bidders					
		Awarded		KBR			
		EPC Company Country		USA			
		EPC Stage year		2016			
	Main Standards		ANSI/NEMA				
	Sourcing Strategy		Global				
	General Information about the project						
	<p>May 2nd 2012, Gulf LNG Liquefaction Company,LLC (GLLC) filled an application to export up to 11.5 million t/y of LNG. This LNG plant should be built in the actual import LNG terminal located in Pascagoula, Mississippi, USA. Gulf LNG is a 50/50 joint venture of El Paso, since acquired in May 25th by Kinder Morgan, and GE Financial Services. El Paso (Kinder Morgan) is the operator through its wholly owned subsidiary Southern Gulf LNG.</p> <p>-- May 2014 -- KBR was contracted to do the front-end design work on the Gulf LNG Liquefaction Project " which is 50 percent-owned Kinder Morgan. The deal will provide engineering work to the LNG export project prior to the project undergoing Federal Energy Regulatory Commission (FERC) review. The project is meant to support the addition of 10 million metric tons per year of liquefaction and export capabilities to the existing import terminal. Under the terms of the contract, KBR will perform engineering for two LNG trains " each five million metric tons per year " and associated facilities based on KBR reference design using its APCI C3MR Technology. Additionally, KBR will provide the technical documentation required by FERC during the pre-filing process. These facilities will allow the terminal to liquefy domestic natural gas delivered by pipeline, store the LNG in the terminal's existing LNG storage tanks, and load it into LNG vessels via the terminal's existing marine jetty.</p> <p>-- December 2014 -- Kinder Morgan is estimating beginning construction on the LNG export project in 2016 with the two LNG trains coming online in 2019 and 2020.</p>						



Document reference |

KINDER MORGAN GULF LNG EXPORT TERMINAL

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities	
Copyright 2B1st Consulting				KUSD	
Electrical Equipments & Systems	Electrical Equipments & Systems			203 810	
	Cables & Cabling accessories			17 230	
	Cable trays and Ladders	All frames and trays supporting the cables		2016	2 600
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations		2016	620
	Electrical Cables	HV Power cables above 44kV HV Power Cables > 1kV and < 44kV LV Power and Distribution cables < 1kV Lighting cables and splicing boxes Special cables		2016	14 010
	Heat Tracing			13 920	
	Heat Tracing	Electrical Heaters Electrical tracing or heating systems DC bus ducts		2016	13 920
	High Voltage Equipment above 44kV			4 050	
	GIS	Gas Insulated Switchgears/Panels above 44kV including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2016	4 050
	Lighting & Lighting installation			9 380	
	Lighting accessories	Lighting fixtures Lighting junction boxes Convenience outlets		2016	1 630
	Lighting for Hazardous areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2016	4 730
	Lighting for safe areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2016	2 560
	Lighting panels	Lighting panels		2016	460
	Low Voltage Equipment < 1kV			18 280	
	Low Voltage Bus ducts	Low Voltage bus ducts		2016	6 270
	Low Voltage Control Panels	Located in safe areas Low Voltage Apparatus, MCC and distribution boards in panels Withdrawable or Fixed type Intelligent Low Voltage control system Motor Control Center		2016	12 010
	Medium Voltage Equipment and Sub-station (>1kV<44kV)			82 260	
	Compact Substation Containerization	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.		2016	69 470
	HV & MV Products and Panels	Air Insulated Panels/Switchboards (Metal clad, Compartmented, Metal enclosed, Compact switchgear, Flame-proof switchgear) Gas insulated panels/switchboards including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2016	12 790
	HV/MV Bus ducts	Bus ducts non included in panels		2016	0
	Motors, Generators & Variable Frequency Converters			35 680	
	Above NEMA Motors	Electrical AC or DC, Synchronous or Asynchronous Motors above 250HP for safe areas and hazardous areas		2016	6 060
	Diesel Generators	Medium Voltage or Low Voltage generators driven by a thermal engine		2016	920
	Emergency Generators	Medium Voltage or Low Voltage generators to be started up in emergency		2016	310
	IEC High or Medium Voltage Motors	Electrical AC or DC, Synchronous or Asynchronous, motor above 1kV for safe areas and hazardous areas		2016	0
	IEC Low Voltage Motors	Low Voltage IEC Motors in the Frame size range 56 -450. Output range 0,1 - 1000 kW Motors for Safe areas and Hazardous areas		2016	0
	Low Voltage Variable Frequency Converters	Low Voltage Variable Speed Drives Variable Frequency Converters Soft starters		2016	760
Medium Voltage Variable Frequency Converters	High power DC converters for electro-chemical or electrolysis processes Static excitation systems, voltage regulators and synchronizing equipment for synchronous machines. Medium Voltage AC drive systems(LCI or VSI technologies)		2016	17 700	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	NEMA Low Voltage Motors	Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2016	1 030
	Turbine Generators	High or Medium Voltage generators driven by a turbine	2016	8 900
	Power Systems & Distribution Control Systems			2 840
	Distribution System	Central Control & Supervisory Medium Voltage and/or Low Voltage Distribution System Power or Energy Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system Load Shedding & Power Balance of plant	2016	2 150
	Power Management System (PMS)	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.	2016	690
	Small Power Bulk & Various Electrical			1 350
	Control	Local control button Push button	2016	360
	Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2016	450
	Sockets	For safe areas and hazardous areas	2016	540
	Transformers			13 360
	Distribution Transformers	HV/LV Oil or Dry Transformers including lighting transformers	2016	2 120
	Power Transformer	HV/HV Oil Transformers	2016	9 650
	Special Transformers	Power conversion Transformers Large Drives Transformers	2016	1 590
	UPS System & Batteries included			5 460
	Batteries	Batteries For UPS System	2016	3 920
	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2016	1 540
Mechanical Equipments	Mechanical Equipments			89 300
	Compressors & Vacuum pumps			1 830
	Vacuum pumps	Vacuum pumps	2016	1 830
	Fans & Blowers & HVAC			3 390
	HVAC	Heat Ventilation and Air Conditioning for buildings	2016	3 390
	Pumps			29 720
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2016	26 060
	Multi Phases Pumps	PMP Pumps	2016	0
	Reciprocating pumps	Reciprocating pumps	2016	0
	Rotary pumps	Screw pumps Other rotary pumps	2016	0
	Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2016	3 660
	Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2016	0
	Turbines - Engines - Gears			54 360
	Diesel & Gas engines	Generating sets	2016	6 140
	Gas Expender Turbo Generators	Gas Expender Generators	2016	3 710
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2016	44 510
Instrumentation Products, Systems & Services	Instrumentation Products, Systems & Services			187 300
	Advanced Management Systems			3 890
	All processes	Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System	2014	3 890
	Refining Processes	Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling	2014	0
	Automation - ICSS			48 030
Building Management System	Building Management System Clock synchronization	2016	1 000	
Control Package	Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature monitoring system Tank gauging system	2016	1 930	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	DCS	Distributed Control System Programmable logic controller DCS Operator Workstation Multi-purpose computers, Printers DCS System & Control Cabinet DCS I/O cards, converters, cabinet Marshaling cabinet Batch sequential controller DCS network control cabinet and network equipment DCS system cables Supervision computer	2016	24 950
	Management System	Management information system Training simulator Advanced control system Overall flow metering system	2016	0
	Safety System & Security System	High Integrity Protection System (HIPS) Emergency Shut Down (ESD) system ESD network equipment, Processing cards, I/O cards, I/O converters, System cables Fire & Gas (F&G) system and cabinet F&G Network equipment, processing cards, I/O cards, I/O converters, System cables Building fire detection and alarming system	2016	19 310
	Scada	Remote Terminal Units Telecom equipments Supervisory Control Advanced Flow Computation and Overall Flow Management System Leak Detection System	2016	0
	Technical room equipment's	Instrumentation panels board, Console desk, Auxiliary instrument cabinet, Power supply distribution cabinet, Analyzer controller cabinet, Converter & Barriers cabinet, ESD-Interlock relay cabinet, Hard wired safety matrix panels, Optic fiber patch panel, Electrical interface relay cabinet Instrumentation, Converter Function relay, Multi-pen recorder, Multi-temperature recorder, Galvanic isolation barrier, Zener barrier Alarm management, Sequence of event system	2016	840
Instrumentation - Measurement				8 460
	Equipment Instrumentation	Speed transmitter, Acceleration transmitter, Vibration transmitter, Axial displacement transmitter, Temperature transmitter on rotating machine, Position transmitter, Weight transmitter, Proximity detector, Pig signaler Speed switch, Vibration switch, Axial displacement switch, Temperature switch for rotating machine, Position switch Speed indicator, Burner flam detector, Coupon monitoring	2016	1 310
	Fire & Gas device	Gas detector, Flame detector, Smoke detector, Manual alarm call point, Beacon/flashing light, Horn, Buzzer Siren, Heat detector, VESDA system, Thermo-sensible cable, Fire CCTV	2016	1 310
	Flow Measurement	Magnetic flow meter, Vortex meter, Mass and swirl flow Coriolis meter, Rota meter, Turbine meter, PD meter, Ultrasonic flow meter, Thermal mass flow meter, Portable flow meter, Insertion turbine meter, Variable area meter Pressure differential and specialized differential flow elements, flow secondary electronics, conventional, smart and fieldbus transmitters, Integral orifice Transmitter, Flow switch	2016	2 610
	Level Measurement	Displacement level transmitter, Float level transmitter, Capacity level transmitter, Conductive level transmitter, Ultrasonic level transmitter, Gamma ray level transmitter, Microwave (radar) level transmitter, Laser level transmitter, Displacement pneumatic level transmitter, Tank gauging transmitter Float level switch, Microwave (radar) level switch, Ultrasonic level switch, Conductive level switch, Capacitive level switch, Rotating paddle switch, Vibrating fork level switch, Gamma ray level switch Level profiler, Level glass, Tank level tape, Float level indicator, Magnetic level gauge	2016	890
	Miscellaneous Material	Local Panels & boards, Local I/O or analyzer cabinets, Tubing, Fitting, Seal pot, Condensate pot, Pig tail, Steam trap, Cable tray and accessories, Multi Cable Transit (MCT), Conduits and pipes, Manifolds Protection enclosures, Sunshade Instrument cables, Telecom cables, Optic fiber cables, Optic fiber splice boxes, Pneumatic tube, Cable connection Junction boxes, Push button, Cable glands, Plugs and sockets, Fieldbus and Wireless network accessories HVAC Instruments	2016	780
	Pressure Measurement	Electronic pressure transmitter and differential pressure transmitter, Gauge, Absolute pressure transmitters Pneumatic pressure transmitter and differential pressure transmitter Gauge and differential pressure gauge, Draft gauge Switch and differential pressure switch Pressure transducers, associated manifolds, fittings & accessories, conventional, smart and fieldbus transmitters	2016	1 060
	Recorders and Controllers	Local controller, Local recorder, Local millimeter Strip chart, circular chart and paperless recording instrumentation; 1/16 DIN, 1/8 DIN, 1/4 DIN and 6x3 panel board controllers; indicators.	2016	80
	Temperature Measurement	Thermocouple (RTD with well) and multiple thermocouple, Skin thermocouple, Flexible thermocouple/RTD for reactor, Thermometer with well, Thermowell, Optic pyrometer Temperature converter, Pneumatic bulb temperature transmitter Temperature sensing elements, fittings, housings and specialized cabling, conventional, smart and fieldbus transmitters.	2016	420
Process Analytic - Analyzers - Shelters				9 460
	Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2016	5 500
	Chromatographs	Process gas chromatographs, Gas chromatograph transmitters	2016	1 560
	Process Analyzers	Water analyzers, CO/CO2 analyzers, H2 process analyzers, SO2 process analyzers, Moisture analyzers, Water in oil analyzers, O2 Process analyzers, NOx/SOx analyzers, H2S/ SO2 analyzers, Sulphur analyzer, Chlorine analyzers, Hydrocarbone analyzers,Mass spectrometer, X-ray spectrometer, Percent solid analyzers On-line, at-line, specialty and laboratory analytical instruments such as gas chromatographs, IR/UV photometers, FTIR/FTNIR spectrometers, mass spectrometers, physical property analyzers, continuous gas analyzers.	2016	1 560
	Testing apparatus	Oil & Gas, Petrochemicals, Polymers and Chemicals testing apparatus Optical testing apparatus Water testing apparatus Physical testing apparatus Metrological testing apparatus	2016	840
Services				45 870
	Automation Services Telecom Services Advanced Management System Services	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissioning and Start up assistance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2016	45 870
Telecommunications Package				19 460
	Communication Systems	Telephone system, Paging system, Video conference system, Fax system, Intercom system	2016	1 830

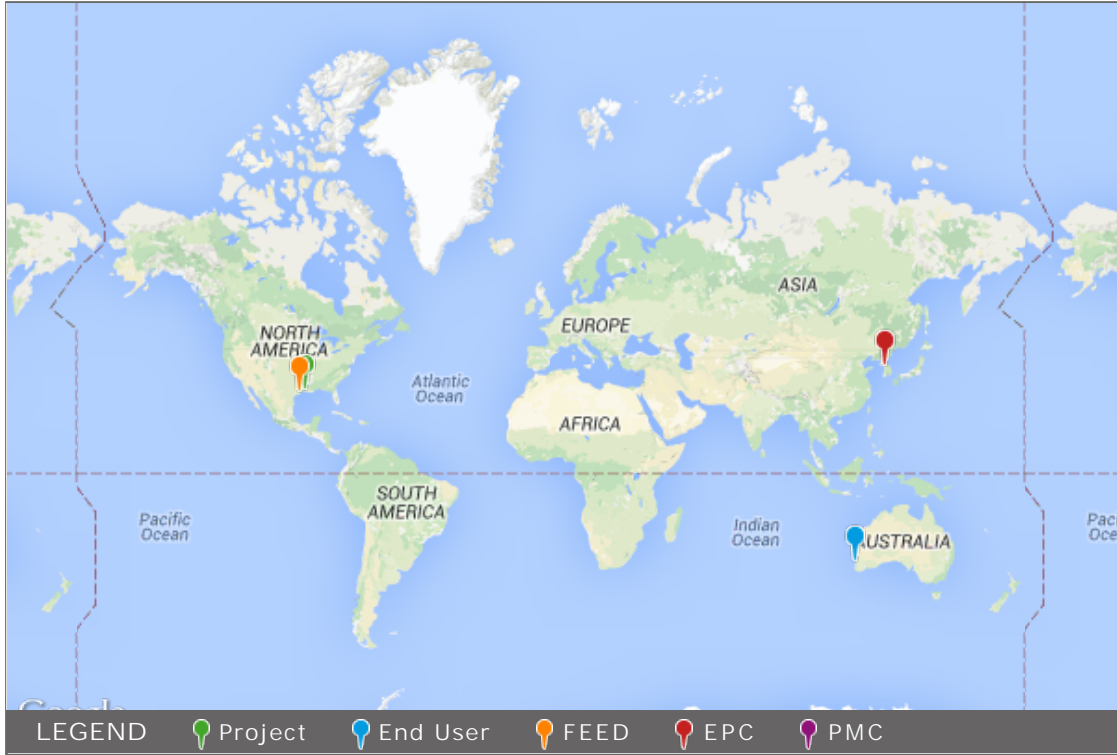
PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2016	4 720
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability system, Radio localization system, Gyro compass, Ship to shore link, ship to ship link Survival craft communication system, Berthing aid system, Acoustic Doppler current profiler	2016	0
	Public Address and General Alarm (PA/GA) System	Loud speakers, Horn & beacon, PA/GA system cabinet and console	2016	6 070
	Radio System	Trunk radio system, Aeronautical VHS system, Non directional beacon (NDB) radio system, VSTA system Voice recorder, Point to point link system and Point to multi-point radio link system Radar system, MF/HF radio system, Radio telecom tower Marine VHF radio system, Inmarsat system, Marine racon system, Global Marine Distress and Safety System (GMDSS) Automatic identification system (AIS)	2016	0
	Security System	Fence Intrusion detection system Access control system CCTV system	2016	6 840
	Valves			52 130
	Actuators	Hydraulic unit, Pneumatic actuator, Electric actuator, Hydraulic actuator, Wellhead control panel	2016	5 620
	Automatic On/Off Valves	Pneumatic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, diaphragm valve, piston valve Electric on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, piston valve Hydraulic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve Deluge valve, Deluge skid	2016	25 580
	Control Valves	Control valve, Severe service control valve, Butterfly control valve, Anti-surge control valve, Plug control valve Angle 2-ways control valve, 3-ways control valve, Chock valve Position transmitter, E/P Positioner, Smart positioner, Pneumatic positioner	2016	9 040
	Safety Valves	Safety relief valve, Piloted safety relief valve, vent valve, Thermal relief valve, Buckling pin valve, Breather valve Flame arrestor, Rupture disk, Burst disk	2016	2 460
	Special control valves	In line solenoid valve, De-super heater, Self actuated valve, Blanketing system Pipeline self actuated block valve, Spray rinse valve	2016	9 430

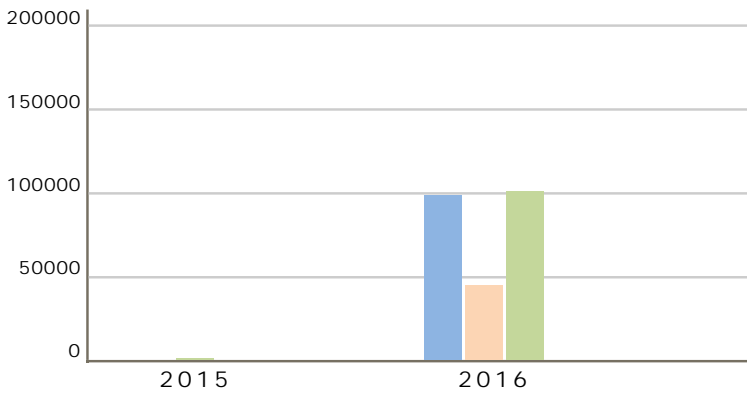


Document reference |

LNG MAGNOLIA LNG LAKE CHARLES



Business Pipeline (in KUSD)



		Business Pipeline in KUSD		
		Smart Data	2015	2016
Packages in KUSD	Electrical Equipments & Systems	99 270	0	99 270
	Mechanical Equipments	45 390	0	45 390
	Instrumentation Products, Systems & Services	103 000	1 880	101 120
	Contracting & Utilities Packages	0	0	0
	Total of all the Packages	247 660	1 880	245 780



Document reference |

LNG MAGNOLIA LNG LAKE CHARLES

Last up date		Date	03/02/2015		
Last up date year		2015			
Status		Active			
Project Names		LNG Magnolia LNG Lake Charles			
Project Site Country		USA			
End User	Project End user Name	LNG Ltd			
	End Users & Stakeholders	LNG Ltd			
	End Users Countries	Australia			
	Key Stakeholders	Operational Leader			
	Expected year of Completion	2019			
"Feed Engineering Company (Front End Engineering & Design)"	Bidders				
	Awarded	KBR			
	FEED Companies Country	USA			
	FEED Stage year	2015			
"PMC or EPCM Company Engineering Company (Project manager Consultant or EPC Manager) if appointed"	Name				
	PMC or EPCM Country				
	Year of appointment				
"EPC Company (Engineering, Procurement & Construction)"	Bidders				
	Awarded	SK Engineering & Construction			
	EPC Company Country	South Korea			
	EPC Stage year	2016			
Main Standards		ANSI/NEMA			
Sourcing Strategy		High Value or Low Costs Countries			
General Information about the project					
<p>Magnolia LNG, a newly formed, wholly-owned subsidiary of Liquefied Natural Gas Limited (LNG Ltd), is developing an up to 8 million tonne per annum (mtpa) mid-scale LNG facility in the Port of Lake Charles, Louisiana, USA using its highly efficient and patented OSM technology (Project). The Project will access approximately 90 acres of available land in Lake Charles, Industrial Canal South Shore PLC Tract 475, (Site) through a long-term lease with the Lake Charles Harbor & Terminal District.</p> <p>LNG Ltd's wholly owned OSMR's liquefaction technology and development methodology results in lower capital cost, lower operating cost, faster construction, and improved efficiency</p> <p>Feed gas for the Project will be sourced from the highly liquid US gas market via several gas suppliers. Gas will be delivered to the site via two existing underutilised pipeline infrastructure that traverses the Site. Two additional gas pipelines are located within 3 miles of the site. Consequently, very short interconnect pipelines will be required to tie-in to the existing pipeline(s).</p> <p>On 18 December 2012 Magnolia LNG filed an application with the U.S. Department of Energy, Office of Fossil Energy (DOE/FE) seeking long-term multi-contract authorization to export up to 4mtpa of liquefied natural gas (LNG) to Free Trade Agreement (FTA) countries. Authorisation is expected to be granted by DOE/FE in first quarter 2013. Authorisation is required by US law to be granted within 90 days of the filing date. Magnolia LNG will provide cost effective liquefaction services under an LNG Tolling Agreement enabling LNG sales to these FTA countries.</p> <p>Magnolia LNG has also commenced activities that relate to the Federal Energy Regulatory Commission's (FERC) authorization and other necessary environmental permits to site, construct, and operate the Project. Early preliminary activities include a Safety Assessment for the LNG facility, a Waterway Suitability Assessment (WSA), geotechnical studies, and studies required to ensure a timely and smooth approvals process.</p> <p>A detailed Permitting & Approvals Roadmap has also been prepared by a local US consultant that outlines the related tasks over the next 24 months. In accordance with the FERC approval process, Magnolia LNG is anticipating submitting its formal Pre-File application by March 2013.</p> <p>The five key early milestones targeted for the Project are:</p> <ul style="list-style-type: none"> â€¢ Receipt of DOE FTA Approval February 2013 â€¢ Submit Pre-Filing Application to FERC March 2013 â€¢ Selection of Project partners June 2013 â€¢ Submit Filing Application to FERC December 2013 â€¢ Final Investment Decision December 2014 (subject to FERC approvals) <p>The Project will comprise a full containment LNG tank of ~ 200,000 m3 in accordance with NFPA 59A and FERC guidelines. The industrial canal will enable LNG Carriers (up to 170,000 m3 Membrane) to access the Site using the existing swing basin. The Site is adjacent to the existing Trunkline LNG Terminal, and so LNG Carriers have been previously operational in the main Calcasieu Channel and Industrial Canal.</p> <p>The Project will largely benefit from the Front End Engineering Design (FEED) recently undertaken for the Fisherman's Landing LNG Project in Gladstone, Queensland, Australia. This will assist in expediting the permit approvals process.</p> <p>The indicative capital estimate is US\$2.2 billion for the Project (4 mtpa). The resulting cost of ~ US\$550 per LNG tonne would be the lowest export LNG capital cost in the US and one of the key success factors of the Project.</p> <ul style="list-style-type: none"> --February2014--Magnolia LNG signed MOU with SK Engineering and Construction (SK E&C) to provide : <ul style="list-style-type: none"> - Front-end engineering design (FEED) and open book costing - Engineering, procurement and construction (EPC) under a fixed-price <p>The initial price estimate for the work is \$1.57 billion, which is in-line with Magnolia LNG estimates.</p> <ul style="list-style-type: none"> -- March 2014 -- Magnolia LNG has received approval from the US Department of Energy (DOE) for the export of 8 million tonnes per year of LNG to free trade agreement (FTA) countries. <p>Authorisation for export is valid for first LNG sales expected to start within 10 years, and then for 25 years after that.</p> <ul style="list-style-type: none"> -- May 2014 -- LNG Magnolia received FERC approval -- February 2015 -- KBR and SKEC to execute EPC Joint Venture Agreement (JVA) on a 70/30 percent participation basis, respectively, to deliver the 8 mtpa four train Magnolia LNG Project <p>KBR will be the leader of the EPC Contract</p> <p>Magnolia LNG on schedule for Financial Close in mid-2015 and first LNG in fourth quarter 2018.</p> <p>Under the Technical Services Agreements the parties will complete all due diligence in relation to technical commercial and contractual matters that will enable the EPC JV to execute a lump sum, turnkey engineering procurement, construction, commissioning, start-up and performance testing EPC Contract for the LNG</p>					

Project
Market
Data

plant.

Magnolia LNG has set the following milestone schedule:

- February 2015: JV Agreement between KBR and SKEC
- March 2015: Initialling EPC Contract between Magnolia LNG and the JV
- April 2015: EPC Contract signing between Magnolia LNG and JV



Document reference |

LNG MAGNOLIA LNG LAKE CHARLES

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities	
Copyright 2B1st Consulting				KUSD	
Electrical Equipments & Systems	Electrical Equipments & Systems			99 270	
	Cables & Cabling accessories			8 530	
	Cable trays and Ladders	All frames and trays supporting the cables		2016	1 430
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations		2016	310
	Electrical Cables	HV Power cables above 44kV HV Power Cables > 1kV and < 44kV LV Power and Distribution cables < 1kV Lighting cables and splicing boxes Special cables		2016	6 790
	Heat Tracing			7 220	
	Heat Tracing	Electrical Heaters Electrical tracing or heating systems DC bus ducts		2016	7 220
	High Voltage Equipment above 44kV			2 160	
	GIS	Gas Insulated Switchgears/Panels above 44kV including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2016	2 160
	Lighting & Lighting installation			4 730	
	Lighting accessories	Lighting fixtures Lighting junction boxes Convenience outlets		2016	810
	Lighting for Hazardous areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2016	2 390
	Lighting for safe areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2016	1 290
	Lighting panels	Lighting panels		2016	240
	Low Voltage Equipment < 1kV			9 100	
	Low Voltage Bus ducts	Low Voltage bus ducts		2016	3 040
	Low Voltage Control Panels	Located in safe areas Low Voltage Apparatus, MCC and distribution boards in panels Withdrawable or Fixed type Intelligent Low Voltage control system Motor Control Center		2016	6 060
	Medium Voltage Equipment and Sub-station (>1kV<44kV)			41 840	
	Compact Substation Containerization	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.		2016	35 400
	HV & MV Products and Panels	Air Insulated Panels/Switchboards (Metal clad, Compartmented, Metal enclosed, Compact switchgear, Flame-proof switchgear) Gas insulated panels/switchboards including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2016	6 440
	HV/MV Bus ducts	Bus ducts non included in panels		2016	0
	Motors, Generators & Variable Frequency Converters			13 710	
	Above NEMA Motors	Electrical AC or DC, Synchronous or Asynchronous Motors above 250HP for safe areas and hazardous areas		2016	2 980
	Diesel Generators	Medium Voltage or Low Voltage generators driven by a thermal engine		2016	520
	Emergency Generators	Medium Voltage or Low Voltage generators to be started up in emergency		2016	170
	IEC High or Medium Voltage Motors	Electrical AC or DC, Synchronous or Asynchronous, motor above 1kV for safe areas and hazardous areas		2016	0
	IEC Low Voltage Motors	Low Voltage IEC Motors in the Frame size range 56 -450. Output range 0,1 - 1000 kW Motors for Safe areas and Hazardous areas		2016	0
Low Voltage Variable Frequency Converters	Low Voltage Variable Speed Drives Variable Frequency Converters Soft starters		2016	450	
Medium Voltage Variable Frequency Converters	High power DC converters for electro-chemical or electrolysis processes Static excitation systems, voltage regulators and synchronizing equipment for synchronous machines. Medium Voltage AC drive systems(LCI or VSI technologies)		2016	4 520	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	NEMA Low Voltage Motors	Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2016	520
	Turbine Generators	High or Medium Voltage generators driven by a turbine	2016	4 550
	Power Systems & Distribution Control Systems			1 580
	Distribution System	Central Control & Supervisory Medium Voltage and/or Low Voltage Distribution System Power or Energy Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system Load Shedding & Power Balance of plant	2016	1 200
	Power Management System (PMS)	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.	2016	380
	Small Power Bulk & Various Electrical			690
	Control	Local control button Push button	2016	180
	Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2016	230
	Sockets	For safe areas and hazardous areas	2016	280
	Transformers			6 980
	Distribution Transformers	HV/LV Oil or Dry Transformers including lighting transformers	2016	1 140
	Power Transformer	HV/HV Oil Transformers	2016	5 070
	Special Transformers	Power conversion Transformers Large Drives Transformers	2016	770
	UPS System & Batteries included			2 730
	Batteries	Batteries For UPS System	2016	1 900
	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2016	830
Mechanical Equipments	Mechanical Equipments			45 390
	Compressors & Vacuum pumps			900
	Vacuum pumps	Vacuum pumps	2016	900
	Fans & Blowers & HVAC			1 680
	HVAC	Heat Ventilation and Air Conditioning for buildings	2016	1 680
	Pumps			14 700
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2016	12 880
	Multi Phases Pumps	PMP Pumps	2016	0
	Reciprocating pumps	Reciprocating pumps	2016	0
	Rotary pumps	Screw pumps Other rotary pumps	2016	0
	Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2016	1 820
	Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2016	0
	Turbines - Engines - Gears			28 110
	Diesel & Gas engines	Generating sets	2016	3 450
	Gas Expender Turbo Generators	Gas Expender Generators	2016	1 900
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2016	22 760
Instrumentation Products, Systems & Services	Instrumentation Products, Systems & Services			103 000
	Advanced Management Systems			1 880
	All processes	Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System	2015	1 880
	Refining Processes	Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling	2015	0
	Automation - ICSS			26 270
Building Management System	Building Management System Clock synchronization	2016	560	
Control Package	Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature monitoring system Tank gauging system	2016	1 010	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	DCS	Distributed Control System Programmable logic controller DCS Operator Workstation Multi-purpose computers, Printers DCS System & Control Cabinet DCS I/O cards, converters, cabinet Marshaling cabinet Batch sequential controller DCS network control cabinet and network equipment DCS system cables Supervision computer	2016	14 050
	Management System	Management information system Training simulator Advanced control system Overall flow metering system	2016	0
	Safety System & Security System	High Integrity Protection System (HIPS) Emergency Shut Down (ESD) system ESD network equipment, Processing cards, I/O cards, I/O converters, System cables Fire & Gas (F&G) system and cabinet F&G Network equipment, processing cards, I/O cards, I/O converters, System cables Building fire detection and alarming system	2016	10 150
	Scada	Remote Terminal Units Telecom equipments Supervisory Control Advanced Flow Computation and Overall Flow Management System Leak Detection System	2016	0
	Technical room equipment's	Instrumentation panels board, Console desk, Auxiliary instrument cabinet, Power supply distribution cabinet, Analyzer controller cabinet, Converter & Barriers cabinet, ESD-Interlock relay cabinet, Hard wired safety matrix panels, Optic fiber patch panel, Electrical interface relay cabinet Instrumentation, Converter Function relay, Multi-pen recorder, Multi-temperature recorder, Galvanic isolation barrier, Zener barrier Alarm management, Sequence of event system	2016	500
Instrumentation - Measurement				4 330
	Equipment Instrumentation	Speed transmitter, Acceleration transmitter, Vibration transmitter, Axial displacement transmitter, Temperature transmitter on rotating machine, Position transmitter, Weight transmitter, Proximity detector, Pig signaler Speed switch, Vibration switch, Axial displacement switch, Temperature switch for rotating machine, Position switch Speed indicator, Burner flam detector, Coupon monitoring	2016	660
	Fire & Gas device	Gas detector, Flame detector, Smoke detector, Manual alarm call point, Beacon/flashing light, Horn, Buzzer Siren, Heat detector, VESDA system, Thermo-sensible cable, Fire CCTV	2016	660
	Flow Measurement	Magnetic flow meter, Vortex meter, Mass and swirl flow Coriolis meter, Rota meter, Turbine meter, PD meter, Ultrasonic flow meter, Thermal mass flow meter, Portable flow meter, Insertion turbine meter, Variable area meter Pressure differential and specialized differential flow elements, flow secondary electronics, conventional, smart and fieldbus transmitters, Integral orifice Transmitter, Flow switch	2016	1 330
	Level Measurement	Displacement level transmitter, Float level transmitter, Capacity level transmitter, Conductive level transmitter, Ultrasonic level transmitter, Gamma ray level transmitter, Microwave (radar) level transmitter, Laser level transmitter, Displacement pneumatic level transmitter, Tank gauging transmitter Float level switch, Microwave (radar) level switch, Ultrasonic level switch, Conductive level switch, Capacitive level switch, Rotating paddle switch, Vibrating fork level switch, Gamma ray level switch Level profiler, Level glass, Tank level tape, Float level indicator, Magnetic level gauge	2016	460
	Miscellaneous Material	Local Panels & boards, Local I/O or analyzer cabinets, Tubing, Fitting, Seal pot, Condensate pot, Pig tail, Steam trap, Cable tray and accessories, Multi Cable Transit (MCT), Conduits and pipes, Manifolds Protection enclosures, Sunshade Instrument cables, Telecom cables, Optic fiber cables, Optic fiber splice boxes, Pneumatic tube, Cable connection Junction boxes, Push button, Cable glands, Plugs and sockets, Fieldbus and Wireless network accessories HVAC Instruments	2016	380
	Pressure Measurement	Electronic pressure transmitter and differential pressure transmitter, Gauge, Absolute pressure transmitters Pneumatic pressure transmitter and differential pressure transmitter Gauge and differential pressure gauge, Draft gauge Switch and differential pressure switch Pressure transducers, associated manifolds, fittings & accessories, conventional, smart and fieldbus transmitters	2016	570
	Recorders and Controllers	Local controller, Local recorder, Local millimeter Strip chart, circular chart and paperless recording instrumentation; 1/16 DIN, 1/8 DIN, 1/4 DIN and 6x3 panel board controllers; indicators.	2016	40
	Temperature Measurement	Thermocouple (RTD with well) and multiple thermocouple, Skin thermocouple, Flexible thermocouple/RTD for reactor, Thermometer with well, Thermowell, Optic pyrometer Temperature converter, Pneumatic bulb temperature transmitter Temperature sensing elements, fittings, housings and specialized cabling, conventional, smart and fieldbus transmitters.	2016	230
Process Analytic - Analyzers - Shelters				4 990
	Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2016	3 000
	Chromatographs	Process gas chromatographs, Gas chromatograph transmitters	2016	750
	Process Analyzers	Water analyzers, CO/CO2 analyzers, H2 process analyzers, SO2 process analyzers, Moisture analyzers, Water in oil analyzers, O2 Process analyzers, NOx/SOx analyzers, H2S/ SO2 analyzers, Sulphur analyzer, Chlorine analyzers, Hydrocarbone analyzers.Mass spectrometer, X-ray spectrometer, Percent solid analyzers On-line, at-line, specialty and laboratory analytical instruments such as gas chromatographs, IR/UV photometers, FTIR/FTNIR spectrometers, mass spectrometers, physical property analyzers, continuous gas analyzers.	2016	750
	Testing apparatus	Oil & Gas, Petrochemicals, Polymers and Chemicals testing apparatus Optical testing apparatus Water testing apparatus Physical testing apparatus Metrological testing apparatus	2016	490
Services				26 940
	Automation Services Telecom Services Advanced Management System Services	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissioning and Start up assistance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2016	26 940
Telecommunications Package				11 150
	Communication Systems	Telephone system, Paging system, Video conference system, Fax system, Intercom system	2016	1 030

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2016	2 620
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability system, Radio localization system, Gyro compass, Ship to shore link, ship to ship link Survival craft communication system, Berthing aid system, Acoustic Doppler current profiler	2016	0
	Public Address and General Alarm (PA/GA) System	Loud speakers, Horn & beacon, PA/GA system cabinet and console	2016	3 240
	Radio System	Trunk radio system, Aeronautical VHS system, Non directional beacon (NDB) radio system, VSTA system Voice recorder, Point to point link system and Point to multi-point radio link system Radar system, MF/HF radio system, Radio telecom tower Marine VHF radio system, Inmarsat system, Marine racon system, Global Marine Distress and Safety System (GMDSS) Automatic identification system (AIS)	2016	0
	Security System	Fence Intrusion detection system Access control system CCTV system	2016	4 260
	Valves			27 440
	Actuators	Hydraulic unit, Pneumatic actuator, Electric actuator, Hydraulic actuator, Wellhead control panel	2016	3 090
	Automatic On/Off Valves	Pneumatic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, diaphragm valve, piston valve Electric on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, piston valve Hydraulic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve Deluge valve, Deluge skid	2016	12 870
	Control Valves	Control valve, Severe service control valve, Butterfly control valve, Anti-surge control valve, Plug control valve Angle 2-ways control valve, 3-ways control valve, Chock valve Position transmitter, E/P Positioner, Smart positioner, Pneumatic positioner	2016	4 970
	Safety Valves	Safety relief valve, Piloted safety relief valve, vent valve, Thermal relief valve, Buckling pin valve, Breather valve Flame arrestor, Rupture disk, Burst disk	2016	1 350
	Special control valves	In line solenoid valve, De-super heater, Self actuated valve, Blanketing system Pipeline self actuated block valve, Spray rinse valve	2016	5 160

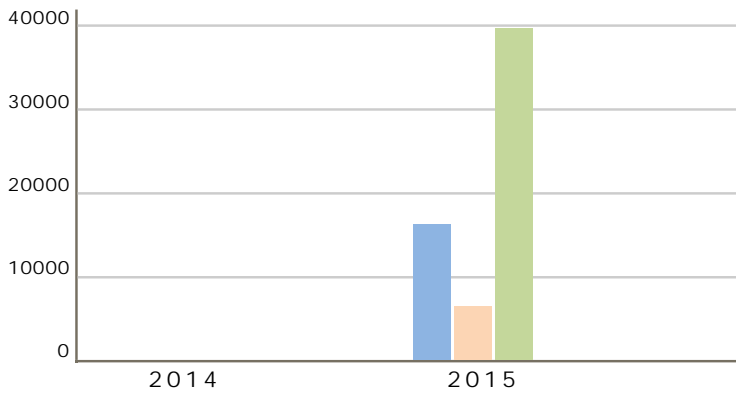


Document reference |

LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION



Business Pipeline (in KUSD)



		Business Pipeline in KUSD		
		Smart Data	2014	2015
Packages in KUSD	Electrical Equipments & Systems	16 440	0	16 440
	Mechanical Equipments	6 520	0	6 520
	Instrumentation Products, Systems & Services	40 110	120	39 990
	Contracting & Utilities Packages	0	0	0
	Total of all the Packages	63 070	120	62 950



Document reference |

LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION

Project Market Data	Last up date		Date	24/12/2014			
	Last up date year		2014				
	Status		Active				
	Project Names		LyondellBasell Channelview Ethylene Second Expansion				
	Project Site Country		USA				
	End User	Project End user Name		Lyondellbasell			
		End Users & Stakeholders		Lyondellbasell			
		End Users Countries		USA			
		Key Stakeholders		Operational Leader			
		Expected year of Completion		2017			
	"Feed Engineering Company (Front End Engineering & Design)	Bidders					
		Awarded		KBR			
		FEED Companies Country		USA			
		FEED Stage year		2014			
	"PMC or EPCM Company Engineering Company (Project manager Consultant or EPC Manager) if appointed"	Name					
		PMC or EPCM Country					
		Year of appointment					
	"EPC Company (Engineering, Procurement & Construction)"	Bidders					
		Awarded		KBR			
		EPC Company Country		USA			
EPC Stage year		2015					
Main Standards		ANSI/NEMA					
Sourcing Strategy		Global					
General Information about the project							
<p>The global chemical and plastics manufacturer LyondellBasell is considering an additional expansion of the ethylene production on its Channelview facility in Texas USA.</p> <p>During the last twenty years, LyondellBasell has grown up pretty fast in Europe and North America mainly through acquisitions. The accumulation of debts to finance the acquisitions and the 2008 crisis led LyondellBasell to apply for the Chapter 11 protection in US in 2009. After cleaning its balance sheet and optimizing its diversified assets portfolio, LyondellBasell was well positioned to benefit from the shale gas development in the US to restore a competitive model of petrochemical activities.</p> <p>In this new context, LyondellBasell opted for organic growth in investing in series of debottlenecking projects in its existing chemical complexes in Channelview, Corpus Christi and La Porte, all in Texas USA.</p> <p>In a period when engineering and contracting resources are all absorbed by the multiplication of projects in North America, LyondellBasell strategy, in proceeding by mid-sized investments, enable an implementation on fast track of these expansions.</p> <p>In Corpus Christi, LyondellBasell started up in 2013 in joint venture with TexStar a new natural gas liquids (NGL) plant in order to increase its supply capacities. From this first step, LyondellBasell is now working on a new ethylene cracker to add 360,000 tonnes per year (t/y) capacity expected to run into commercial operations in 2016.</p> <p>In parallel, LyondellBasell is currently completing in La Porte the 100,000 t/y polyethylene debottlenecking project and the 400,000 t/y ethylene cracker expansion.</p> <p>New LyondellBasell Channelview Ethylene Expansion</p> <p>Regarding Channelview, LyondellBasell restarted its 780,000 t/y methanol that was idled since 2004. This methanol facility is then supplying LyondellBasell acetic acid and methyl tertbutyl ether (MTBE) units on the same site in Channelview. As part of the debottlenecking program, LyondellBasell initiated the capacity increase of Channelview ethylene cracker by 113,000 t/y. To support this additional capacity, LyondellBasell is building two cracking furnaces in Channelview. LyondellBasell is planning to turn these new Channelview ethylene crackers by 2015.</p> <p>Since this small steps strategy of investment is proving to deliver the projects on time and at budgeted costs, LyondellBasell is encouraged to continue in the same way as long as the domestic demand and the existing sites are supporting these series of capacity increases. Taking the advantage of the modular design of these ethylene crackers, LyondellBasell has decided to repeat the successful experience and announced a new expansion at the Channelview ethylene plant.</p> <p>With this new investment, LyondellBasell is planning to increase capacity by 270,000 t/y of ethylene in Channelview.</p> <p>As this project will be executed in continuation of the on going cracker furnaces project, LyondellBasell expect this new Channelview Ethylene Expansion project to be in operation by 2017.</p>							



Document reference |

LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities	
Copyright 2B1st Consulting				KUSD	
Electrical Equipments & Systems	Electrical Equipments & Systems			16 440	
	Cables & Cabling accessories			2 590	
	Cable trays and Ladders	All frames and trays supporting the cables		2015	730
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations		2015	80
	Electrical Cables	HV Power cables above 44kV HV Power Cables > 1kV and < 44kV LV Power and Distribution cables < 1kV Lighting cables and splicing boxes Special cables		2015	1 780
	Heat Tracing			1 680	
	Heat Tracing	Electrical Heaters Electrical tracing or heating systems DC bus ducts		2015	1 680
	High Voltage Equipment above 44kV			0	
	GIS	Gas Insulated Switchgears/Panels above 44kV including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	0
	Lighting & Lighting installation			750	
	Lighting accessories	Lighting fixtures Lighting junction boxes Convenience outlets		2015	90
	Lighting for Hazardous areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	400
	Lighting for safe areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	200
	Lighting panels	Lighting panels		2015	60
	Low Voltage Equipment < 1kV			1 330	
	Low Voltage Bus ducts	Low Voltage bus ducts		2015	330
	Low Voltage Control Panels	Located in safe areas Low Voltage Apparatus, MCC and distribution boards in panels Withdrawable or Fixed type Intelligent Low Voltage control system Motor Control Center		2015	1 000
	Medium Voltage Equipment and Sub-station (>1kV<44kV)			6 440	
	Compact Substation Containerization	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.		2015	5 420
	HV & MV Products and Panels	Air Insulated Panels/Switchboards (Metal clad, Compartmented, Metal enclosed, Compact switchgear, Flame-proof switchgear) Gas insulated panels/switchboards including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	1 020
	HV/MV Bus ducts	Bus ducts non included in panels		2015	0
	Motors, Generators & Variable Frequency Converters			2 010	
	Above NEMA Motors	Electrical AC or DC, Synchronous or Asynchronous Motors above 250HP for safe areas and hazardous areas		2015	1 050
	Diesel Generators	Medium Voltage or Low Voltage generators driven by a thermal engine		2015	210
	Emergency Generators	Medium Voltage or Low Voltage generators to be started up in emergency		2015	70
	IEC High or Medium Voltage Motors	Electrical AC or DC, Synchronous or Asynchronous, motor above 1kV for safe areas and hazardous areas		2015	0
	IEC Low Voltage Motors	Low Voltage IEC Motors in the Frame size range 56 -450. Output range 0,1 - 1000 kW Motors for Safe areas and Hazardous areas		2015	0
Low Voltage Variable Frequency Converters	Low Voltage Variable Speed Drives Variable Frequency Converters Soft starters		2015	20	
Medium Voltage Variable Frequency Converters	High power DC converters for electro-chemical or electrolysis processes Static excitation systems, voltage regulators and synchronizing equipment for synchronous machines. Medium Voltage AC drive systems(LCI or VSI technologies)		2015	370	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	NEMA Low Voltage Motors	Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	290
	Turbine Generators	High or Medium Voltage generators driven by a turbine	2015	0
	Power Systems & Distribution Control Systems			430
	Distribution System	Central Control & Supervisory Medium Voltage and/or Low Voltage Distribution System Power or Energy Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system Load Shedding & Power Balance of plant	2015	430
	Power Management System (PMS)	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.	2015	0
	Small Power Bulk & Various Electrical			150
	Control	Local control button Push button	2015	40
	Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	50
	Sockets	For safe areas and hazardous areas	2015	60
	Transformers			560
	Distribution Transformers	HV/LV Oil or Dry Transformers including lighting transformers	2015	100
	Power Transformer	HV/HV Oil Transformers	2015	400
	Special Transformers	Power conversion Transformers Large Drives Transformers	2015	60
	UPS System & Batteries included			500
	Batteries	Batteries For UPS System	2015	120
	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	380
Mechanical Equipments	Mechanical Equipments			6 520
	Compressors & Vacuum pumps			110
	Vacuum pumps	Vacuum pumps	2015	110
	Fans & Blowers & HVAC			220
	HVAC	Heat Ventilation and Air Conditioning for buildings	2015	220
	Pumps			4 760
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	1 730
	Multi Phases Pumps	PMP Pumps	2015	0
	Reciprocating pumps	Reciprocating pumps	2015	550
	Rotary pumps	Screw pumps Other rotary pumps	2015	1 100
	Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	1 380
	Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0
	Turbines - Engines - Gears			1 430
	Diesel & Gas engines	Generating sets	2015	1 430
	Gas Expender Turbo Generators	Gas Expender Generators	2015	0
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2015	0
	Instrumentation Products, Systems & Services	Instrumentation Products, Systems & Services		
Advanced Management Systems			120	
All processes		Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System	2014	120
Refining Processes		Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling	2014	0
Automation - ICSS			9 390	
Building Management System		Building Management System Clock synchronization	2015	240
Control Package	Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature monitoring system Tank gauging system	2015	270	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	DCS	Distributed Control System Programmable logic controller DCS Operator Workstation Multi-purpose computers, Printers DCS System & Control Cabinet DCS I/O cards, converters, cabinet Marshaling cabinet Batch sequential controller DCS network control cabinet and network equipment DCS system cables Supervision computer	2015	5 940
	Management System	Management information system Training simulator Advanced control system Overall flow metering system	2015	0
	Safety System & Security System	High Integrity Protection System (HIPS) Emergency Shut Down (ESD) system ESD network equipment, Processing cards, I/O cards, I/O converters, System cables Fire & Gas (F&G) system and cabinet F&G Network equipment, processing cards, I/O cards, I/O converters, System cables Building fire detection and alarming system	2015	2 670
	Scada	Remote Terminal Units Telecom equipments Supervisory Control Advanced Flow Computation and Overall Flow Management System Leak Detection System	2015	0
	Technical room equipment's	Instrumentation panels board, Console desk, Auxiliary instrument cabinet, Power supply distribution cabinet, Analyzer controller cabinet, Converter & Barriers cabinet, ESD-Interlock relay cabinet, Hard wired safety matrix panels, Optic fiber patch panel, Electrical interface relay cabinet Instrumentation, Converter Function relay, Multi-pen recorder, Multi-temperature recorder, Galvanic isolation barrier, Zener barrier Alarm management, Sequence of event system	2015	270
Instrumentation - Measurement				4 090
	Equipment Instrumentation	Speed transmitter, Acceleration transmitter, Vibration transmitter, Axial displacement transmitter, Temperature transmitter on rotating machine, Position transmitter, Weight transmitter, Proximity detector, Pig signaler Speed switch, Vibration switch, Axial displacement switch, Temperature switch for rotating machine, Position switch Speed indicator, Burner flam detector, Coupon monitoring	2015	220
	Fire & Gas device	Gas detector, Flame detector, Smoke detector, Manual alarm call point, Beacon/flashing light, Horn, Buzzer Siren, Heat detector, VESDA system, Thermo-sensible cable, Fire CCTV	2015	250
	Flow Measurement	Magnetic flow meter, Vortex meter, Mass and swirl flow Coriolis meter, Rota meter, Turbine meter, PD meter, Ultrasonic flow meter, Thermal mass flow meter, Portable flow meter, Insertion turbine meter, Variable area meter Pressure differential and specialized differential flow elements, flow secondary electronics, conventional, smart and fieldbus transmitters, Integral orifice Transmitter, Flow switch	2015	1 130
	Level Measurement	Displacement level transmitter, Float level transmitter, Capacity level transmitter, Conductive level transmitter, Ultrasonic level transmitter, Gamma ray level transmitter, Microwave (radar) level transmitter, Laser level transmitter, Displacement pneumatic level transmitter, Tank gauging transmitter Float level switch, Microwave (radar) level switch, Ultrasonic level switch, Conductive level switch, Capacitive level switch, Rotating paddle switch, Vibrating fork level switch, Gamma ray level switch Level profiler, Level glass, Tank level tape, Float level indicator, Magnetic level gauge	2015	540
	Miscellaneous Material	Local Panels & boards, Local I/O or analyzer cabinets, Tubing, Fitting, Seal pot, Condensate pot, Pig tail, Steam trap, Cable tray and accessories, Multi Cable Transit (MCT), Conduits and pipes, Manifolds Protection enclosures, Sunshade Instrument cables, Telecom cables, Optic fiber cables, Optic fiber splice boxes, Pneumatic tube, Cable connection Junction boxes, Push button, Cable glands, Plugs and sockets, Fieldbus and Wireless network accessories HVAC Instruments	2015	500
	Pressure Measurement	Electronic pressure transmitter and differential pressure transmitter, Gauge, Absolute pressure transmitters Pneumatic pressure transmitter and differential pressure transmitter Gauge and differential pressure gauge, Draft gauge Switch and differential pressure switch Pressure transducers, associated manifolds, fittings & accessories, conventional, smart and fieldbus transmitters	2015	1 090
	Recorders and Controllers	Local controller, Local recorder, Local millimeter Strip chart, circular chart and paperless recording instrumentation; 1/16 DIN, 1/8 DIN, 1/4 DIN and 6x3 panel board controllers; indicators.	2015	130
	Temperature Measurement	Thermocouple (RTD with well) and multiple thermocouple, Skin thermocouple, Flexible thermocouple/RTD for reactor, Thermometer with well, Thermowell, Optic pyrometer Temperature converter, Pneumatic bulb temperature transmitter Temperature sensing elements, fittings, housings and specialized cabling, conventional, smart and fieldbus transmitters.	2015	230
Process Analytic - Analyzers - Shelters				1 390
	Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2015	1 060
	Chromatographs	Process gas chromatographs, Gas chromatograph transmitters	2015	50
	Process Analyzers	Water analyzers, CO/CO2 analyzers, H2 process analyzers, SO2 process analyzers, Moisture analyzers, Water in oil analyzers, O2 Process analyzers, NOx/SOx analyzers, H2S/ SO2 analyzers, Sulphur analyzer, Chlorine analyzers, Hydrocarbone analyzers,Mass spectrometer, X-ray spectrometer, Percent solid analyzers On-line, at-line, specialty and laboratory analytical instruments such as gas chromatographs, IR/UV photometers, FTIR/FTNIR spectrometers, mass spectrometers, physical property analyzers, continuous gas analyzers.	2015	50
	Testing apparatus	Oil & Gas, Petrochemicals, Polymers and Chemicals testing apparatus Optical testing apparatus Water testing apparatus Physical testing apparatus Metrological testing apparatus	2015	230
Services				13 820
	Automation Services Telecom Services Advanced Management System Services	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissioning and Start up assistance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	13 820
Telecommunications Package				5 030
	Communication Systems	Telephone system, Paging system, Video conference system, Fax system, Intercom system	2015	410

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2015	1 010
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability system, Radio localization system, Gyro compass, Ship to shore link, ship to ship link Survival craft communication system, Berthing aid system, Acoustic Doppler current profiler	2015	0
	Public Address and General Alarm (PA/GA) System	Loud speakers, Horn & beacon, PA/GA system cabinet and console	2015	940
	Radio System	Trunk radio system, Aeronautical VHS system, Non directional beacon (NDB) radio system, VSTA system Voice recorder, Point to point link system and Point to multi-point radio link system Radar system, MF/HF radio system, Radio telecom tower Marine VHF radio system, Inmarsat system, Marine racon system, Global Marine Distress and Safety System (GMDSS) Automatic identification system (AIS)	2015	0
	Security System	Fence Intrusion detection system Access control system CCTV system	2015	2 670
	Valves			6 270
	Actuators	Hydraulic unit, Pneumatic actuator, Electric actuator, Hydraulic actuator, Wellhead control panel	2015	1 130
	Automatic On/Off Valves	Pneumatic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, diaphragm valve, piston valve Electric on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, piston valve Hydraulic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve Deluge valve, Deluge skid	2015	1 950
	Control Valves	Control valve, Severe service control valve, Butterfly control valve, Anti-surge control valve, Plug control valve Angle 2-ways control valve, 3-ways control valve, Chock valve Position transmitter, E/P Positioner, Smart positioner, Pneumatic positioner	2015	2 130
	Safety Valves	Safety relief valve, Piloted safety relief valve, vent valve, Thermal relief valve, Buckling pin valve, Breather valve Flame arrestor, Rupture disk, Burst disk	2015	640
	Special control valves	In line solenoid valve, De-super heater, Self actuated valve, Blanketing system Pipeline self actuated block valve, Spray rinse valve	2015	420

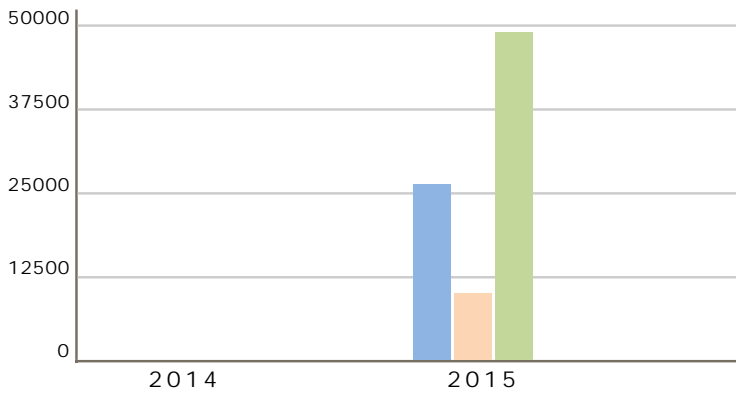


Document reference |

LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION



Business Pipeline (in KUSD)



		Business Pipeline in KUSD		
		Smart Data	2014	2015
Packages in KUSD	Electrical Equipments & Systems	26 650	0	26 650
	Mechanical Equipments	10 240	0	10 240
	Instrumentation Products, Systems & Services	49 670	270	49 400
	Contracting & Utilities Packages	0	0	0
	Total of all the Packages	86 560	270	86 290



Document reference |

LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION

Project Market Data	Last up date		Date	22/05/2014			
	Last up date year		2014				
	Status		Active				
	Project Names		LyondellBasell Corpus Christi Ethylene Expansion				
	Project Site Country		USA				
	End User	Project End user Name		Lyondellbasell			
		End Users & Stakeholders		Lyondellbasell			
		End Users Countries		Netherlands			
		Key Stakeholders		Operational Leader			
		Expected year of Completion		2016			
	"Feed Engineering Company (Front End Engineering & Design)	Bidders					
		Awarded		KBR			
		FEED Companies Country		USA			
		FEED Stage year		2014			
	"PMC or EPCM Company Engineering Company (Project manager Consultant or EPC Manager) if appointed"	Name					
		PMC or EPCM Country					
		Year of appointment					
	"EPC Company (Engineering, Procurement & Construction)"	Bidders					
		Awarded		KBR			
		EPC Company Country		USA			
		EPC Stage year		2015			
	Main Standards		ANSI/NEMA				
	Sourcing Strategy		Global				
	General Information about the project						
	<p>LyondellBasell plans to add an additional 800m lb/year (363,000 tonnes/year) of ethylene capacity at its cracker at Corpus Christi, Texas, by late 2015, a senior executive said on Wednesday.</p> <p>“This investment of around \$420m (€323m) could add \$250m-300m in annual potential growth value,” said Tim Roberts, senior vice president of olefins and polyolefins Americas.</p> <p>He spoke at the company’s annual investor day.</p> <p>It was the first time LyondellBasell announced planned additional capacity for its Corpus Christi expansion.</p> <p>Currently, LyondellBasell has an ethylene capacity of 771,000 tonnes/year at Corpus Christi</p> <p>--November2013-- The Corpus Christi expansion is still in the permitting phase, with construction slated to begin once permits are received. Projected start-up is expected on early 2016.</p>						



Document reference |

LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities	
Copyright 2B1st Consulting				KUSD	
Electrical Equipments & Systems	Electrical Equipments & Systems			26 650	
	Cables & Cabling accessories			4 860	
	Cable trays and Ladders	All frames and trays supporting the cables		2015	910
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations		2015	130
	Electrical Cables	HV Power cables above 44kV HV Power Cables > 1kV and < 44kV LV Power and Distribution cables < 1kV Lighting cables and splicing boxes Special cables		2015	3 820
	Heat Tracing			2 300	
	Heat Tracing	Electrical Heaters Electrical tracing or heating systems DC bus ducts		2015	2 300
	High Voltage Equipment above 44kV			450	
	GIS	Gas Insulated Switchgears/Panels above 44kV including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	450
	Lighting & Lighting installation			1 140	
	Lighting accessories	Lighting fixtures Lighting junction boxes Convenience outlets		2015	160
	Lighting for Hazardous areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	590
	Lighting for safe areas	Floodlights Floodlight Poles & Towers Lighting fixtures		2015	310
	Lighting panels	Lighting panels		2015	80
	Low Voltage Equipment < 1kV			2 200	
	Low Voltage Bus ducts	Low Voltage bus ducts		2015	710
	Low Voltage Control Panels	Located in safe areas Low Voltage Apparatus, MCC and distribution boards in panels Withdrawable or Fixed type Intelligent Low Voltage control system Motor Control Center		2015	1 490
	Medium Voltage Equipment and Sub-station (>1kV<44kV)			10 230	
	Compact Substation Containerization	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.		2015	8 690
	HV & MV Products and Panels	Air Insulated Panels/Switchboards (Metal clad, Compartmented, Metal enclosed, Compact switchgear, Flame-proof switchgear) Gas insulated panels/switchboards including circuit breakers (gas tight switchboards with SF6 gas, air or other gas as the insulating medium)		2015	1 540
	HV/MV Bus ducts	Bus ducts non included in panels		2015	0
	Motors, Generators & Variable Frequency Converters			3 120	
	Above NEMA Motors	Electrical AC or DC, Synchronous or Asynchronous Motors above 250HP for safe areas and hazardous areas		2015	1 830
	Diesel Generators	Medium Voltage or Low Voltage generators driven by a thermal engine		2015	260
	Emergency Generators	Medium Voltage or Low Voltage generators to be started up in emergency		2015	90
	IEC High or Medium Voltage Motors	Electrical AC or DC, Synchronous or Asynchronous, motor above 1kV for safe areas and hazardous areas		2015	0
	IEC Low Voltage Motors	Low Voltage IEC Motors in the Frame size range 56 -450. Output range 0,1 - 1000 kW Motors for Safe areas and Hazardous areas		2015	0
	Low Voltage Variable Frequency Converters	Low Voltage Variable Speed Drives Variable Frequency Converters Soft starters		2015	50
Medium Voltage Variable Frequency Converters	High power DC converters for electro-chemical or electrolysis processes Static excitation systems, voltage regulators and synchronizing equipment for synchronous machines. Medium Voltage AC drive systems(LCI or VSI technologies)		2015	460	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	NEMA Low Voltage Motors	Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	430
	Turbine Generators	High or Medium Voltage generators driven by a turbine	2015	0
	Power Systems & Distribution Control Systems			590
	Distribution System	Central Control & Supervisory Medium Voltage and/or Low Voltage Distribution System Power or Energy Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system Load Shedding & Power Balance of plant	2015	590
	Power Management System (PMS)	Containerized or Prefabricated, factory assembled and pretested CSS in concrete or metal housing, comprising integrated distribution transformer, medium voltage and low voltage switchgear, UPS and batteries, including pad-mount assemblies and mobile substations. This package includes also engineering, design, assembling, testing, commissioning and start up operations.	2015	0
	Small Power Bulk & Various Electrical			190
	Control	Local control button Push button	2015	50
	Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	60
	Sockets	For safe areas and hazardous areas	2015	80
	Transformers			820
	Distribution Transformers	HV/LV Oil or Dry Transformers including lighting transformers	2015	210
	Power Transformer	HV/HV Oil Transformers	2015	530
	Special Transformers	Power conversion Transformers Large Drives Transformers	2015	80
	UPS System & Batteries included			750
	Batteries	Batteries For UPS System	2015	270
	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	480
Mechanical Equipments	Mechanical Equipments			10 240
	Compressors & Vacuum pumps			180
	Vacuum pumps	Vacuum pumps	2015	180
	Fans & Blowers & HVAC			350
	HVAC	Heat Ventilation and Air Conditioning for buildings	2015	350
	Pumps			7 950
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	2 880
	Multi Phases Pumps	PMP Pumps	2015	0
	Reciprocating pumps	Reciprocating pumps	2015	920
	Rotary pumps	Screw pumps Other rotary pumps	2015	1 840
	Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	2 310
	Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0
	Turbines - Engines - Gears			1 760
	Diesel & Gas engines	Generating sets	2015	1 760
	Gas Expender Turbo Generators	Gas Expender Generators	2015	0
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2015	0
Instrumentation Products, Systems & Services	Instrumentation Products, Systems & Services			49 670
	Advanced Management Systems			270
	All processes	Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System	2014	270
	Refining Processes	Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling	2014	0
	Automation - ICSS			11 840
Building Management System	Building Management System Clock synchronization	2015	290	
Control Package	Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature monitoring system Tank gauging system	2015	360	

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	DCS	Distributed Control System Programmable logic controller DCS Operator Workstation Multi-purpose computers, Printers DCS System & Control Cabinet DCS I/O cards, converters, cabinet Marshaling cabinet Batch sequential controller DCS network control cabinet and network equipment DCS system cables Supervision computer	2015	7 300
	Management System	Management information system Training simulator Advanced control system Overall flow metering system	2015	0
	Safety System & Security System	High Integrity Protection System (HIPS) Emergency Shut Down (ESD) system ESD network equipment, Processing cards, I/O cards, I/O converters, System cables Fire & Gas (F&G) system and cabinet F&G Network equipment, processing cards, I/O cards, I/O converters, System cables Building fire detection and alarming system	2015	3 560
	Scada	Remote Terminal Units Telecom equipments Supervisory Control Advanced Flow Computation and Overall Flow Management System Leak Detection System	2015	0
	Technical room equipment's	Instrumentation panels board, Console desk, Auxiliary instrument cabinet, Power supply distribution cabinet, Analyzer controller cabinet, Converter & Barriers cabinet, ESD-Interlock relay cabinet, Hard wired safety matrix panels, Optic fiber patch panel, Electrical interface relay cabinet Instrumentation, Converter Function relay, Multi-pen recorder, Multi-temperature recorder, Galvanic isolation barrier, Zener barrier Alarm management, Sequence of event system	2015	330
Instrumentation - Measurement				4 700
	Equipment Instrumentation	Speed transmitter, Acceleration transmitter, Vibration transmitter, Axial displacement transmitter, Temperature transmitter on rotating machine, Position transmitter, Weight transmitter, Proximity detector, Pig signaler Speed switch, Vibration switch, Axial displacement switch, Temperature switch for rotating machine, Position switch Speed indicator, Burner flam detector, Coupon monitoring	2015	250
	Fire & Gas device	Gas detector, Flame detector, Smoke detector, Manual alarm call point, Beacon/flashing light, Horn, Buzzer Siren, Heat detector, VESDA system, Thermo-sensible cable, Fire CCTV	2015	290
	Flow Measurement	Magnetic flow meter, Vortex meter, Mass and swirl flow Coriolis meter, Rota meter, Turbine meter, PD meter, Ultrasonic flow meter, Thermal mass flow meter, Portable flow meter, Insertion turbine meter, Variable area meter Pressure differential and specialized differential flow elements, flow secondary electronics, conventional, smart and fieldbus transmitters, Integral orifice Transmitter, Flow switch	2015	1 290
	Level Measurement	Displacement level transmitter, Float level transmitter, Capacity level transmitter, Conductive level transmitter, Ultrasonic level transmitter, Gamma ray level transmitter, Microwave (radar) level transmitter, Laser level transmitter, Displacement pneumatic level transmitter, Tank gauging transmitter Float level switch, Microwave (radar) level switch, Ultrasonic level switch, Conductive level switch, Capacitive level switch, Rotating paddle switch, Vibrating fork level switch, Gamma ray level switch Level profiler, Level glass, Tank level tape, Float level indicator, Magnetic level gauge	2015	620
	Miscellaneous Material	Local Panels & boards, Local I/O or analyzer cabinets, Tubing, Fitting, Seal pot, Condensate pot, Pig tail, Steam trap, Cable tray and accessories, Multi Cable Transit (MCT), Conduits and pipes, Manifolds Protection enclosures, Sunshade Instrument cables, Telecom cables, Optic fiber cables, Optic fiber splice boxes, Pneumatic tube, Cable connection Junction boxes, Push button, Cable glands, Plugs and sockets, Fieldbus and Wireless network accessories HVAC Instruments	2015	580
	Pressure Measurement	Electronic pressure transmitter and differential pressure transmitter, Gauge, Absolute pressure transmitters Pneumatic pressure transmitter and differential pressure transmitter Gauge and differential pressure gauge, Draft gauge Switch and differential pressure switch Pressure transducers, associated manifolds, fittings & accessories, conventional, smart and fieldbus transmitters	2015	1 250
	Recorders and Controllers	Local controller, Local recorder, Local millimeter Strip chart, circular chart and paperless recording instrumentation; 1/16 DIN, 1/8 DIN, 1/4 DIN and 6x3 panel board controllers; indicators.	2015	150
	Temperature Measurement	Thermocouple (RTD with well) and multiple thermocouple, Skin thermocouple, Flexible thermocouple/RTD for reactor, Thermometer with well, Thermowell, Optic pyrometer Temperature converter, Pneumatic bulb temperature transmitter Temperature sensing elements, fittings, housings and specialized cabling, conventional, smart and fieldbus transmitters.	2015	270
Process Analytic - Analyzers - Shelters				1 830
	Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2015	1 330
	Chromatographs	Process gas chromatographs, Gas chromatograph transmitters	2015	110
	Process Analyzers	Water analyzers, CO/CO2 analyzers, H2 process analyzers, SO2 process analyzers, Moisture analyzers, Water in oil analyzers, O2 Process analyzers, NOx/SOx analyzers, H2S/ SO2 analyzers, Sulphur analyzer, Chlorine analyzers, Hydrocarbone analyzers.Mass spectrometer, X-ray spectrometer, Percent solid analyzers On-line, at-line, specialty and laboratory analytical instruments such as gas chromatographs, IR/UV photometers, FTIR/FTNIR spectrometers, mass spectrometers, physical property analyzers, continuous gas analyzers.	2015	110
	Testing apparatus	Oil & Gas, Petrochemicals, Polymers and Chemicals testing apparatus Optical testing apparatus Water testing apparatus Physical testing apparatus Metrological testing apparatus	2015	280
Services				16 560
	Automation Services Telecom Services Advanced Management System Services	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissioning and Start up assistance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	16 560
Telecommunications Package				6 030
	Communication Systems	Telephone system, Paging system, Video conference system, Fax system, Intercom system	2015	500

PACKAGES SUMMARY

Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunities
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2015	1 230
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability system, Radio localization system, Gyro compass, Ship to shore link, ship to ship link Survival craft communication system, Berthing aid system, Acoustic Doppler current profiler	2015	0
	Public Address and General Alarm (PA/GA) System	Loud speakers, Horn & beacon, PA/GA system cabinet and console	2015	1 200
	Radio System	Trunk radio system, Aeronautical VHS system, Non directional beacon (NDB) radio system, VSTA system Voice recorder, Point to point link system and Point to multi-point radio link system Radar system, MF/HF radio system, Radio telecom tower Marine VHF radio system, Inmarsat system, Marine racon system, Global Marine Distress and Safety System (GMDSS) Automatic identification system (AIS)	2015	0
	Security System	Fence Intrusion detection system Access control system CCTV system	2015	3 100
	Valves			8 440
	Actuators	Hydraulic unit, Pneumatic actuator, Electric actuator, Hydraulic actuator, Wellhead control panel	2015	1 420
	Automatic On/Off Valves	Pneumatic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, diaphragm valve, piston valve Electric on/off ball valve, gate valve, globe valve, butterfly valve, plug valve, piston valve Hydraulic on/off ball valve, gate valve, globe valve, butterfly valve, plug valve Deluge valve, Deluge skid	2015	2 720
	Control Valves	Control valve, Severe service control valve, Butterfly control valve, Anti-surge control valve, Plug control valve Angle 2-ways control valve, 3-ways control valve, Chock valve Position transmitter, E/P Positioner, Smart positioner, Pneumatic positioner	2015	2 930
	Safety Valves	Safety relief valve, Piloted safety relief valve, vent valve, Thermal relief valve, Buckling pin valve, Breather valve Flame arrestor, Rupture disk, Burst disk	2015	840
	Special control valves	In line solenoid valve, De-super heater, Self actuated valve, Blanketing system Pipeline self actuated block valve, Spray rinse valve	2015	530