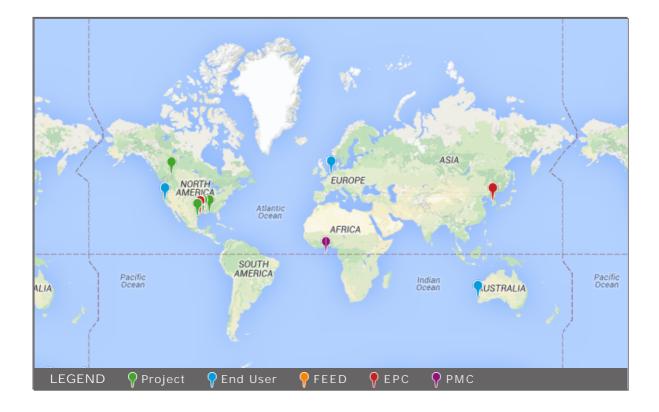




Report Name: KBR Manufacturers EPC All awarded Report June 14th 2015 ; Project Status : Active ; EPC : All awarded ; Company : KBR ; Type of plant : FLNG, FPSO, LNG Train, Gas Pipeline, Oil Terminal, Clean Fuels - DHDS -DeHydroDeSulfurization, Ethylene Cracker (PolyEthylene HDPE LDPE LLDPE Ethanol EO 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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Document reference |

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EU VAT Number	FR80540040086

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

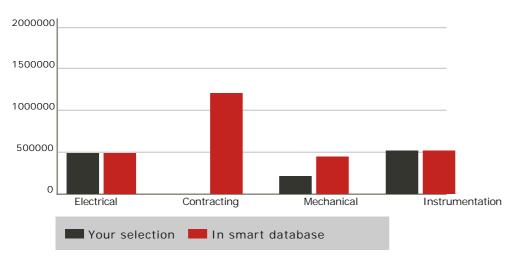
MARKET DATA	
Number of projects	5
Number of countries per project site location	2
Number of countries per engineering companies location	2
Number of FEED : (Front End Engineering & Design)	5
Number of PMC : (Projet Manager Consultant)	5
Number of EPC : (Engineering, Procurement & Construction)	1







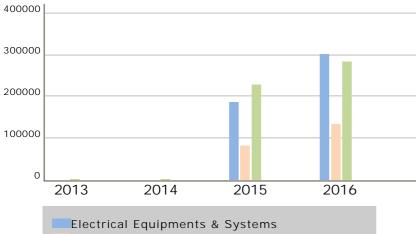
Project Status : Active ; EPC : All awarded ; Company : KBR ; Type of plant : FLNG, FPSO, LNG Train, Gas Pipeline, Oil Terminal,Clean Fuels - DHDS -DeHydroDeSulfurization,Ethylene Cracker (PolyEthylene HDPE LDPE LLDPE Ethanol EO EG EA PVC), Methanol; Packages: Above NEMA Motors, Actuators, All processes, 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)







Electrical Equipments & Systems Mechanical Equipments Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipeline in KUSD					
_		Smart Data	2013	2014	2015	2016		
	Electrical Equipments & Systems	489 920	0	0	186 840	303 080		
	Mechanical Equipments	217 160	0	0	82 470	134 690		
Packages in KUSD	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		







Generic name	End User Name	Country of project site location	Capital expenditure MUSD	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

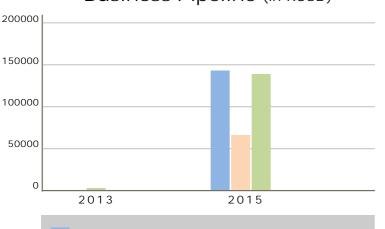






CHEVRON KITIMAT LNG





Business Pipeline (in KUSD)

Electrical Equipments & Systems Mechanical Equipments Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipeline in KUSD			
		Smart Data	2013	2015		
	Electrical Equipments & Systems	143 750	0	143 750		
	Mechanical Equipments	65 710	0	65 710		
Packages in KUSD	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		

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6 / 36







# CHEVRON KITIMAT LNG

Last up date Last up date yo Status			1		1	1	
		Date	29/12/2014				
Status	Last up date year		2014				
		Active					
Project Name	es	Chevron Kitimat LNG	Apache LNG	KMLNG			
Project Site Cou	intry	Canada					
	Project End user Name			Chevron			
	End Users & Stakeholders	Chevron	Woodside Petroleum				
End User	End Users Countries	USA	Australia				
	Key Stakeholders	Operational Leader	Financial Minority				
	Expected year of Completion			2018		·	
	Bidders						
"Feed Engineering Company	Awarded			KBR			
(Front End Engineering & Design)	FEED Companies Country			USA			
	FEED Stage year			2013			
"PMC or EPCM Company Engineering	Name						
Company (Project manager Consultant oe EPC	PMC or EPCM Country						
Manager) if appointed"	Year of appointment			0			
	Bidders						
"EPC Company	Awarded			Fluor - JGC			
(Engineering, Procurement & Construction)"	EPC Company Country			USA			
,	EPC Stage year			2015			
Main Standard	ds			ANSI/NEMA			
Sourcing Strate	egy			Global			
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 of or marketable natural gas. Apache estimates that the Liard Basin field may contain up to 210 trillion of (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 forth 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 compared with actual market conditions where natural gas is traded at \$1.78 per thousand cf. The find by Apache Corp., one of three partners with Encana and EOC Resources in the \$4.5 billion Kitimat LNG terminal and pipeline proposal, is estimated t 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 1 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 an E							
A forth well is on going considering th Despite this high cost, Apache made th Thus the Liard Basin should be comp below the U.S prices at \$2.60 a thous. The find by Apache Corp., one of three contain enough natural gas in itself to Apache and its partners plan a five-mi million tonnes a year. The Liard Basin alone could provide th Considering that the LNG is contracte EOG Resources, to double capital exp January 2013 Chevron takes over EOR and Encana venture. In opposite way, Chevron pays \$550 m With this new financial set up, Chevron Chevron Canada will assume operato percent and will operate the upstrean The Kitimat LNG trains will be located	o double Kitimat LNG at each well in the shale ga he calculation of a break-ev- etitive compared with actu- and cf. se partners with Encana an justify doubling the size of illion-tonne-a-year LNG pla at additional five million tor d in Asia around \$16 per t enditure in Kitimat LNG aft interests in Kitimat LNG aft interests in Kitimat LNG ar nillion to Apache to take 50 m will also take 50% interest orship of the LNG plant an n assets. at Bish Cove, 650 kilomter s for a Kitimat liquefied na oject,	as Liard Basin costs ven price for the nat al market conditio d EOG Resources in the Kitimat LNG te nt and export term ones of LNG for mai housand cf, Apach er the shale gas Lia ad Apache buys 105 % shares in the Ho ists in the Pacific Tr d the pipeline. Apa rs north of Vancouv atural gas terminal	ty and quality as then a pipeline connecti \$35 million capital e ural gas at the wellh ns where natural ga h the \$4.5 billion Kit rminal. Inal in Kitimat which hy years. e should not have to rrd Basin discovery. % stakes to Chevror rm River and Liard ba ail Pipeline. Icche Canada increase er. will only be finalized	ng them to Fort Net expenditure until cc lead around \$2.57 is is traded at \$1.7 imat LNG terminal , if supply and dem to much difficulties a so that Chevron a asins. sed its ownership i	empletion for natura per thousand cf. 8 per thousand cf and pipeline propo- and warrant it, cou to convince his pa and Apache hold 50 n the LNG plant ar ads tax certainty in	at the Alberta hu sal, is estimated Id be doubled to rtners, Encana a % each of the jo ad pipeline from B.C., and workal	

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7 / 36

Edited on 2015/06/15



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# CHEVRON KITIMAT LNG

Packages	Packages		Year	Business					
Family	Names	Packages Descriptions	of award	Opportunit					
		Copyright 2B1st Consulting		KUSD					
	Electrical Equip	Electrical Equipments & Systems							
	Cables & Cablin	g accessories	i	12 540					
	Cable trays and Ladders	All frames and trays supporting the cables		1 980					
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations							
	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 Ed	quipment 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 & Light	ting 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 2							
	Lighting panels	Lighting panels	2015	340					
	Low Voltage Eq	uipment < 1kV		13 330					
	Low Voltage Bus ducts	Low Voltage bus ducts	2015	4 520					
Electrical	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					
Equipments & Systems	Medium Voltage Equipment and Sub-station (>1kV<44kV)								
e jeteme	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.		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, Genera	tors & 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					

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Package         Package         Package         Construction         No         Solution           NUMAL VALUE         Low Voltage Mators up to 2004 Maters for Sale means and hearothum areas         201         5000           NUMAL VALUE         Third a Matchin Malage generators during by a lattice         2010         2010           Numerican Value         Annual Sole Sale Sale Sale Sale Sale Sale Sale Sa			PACKAGES SUMMARY			
Votege Meday         Low online Andrea Set Set and a state and analyzed and a state online			Packages Descriptions	of		
Concentration         This protection within particular diversity System         2180           Distribution         Control Control & Signer-Kony Medium Voltage and for Law Voltage Soltamization System Function Control Assignment System Function Functin System Function Sys			Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	760	
Bitsburger         Control Control & Support         Support <thsupport< th=""> <thsupport< th="">         Supp</thsupport<></thsupport<>			High or Medium Voltage generators driven by a turbine	2015	6 570	
Biological Management System Protection System, NEx System, MEX System, Second Sys		Power Systems	& Distribution Control Systems		2 180	
Model         Integrated distribution transformer, fixedum voltage and two voltage witchges, UES and therefies, including of non-out issentitios of market aubitions. The global public base market issues of the second of th			Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system 20 Load Shedding & Power Balance of plant			
Gentral         Control buttom fuel buttom fuel buttom         2015         2200           Junctions         Junctions         2016         330           Sockets         For safe areas and nazaroous areas         2015         2000           Transformers         9400         9400           Distribution         HV/H V OI or bry Transformers including lighting transformers         2015         1100           Paper         HV/H V OI fransformers         2015         1140           UPS System & Batteries includied         Batteries includied         2015         1140           UPS System & Ratteries includied         Batteries includied         2015         1180           UPS System & Ratteries includied         Batteries for UPS System         2015         1180           Vecum pumps         AC & DC UPS System not including the batteries for UPS System         2015         1180           Vecum pumps         AC & BC UPS System not including the batteries for UPS System         2015         1180           Transformers in Advance         AC & DC UPS System not including the batteries for UPS System         2015         1180           Transformers in Advance         AC & DC UPS System not including the batteries for UPS System         2015         1180           Transformers inclopeers in the system onononon including the batterie		Management	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,	2015	530	
Junctions         Junctions haves A Matter Safety Brows Weiding outlet         2015         373           Sockels         For safe arces and hazerdous arces         2015         400           Transformers         9 440         9		Small Power Bulk & Various Electrical				
Societs         For safe areas and hazardous areas         205         400           Transformars         9940           Distribution         HV/LV OII or Dry Transformers. Including lighting transformers.         205         1600           Poter         Poter         Poter         101         1140           Special         Power         Power         1140         1140           UPS System & Batteries includied         Transformers         205         1140           Batteries         Compressors & Vacuum pumps         205         1140           Compressors & Vacuum pumps         AC & DC UPS System not including the batteries for UPS System         205         1130           Compressors & Vacuum pumps         205         1330         1330           Paris & Bitowers & HVAC         4000000000000000000000000000000000000		Control	Local control button Push button	2015	260	
Mechanical Population         Transformers         9940           Distribution         HV/LV OII or Dry Transformers including lighting transformers         2015         1640           Power         HV/HV OII Transformers         2015         7.200           Special         Power conversion Transformers         2015         7.200           Special         Power conversion Transformers         2015         1.160           UPS System         & & & DCUPS System         2015         1.180           UPS System         & & & & & & & & & & & & & & & & & & &		Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	330	
Distribution Transformers         HVLV Oil or Dry Transformers including lighting transformers         205         1.600           Power Transformers         Power Transformers         205         7.200           Special Transformers         Power conversion Transformers Large Drives Transformers         205         1.1140           UPS System & Batteries Instructures UPS System & C & DC UPS System DuPS System & C & DC UPS System Transformers         3.900         1.1140           Name         Add & DC UPS System not including the batteries RoutUPS System DuPS System & C & DC UPS System not including the batteries RoutUPS System Transformers         1.330           Vacuum pumps         Vacuum pumps         2015         1.330           Vacuum pumps         2015         2.470           HVAC         Heat Ventitation and Air Conditioning for buildings         2015         2.470           Pumps         Zeron         2.1330         2.1330         2.1330         2.1330           Mult Instee Equipment         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0.0           Mult Instee Equipment         Proportionit pumps Air operate of diphragm pumps Special pumps         2015         0.0           Special pumps         Proportionit pumps Air operate of diphragm pumps Special pumps         2015         0.0           Turbare		Sockets	For safe areas and hazardous areas	2015	400	
Transformers         Lift/D OIL Or Dry Insistomers including lighting transformers         2015         16.00           Power         Finandome         HV/HV OIL or Dry Insistomers         2015         7.200           Special         Power conversion Transformers Largo Drives Transformers         2015         1.140           UPS System & Batterices included         3990         2015         2.830           UPS System & C. & A.C. & DC UPS System not including the batteries for UPS System         2015         1.330           Vacuum pumps         Vacuum pumps         1.330         2.470           Mechanical Equipments         2.470         1.330         2.470           HV/AC         Heat Ventilation and Air Conditioning for buildings         2015         1.330           Vacuum pumps         Vacuum pumps         2.470         1.4620           HV/AC         Heat Ventilation and Air Conditioning for buildings         2015         2.470           HV/AC         Heat Ventilation and Air Conditioning for buildings         2015         2.470           HV/AC         Heat Ventilation and Air Conditioning for buildings         2015         2.470           HV/AC         Heat Ventilation and Air Conditioning for buildings         2015         2.470           HV/AC         Heat Ventilation and Air Conditioning for buildi		Transformers			9 940	
Transformar         Profestion         2010         7.400           Special Transformars         Special Dives Transformars         2010         1.140           UPS System & Batteries included         900         2153         2.150           UPS System & A C & DC UPS System not including the batteries For UPS System         2015         2.150           UPS System A C & DC UPS System not including the batteries Rectifier, Inverter. By pass Distribution panels for AC & DC UPS         2015         1.160           Vacuum pumps         Vacuum pumps         1.330         2.470         1.330           Yacuum pumps         Vacuum pumps         2.470         1.420         1.420           HVAC         Heat Ventiliation and Air Conditioning for buildings         2.015         1.300         2.470           HVAC         Heat Ventiliation and Air Conditioning for buildings         2.015         1.8950         2.015         0.0           Pumps         Axial flow pumps, Propeiler pumps Close coupled pumps Other centrifugal pumps         2.015         0.0 <td< td=""><td></td><td></td><td>HV/LV Oil or Dry Transformers including lighting transformers</td><td>2015</td><td>1 600</td></td<>			HV/LV Oil or Dry Transformers including lighting transformers	2015	1 600	
Transformers         Propertion/Conversion fransformers         2015         11/d           UPS System & Batteries         Batteries         Batteries         3.990           Batteries         A.C. & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for A.C. & DC UPS         2015         2.830           UPS System A.C. & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for A.C. & DC UPS         2015         1.160           Mechanical Equipments         Compressors & Vacuum pumps         57.710         7.330           Yacuum pumps         Vacuum pumps         2015         1.330           Fans & Blowers & HVAC         2.470         2.470           Pumps         Pumps         2.015         0           Reciprocating         Reciprocating for buildings         2.015         0           Mult Phases         Pumps         2.015         0         0           Reciprocating         Reciprocating pumps         2.015         0         0           UP lifting pumps         Proportional pumps Are operated disphragm pumps Special pumps         2.015         0           Turbines - Englines - Gears         2.015         0         0         0           Turbines - Englines - Gears         2.015         0         2.17			HV/HV Oil Transformers	2015	7 200	
BatteriesBatteries for UPS System20152.820UPS SystemAC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS20151.160Mechanical EquipmentsCompressors & Vacuum pumps57.1001.3302.9151.330Fans & Biovers & VAC2.4702.4702.4702.470HVACHeat Ventilation and AI Conditioning for buildings2.0151.3002.9152.970PumpsMixACHeat Ventilation and AI Conditioning for buildings2.01500ReciprocatingReciprocating pumpsAxial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps2.0150ReciprocatingReciprocating pumps2.915000ReciprocatingReciprocating pumps2.91500Reciprocating pumpsProportional pumps Air operated diaphragm pumps Special pumps2.0150InstrumentationGas Expender Generators2.0152.740InstrumentationFroderstors2.0152.740Read Tire Diabase or PMB (Process Information Management System Scient pumps2.0152.740InstrumentationProducts, System & Stervices2.0152.740Read Tire Diabase or PMB (Process Information Management System Scient Purcement System2.0152.016InstrumentationRead Tire Diabase or PMB (Process Information Management System Close Scient Purcement System2.0152.016InstrumentationProcesseGas Expender Generators2.0152.		Transformers		2015		
UPS SystemAC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS20151 140Mechanical Equipments $457$ TO $657$ TO $700$ <t< td=""><td></td><td>UPS System &amp; I</td><td>Batteries included</td><td></td><td>3 990</td></t<>		UPS System & I	Batteries included		3 990	
Mechanical Equipments         65 710           Compressors & Vacuum pumps         1330           Vacuum pumps         2015           Fans & Blowers & HVAC         2 470           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         21620         2470           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         21630         2470           Pumps         21630         2470           Pumps         21630         2470           Pumps         2015         0           Reciprocating         Axial flow pumps. Propeiler pumps Close coupled pumps Other centrifugal pumps         2015           Reciprocating         Reciprocating pumps         2015         0           Reciprocating         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         2015         2         0         0           Up lifting pumps         Gas Expender Generators         2015         2         740           Turbines - Engines - Gears         2015         2         2         2         0         0           Turbines - Engines - Gears         2015		Batteries	Batteries For UPS System	2015	2 830	
Compressors & Vacuum pumps         1 330           Vacuum pumps         Vacuum pumps         2015           Fans & Blowers & HVAC         2470           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         21 620           Centrifugal         Axial flow pumps. Propeller pumps Close coupled pumps Other centrifugal pumps         2015         18 950           Pumps         Centrifugal         Axial flow pumps. Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Pumps         Reciprocating         Reciprocating pumps         2015         0           Special pumps         Proportional pumps Air operated disphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         2015         0         0           Turbines - Engines - Gears         2015         0         0           Turbines - Engines - Gears         2015         0         0           Turbo - Concritors         Gas - Generating sets         2015         2.70           Diesol & Gas         Generators         2015         3.2830           Advanced Management Systems & Services         142 530         2470         2810           Advanced Management Systems & Services         142 530 <td></td> <td>UPS System</td> <td>AC &amp; DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC &amp; DC UPS</td> <td>2015</td> <td>1 160</td>		UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	1 160	
Vacuum pumps         Vacuum pumps         2015         1.330           Fans & Blowers & HVAC         2.470         2.470           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         2470           Pumps         211 620         211 620         211 620           Centrifugal Pumps         Atlal flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Metchanical Equipments         Reciprocating pumps         Reciprocating pumps         2015         0           Rotary pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Vacuim pumps         ESP Pumps, Propersive Cavity Pumps (PCP)         2015         0           Turbines         Englines         Generators         2015         0           Turbines         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0           Turbines         Generators         2015         2470           Generators         Gas Expender Cenerators         2015         2470           Generators         Gas Expender Cenerators         2015         2470           Generators         Carl Turb Octors, Systems & Services         142 530           Advanced Management System Nastor		Mechanical Equ	Jipments		65 710	
Mechanical Equipments         Fans & Blowers & HVAC         2 470           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         2 470           Pumps         21 620         21 620         21 620           Pumps         Pumps         2015         18 950           Multi Phases         Pumps         2015         0           Pumps         Reciprocating         Reciprocating pumps         2015         0           Special pumps         Screw pumps Other rotary pumps         2015         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines         Centrating air operated diaphragm pumps Special pumps         2015         0         0           Turbines         Cears         Cears         0         0         0         0           Case Expender         Case Spender         Case Spender         2015         2 740         0         2015         2 280           Turbo         Gas Expender Generators         2015         2 280         142 250         2 840         2810         2810         2810         2810         2810         2810         2810         2810         2810         2810         2810		Compressors &	Vacuum pumps		1 330	
HVAC         Heat Ventilation and Air Conditioning for buildings         2015         2470           Pumps         211 620         211 620         211 620           Centrifugal Fumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         18 950           Multi Phases Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Mechanical Equipments         Reciprocating pumps         Reciprocating pumps         2015         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Up lifting pumps         FProportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         2015         0         0         0           Turbines - Engines - Gears         2015         2170         0         0           Generators         2015         215         2140         0         0           Generators         Centrify air A		Vacuum pumps	Vacuum pumps	2015	1 330	
Mechanical Equipments         Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         18 960           Mechanical Equipments         Multi Phases Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         40 290         2015         4720           Desel & Gas engines         Generating sets         2015         2 740           Gas Expender Turbo         Gas Expender Generators         2015         3 2 830           Instrumentation Products, Systems & Services         142 530         42 830           Advanced Management Systems         2 810         2 810         2 810           Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SOC Process Modeling and Training Simulation System Assets Management System System Real Cancel System System Steader         2013         2 810           Refining Products, System S & Services         Tark Farm Management System Countrol Management System Repertormanet Monitoring System Advanced Management System System Control System Repertormanee Calculation Electronic Docume		Fans & Blowers	s & HVAC		2 470	
Mechanical Equipments         Centrifugal Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         18 950           Multi Phases Pumps         Multi Phases Pumps         PMP Pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         0           Special pumps         Proportional pumps Ar operated diaphragm pumps Special pumps         2015         0           Special pumps         Centrifugal pumps         Proportional pumps, Progressive Cavity Pumps (PCP)         2015         0           Up lifting pumps         Centrifugal centrators         Centrifugal pumps         2015         0           Turbo         Centrators         2015         0         0           Generators         Centrators         2015         0           Turbo         Generators         2015         2170           Generators         Control System Stem Stem Stem         2015         2180           Advanced Management Systems & Services         114 2530         218         2180           Advanced Management Systems & Services         218         218         218         218           Advanced Management Systems & Services         Advanced Management System System Cavity Management System Cavity Mana		HVAC	Heat Ventilation and Air Conditioning for buildings	2015	2 470	
Pumps         Axtai now pumps, Properties Durings Other centuring pumps         2015         16 %30           Multi Phases Pumps         Multi Phases Pumps         PMP Pumps         2015         0           Equipments         Reciprocating Pumps         Reciprocating pumps         2015         0           Rotary pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Up lifting pumps         Central pumps Air operated diaphragm pumps Special pumps         2015         0           Turboines - Engines - Gears         40 290         40 290         40 290           Up lifting pumps         Gas Expender         2015         4720           Gas Expender         Turboines - Engines - Gears         2015         32 830           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         32 830           Advanced Management System Systems & Services         142 5300         42 s100         2016         32 830           Ail processes         Management System Cources Information Management System Nortonent Management System Nortonortone Management System Nortonent Management System		Pumps			21 620	
PumpsPumpsAD160EquipmentsReciprocating Pumps20150Reciprocating PumpsReciprocating pumps20150Rotary pumpsScrew pumps Other rotary pumps20150Rotary pumpsProportional pumps Air operated diaphragm pumps Special pumps20150Up lifting pumpsESP Pumps, Progressive Cavity Pumps (PCP)20150Up lifting pumpsESP Pumps, Progressive Cavity Pumps (PCP)0010Up lifting pumpsGenerating sets20152Disel & Gas enginesGenerating sets20152740GeneratorsGas Expender Turbo Generators201522Turbo GeneratorsSteam Turbine Generators Gas Expender Generators201522Advanced Margement Systems & Services1422301232Aut processesReal Time Database or PIMS (Process Information Mangement System Data reconciliation Advanced Control and Optimization SPC/SOC Process Modeling and Training Simulation System Decision support system Assets Management Pystem Control System Collability Elerry Management System Callability Elerry Management System Callability Elerry Management System Control (BRC) and Blend Property Control (BPC) Oil Movement and Storagement System Callability Sistem Callability Sistem Control System Control System Control System Callability Process364600ProcessesTark Farm Management System Decide System Control			Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	18 950	
Equipmentspumpspumps20150Rectary pumpsRectary pumpsScrew pumps Other rotary pumps20150Special pumpsProportional pumps Air operated diaphragm pumps Special pumps20150Up lifting pumpsESP Pumps, Progressive Cavity Pumps (PCP)20150Turbines - Engines - Gears40 290Gas Expender TurboCas Expender Generating sets20152170Gas Expender TurboCas Expender Generators201522740GeneratorsCas Expender Generators Gas Turbines Generators201532830Turbo GeneratorsSteam Turbine Generators Gas Turbines Generators201532830Advanced Management Systems & ServicesAdvanced Control and Optimization SPC/SOC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System Decision support system Assets Management System Integration, Relational Duat Base Management System (RDBMS) Energy Management System Integration, Relational Duat Base Management System (RDBMS) Energy Management System Management System Control (BPC) Oul Movement and Storage (OMS) Laboratory Management System Control (BPC) Oul Movement and System System System Storage (OMS) Laboratory Management System Control system Support system Super Management System Control system Support system Super Storage (OMS) Laboratory Management System Control system Super Control System Support System System Support System Support system Support System Control System System Control system System Control System Support System Support System System Control System System Control System System Control System System Control System System			PMP Pumps	2015	0	
Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         2670           Up lifting pumps         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0           Turbines - Engines - Gears         40 290         40 290           Diesel & Gas engines         Generating sets         2015         2 740           Gas Expender rurbo Generators         Control         Steam Turbine Generators         2015         3 2830           Turbo Generators         Instrumentation Products, Systems & Services         142 530         3 470           Advanced Management Systems         2 810         2 810         2 810           Advanced Management Systems         2 810         2 810         2 810           Products, Systems & Services         Real Time Database or PIMS (Process Information Management System Environment Monitoring System and Control System System Indegreent System Environment Monitoring System and Control System System Indegreent System Environment Monitoring System and Control System System Indegreent System Control GRC) oil Movement and and Control System System Indegreent System Control GRC) oil Movement and and Control System System Control (BRC) on Blend Property Control (BRD) Oil Movement and and Control System System System Control System Control System Control System System Control System Control System System State and performances monitoring System Anti Surge System Control System System State and performances monitoring System Control System Control System System State Control System System State C			Reciprocating pumps	2015	0	
by lifting pumps       ESP Pumps, Progressive Cavity Pumps (PCP)       2015       0         Turbines - Engines       Gas Expender       40 290         Diesel & Gas       Cenerating sets       2015       4 720         Gas Expender       Turbo       Gas Expender       2015       2 740         Turbo       Generators       2015       32 830         Turbo       Generators       2015       32 830         Turbo       Steam Turbine Generators Gas Turbines Generators       2015       32 830         Advanced Management Systems       2 810       2 810         Advanced Management Systems       2 810       2 810         All processes       Management System Council Management System Control GPC) Oil Movement and Optimization SPC/SOC Process Modeling and Training Simulation System (RDBMS) Energy Management System Control (SPC) Oil Movement and Control System System Stem Outly Laboratory Management Information System (RDBMS) Energy Management System Control (SPC) Oil Movement and Control System System Outly Laboratory Management Information System (LIMS) Scheduling       2013       2 810         Automation - LCSS       36 460       36 460       36 460       36 460         Building Management System Steam Control system Control system Burner       2015       770         System       Machine and performances monitoring system Anti surge system Control system Burner       20		Rotary pumps	Screw pumps Other rotary pumps	2015	0	
Turbines - Engines - Gears       40 290         Diesel & Gas engines       Generating sets       2015       4 720         Gas Expender Turbo Generators       2015       2 740         Turbo Generators       2015       2 740         Turbo Generators       2015       2 740         Turbo Generators       2015       2 830         Turbo Generators       2015       2 810         Advanced Management Systems & Services       142 530         Advanced Management Systems Services       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 Control System Resets Management System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Duality Management System (LIMS) Scheduling       2013       2 810         Automation - ICSS       36 460       36 460       36 460         Building Management System       Building Management System Clock synchronization       2015       770         System See       Machine and performances monitoring system Anti surge system control system Burner management system Steam or Gas turbine control system Control system Burner management system Steam or Gas turbine control system Control system Burner management system Steam or Gas turbine c		Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	2 670	
Diesel & Gas engines         Diesel & Gas engines         Cenerating sets         2015         4 720           Gas Expender Turbo Generators         Case Expender Turbo Generators         Case Expender Turbo Generators         2015         2 740           Instrumentation Products, Systems & Services         Turbo Refining Processes         Steam Turbine Generators Gas Turbines Generators         2015         32 830           Refining Products, Systems & Services         Real Time Database or PIMS (Process Informance Calculation Management System) Data reconcillation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management Performance Calculation Electronic Document Management System (RDBMS) Energy Management System System Control (BRC) and Blend Property Control (BDC) Oil Movement and Storage (OMS) Laboratory Management System Cultify Management System (LIMS) Scheduling         2013         0           Automation - ICSS         Storage (OMS) Laboratory Management Information System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management System Control System Control System Burner management system Steam or Gas turbine control system Control system Sum Environment Multi point temperature         2015         770		Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0	
engines         engines         2015         4 720           Gas Expender Turbo Generators         Cas Expender Turbo Generators         2015         2 740           Turbo Generators         Turbo Generators         2015         2 740           Turbo Generators         Turbo Generators         2015         32 830           Advanced Management Systems & Services         211         142 530           Advanced Management Systems         2 810         2 810           Advanced Management Systems         2 810         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 and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Integration, Relational Data Base Management System (RDBMS) Energy Management System Stem Quality Management System (LIMS) Scheduling         2013         0           Services         Automation - ICSS         36 460         36 460         36 460           Building Management System         Building Management System Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner         2015         1440		Turbines - Engi	nes - Gears		40 290	
Turbo Generators20152 740Turbo GeneratorsTurbo Generators20152 830Turbo GeneratorsInstrumentation Products, Systems & Services142 530Advanced Marzement Systems2 8102 810All processesReal 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 and Control System System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Integration, Relational Data Base Management System (RDBMS) Energy Management System System Quality Management System (RDBMS) Energy Management System System System Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management System CluS) Scheduling20130Automation - ICSC36 460Building Management System System System2015770Control PackageMachine and performances monitoring system Anti surge system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Control system Control system Control system Burner management system Steam or Gas turbine control system Control system Control system Control system Control system Co			Generating sets	2015	4 720	
Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         32 830           Instrumentation Products, Systems & Services         Instrumentation System         142 530           Advanced Management Systems         2 810           All processes         Real Time Database or PIMS (Process Information Management System Decision support system Assets Optimization SPC/SQC Process Modeling and Training Simulation System Decision support system Assets and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management Performance Calculation Electronic Document Management System (RDBMS) Energy Management System System System System Control (BPC) Oil Movement and Processes         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 - ICSF         36 460 <td></td> <td>Turbo</td> <td>Gas Expender Generators</td> <td>2015</td> <td>2 740</td>		Turbo	Gas Expender Generators	2015	2 740	
Advanced Management Systems       2 810         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 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         Machine and performances monitoring system Anti surge system compressor control system Burner management system Steam or Gas turbine control system Control system Control system Burner       2015       1 440			Steam Turbine Generators Gas Turbines Generators	2015	32 830	
Nstrumentation Products, Systems & ServicesReal 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 Management System System Quality Management System Environment Monitoring System Management System System Quality Management System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling20132 8100Management Storage (OMS) Laboratory Management System Clock synchronization2013000Management System36 4600Building Management SystemBuilding Management System Clock synchronization20157700Machine and performances monitoring system Anti surge system compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature20151 440		Instrumentatio	n Products, Systems & Services		142 530	
All processes       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 Ouality Management System Control (BPC) Oil Movement and Processes       2013       2 810         Refining Products, Systems & Services       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         Machine and performances monitoring system Anti surge system compressor control system Burner management system Steam or Gas turbine control system Control system Control system Burner       2015       1 440		Advanced Man	agement Systems		2 810	
Products, Systems & Services       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       Automation - ICS       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       2015       1 440	petrumontation	All processes	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		2 810	
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     2015     1 440	Products, Systems &			2013	0	
Management System     Building Management System Clock synchronization     2015     770       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     2015     1 440	Services	Automation - I (	CSS		36 460	
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         2015         1 440		Management	Building Management System Clock synchronization	2015	770	
			management system Steam or Gas turbine control system Control system cabinet Multi point temperature	2015	1 440	

9 / 36

Edited on 2015/06/15



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	PACKAGES SUMMARY		
Packages Names	Packages Descriptions	Year of award	Business Opportunitie
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
Instrumentati	on - 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 Analy	tic - Analyzers - Shelters		7 070
Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2015	4 170
Chromatograph	s 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, commissionin,g and Start up assisitance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	35 940
	· · · · · · · · · · · · · · · · · · ·		
	cations Package		15 080



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								
	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								
	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					

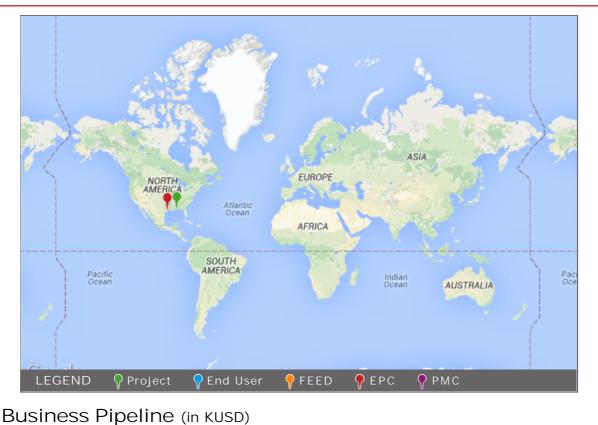








# KINDER MORGAN GULF LNG EXPORT TERMINAL



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> Electrical Equipments & Systems Mechanical Equipments Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipeline in KUSD			
		Smart Data	2014	2016		
	Electrical Equipments & Systems	203 810	0	203 810		
	Mechanical Equipments	89 300	0	89 300		
Packages in KUSD	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		

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12 / 36







# KINDER MORGAN GULF LNG EXPORT TERMINAL

	Last up date	Date	28/12/2014					
	Last up date ye	ear		2014				
	Status		Active					
	Project Name	S	Kinder Morgan Gulf LNG Export Terminal					
	Project Site Cou	ntry			USA			
		Project End user Name			Kinder Morgan Inc.			
		End Users & Stakeholders	Kinder Morgan Inc.	GE				
	End User	End Users Countries	USA	USA				
		Key Stakeholders	Operational Leader	Financial Minority				
		Expected year of Completion			2019			
		Bidders						
	"Feed Engineering Company (Front End Engineering & Design)	Awarded	KBR					
		FEED Companies Country	USA					
		FEED Stage year			2014			
Project	"PMC or EPCM Company Engineering	Name						
Market	Company (Project manager Consultant oe EPC	PMC or EPCM Country						
Data	Manager) if appointed"	Year of appointment						
		Bidders						
	"EPC Company (Engineering, Procurement &	Awarded			KBR			
	Construction)"	EPC Company Country			USA			
		EPC Stage year			2016			
	Main Standard	ds	ANSI/NEMA					
	Sourcing Strate	egy			Global			
	General Information about the project							
	May 2nd 2012, Gulf LNG Liquefaction ( This LNG plant should be built in the a Gulf LNG is a 50/50 joint venture of EI El Paso (Kinder Morgan) is the operato May 2014 KBR was contracted to The deal will provide engineering work	actual import LNG terminal Paso, since acquired in Ma r through its wholly owned do the front-end design wo	located in Pascago y 25th by Kinder Mo subsidiary Souther ork on the Gulf LNG	ula, Mississippi, US/ organ, and GE Finand n Gulf LNG. Liquefaction Project	4. cial Services. â€″ which is 50 per			

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 â€" each five million metric tons per year â€" 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.

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









# KINDER MORGAN GULF LNG EXPORT TERMINAL

		PACKAGES SUMMARY					
Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunitie			
		Copyright 2B1st Consulting		KUSD			
	Electrical Equip	ments & Systems		203 810			
	Cables & Cabling accessories						
	Cable trays and Ladders	ders All frames and trays supporting the cables 2		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 E	quipment 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 & Light	ting 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						
	Low Voltage Bus ducts	Low Voltage bus ducts		6 270			
Electrical	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			
Equipments & Systems	Medium Voltag	um Voltage Equipment and Sub-station (>1kV<44kV)					
Systems	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, Genera	tors & 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			

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		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 Minic panels, Applyoidate pages DC Measuring system 201			
	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 Bu	Ik & 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	
1	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	
1	UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2016	1 540	
	Mechanical Equ	Jipments		89 300	
	Compressors &	Vacuum pumps		1 830	
	Vacuum pumps	Vacuum pumps	2016	1 830	
	Fans & Blowers			3 390	
	HVAC	Heat Ventilation and Air Conditioning for buildings	2016	3 390	
	Pumps	ricat ventilation and Air conditioning for ballarings	2010	29 720	
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2016	26 060	
	Multi Phases Pumps	PMP Pumps		0	
Mechanical Equipments	Reciprocating pumps	Reciprocating pumps	2016	0	
Equipments	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     2016				
	Diesel & Gas			54 360	
	Gas Expender	Generating sets	2016	6 140	
	Generators	Gas Expender Generators	2016	3 710	
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2016	44 510	
	Instrumentatio	n Products, Systems & Services		187 300	
	Advanced Man	agement 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	
nstrumentation Products, Systems &	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	
Services	Automation - I	CSS		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	

15 / 36

Edited on 2015/06/15



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	PACKAGES SUMMARY		
Packages Names	Packages Descriptions	Year of award	Business Opportuniti
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
Instrumentatio	on - 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 Analyt	ic - 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 Metrological testing apparatus	2016	840
Services	1		45 870
Automation Services Telecom Services Advanced Management System	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissionin,g and Start up assisitance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2016	45 870
Services			
Services	ations Package		19 460



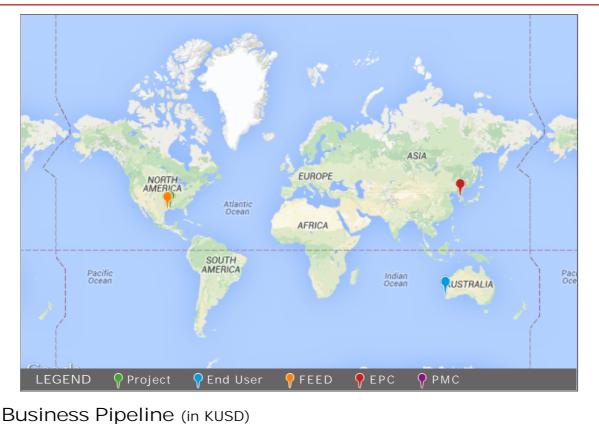
		PACKAGES SUMMARY			
Packages Family	Packages Names				
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2016	4 720	
	Protection Systems	Meteorological system, Environmental system Vessel traffic management system, Positioning system, stability 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			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	







# LNG MAGNOLIA LNG LAKE CHARLES



200000 150000 50000 0 2015 2016

2015 2016 Electrical Equipments & Systems Mechanical Equipments

Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipeline in KUSD		
		Smart Data	2015	2016	
	Electrical Equipments & Systems	99 270	0	99 270	
	Mechanical Equipments	45 390	0	45 390	
Packages in KUSD	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	

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18 / 36







# LNG MAGNOLIA LNG LAKE CHARLES

	1 oot		Deta	03/02/2015			
	Last up dat		Date	03/02/2015	0045		
	Last up date y	ear			2015		
	Status			Active			
	Project Nam	LNG Magnolia LNG					
		Lake Charles					
	Project Site Co			USA			
		Project End user Name			LNG Ltd	1	
		End Users & Stakeholders	LNG Ltd				
		End Users Countries	Australia				
	End User	Key Stakeholders	Operational				
			Leader				
		Expected year of			2019		
		Completion					
		Bidders					
	"Feed Engineering Company	Awarded			KBR		
	(Front End Engineering & Design)	FEED Companies Country			USA		
		FEED Stage year			2015		
	"PMC or EPCM Company Engineering	Name					
	Company (Project manager Consultant oe EPC	PMC or EPCM Country					
	Manager) if appointed"	Year of appointment					
	5 × 11	Bidders					
	"EPC Company	Awarded		SK En	gineering & Constr	uction	
	(Engineering, Procurement &	EPC Company Country		SIX EI	South Korea	detion	
	Construction)"						
		EPC Stage year			2016		
	Main Standar				ANSI/NEMA		
	Sourcing Strat	55		High Va	lue or Low Costs Co	ountries	
	General Information about the project	1					
Project Market Data	Magnolia LNG, a newly formed, whol mid-scale LNG facility in the Port of L The Project will access approximately with the Lake Charles Harbor & Term LNG Ltd's wholly owned OSMR's liqu and improved efficiency Feed gas for the Project will be sou underutilised pipeline will be required On 18 December 2012 Magnolia LNG authorization to export up to 4mpta oc first quarter 2013. Authorisation is i services under an LNG Tolling Agreen Magnolia LNG has also commence environmental permits to site, const Suitability Assessment (WSA), geote A detailed Permitting & Approvals Fa accordance with the FERC approval P The five key early milestones targeter Receipt of DOE FTA Approval Febr Selection of Project partners June Selection of Project partners June Submit Frie-Filing Application to FERC Submit Filing Application to FERC Submit Reprovals a ful conta Carriers have been previously operati The Project will largely benefit from Queensland, Australia. This will assis The indicative capital estimate is US3 cost in the US and one of the key suc February2014 Magnolia LNG signete - Front-end engineering design (FEED) - Engineering, procurement and const The initial price estimate for the work March 2014 Magnolia LNG signete - Front-end engineering design (FEED) - Engineering, procurement and const The initial price estimate for the work March 2014 Magnolia LNG has n agreement (FTA) countries. Authorisation for export is valid for fir - May 2014 LNG Magnolia LNG has n agreement (FTA) countries.	ake Charles, Louisiana, US/ y 90 acres of available land inal District. efaction technology and de rced from the highly liquie e that traverses the Site. T d to tie-in to the existing pij filed an application with th f liquefied natural gas (LNG equired by US law to be go enent enabling LNG sales to d activities that relate to rruct, and operate the Proj chnical studies, and studies Roadmap has also been pr rocess, Magnolia LNG is an d for the Project are: uary 2013 ERC March 2013 2013 December 2013 ober 2014 (subject to FERC imment LNG tank of ~ 200, e) to access the Site using onal in the main Calcasieu ( cess factors of the Project ( s \$1.57 billion, which is ir eceived approval from the st LNG sales expected to st FERC approval o execute EPC Joint Venture tract	A using its highly eff in Lake Charles, In evelopment methods d US gas market vi Two additional gas peline(s). e U.S. Department ( ) to Free Trade Agre granted within 90 d these FTA countries. the Federal Energ lect. Early prelimina s required to ensure epared by a local U ticipating submitting approvals) 000 m3 in accordar the existing swimg b Channel and Industr g Design (FEED) re approvals process. 4 mtpa). The result and Construction (S -price n-line with Magnolia US Department of E tart within 10 years, Agreement (JVA) o	icient and patented idustrial Canal Sout ology results in low a several gas supp pipelines are locat of Energy, Office of eement (FTA) count ays of the filing da ty Regulatory Con arry activities includ a timely and smoo IS consultant that g its formal Pre-File acce with NFPA 59A a asin. The Site is adj ial Canal. cently undertaken ing cost of ~ US\$55 K E&C) to provide : LNG estimates. nergy (DOE) for the and then for 25 yea n a 70/30 percent p	OSM technology (I h Shore PLC Tract er capital cost, low obliers. Gas will be ed within 3 miles of Fossil Energy (DOE ries. Authorisation i te. Magnolia LNG v mission's (FERC) e a Safety Assess th approvals proce outlines the relate application by Marc and FERC guideline acent to the existin for the Fisherman 50 per LNG tonne v e export of 8 millio ars after that.	Project). 475, (Site) through er operating cost, f delivered to the si of the site. Consec E/FE) seeking long- sexpected to be gr will provide cost eff a authorization an- ment for the LNG fa ess. at tasks over the n ch 2013.	n a long-term lease faster construction, te via two existing quently, very short term multi-contract anted by DOE/FE in fective liquefaction d other necessary acility, a Waterway next 24 months. In enal will enable LNG erminal, and so LNG oject in Gladstone, export LNG capital
	the EPC JV to execute a lump sum, to ktension: Without copyright extens personal use and you commit to	sion, you agree to use th	is report	commissioning, sta		Ū	ontract for the LNG ited on 2015/06/1
	•		~				



- 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









# LNG MAGNOLIA LNG LAKE CHARLES

		PACKAGES SUMMARY				
Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunitie		
		Copyright 2B1st Consulting		KUSD		
	Electrical Equip	ments & Systems		99 270		
	Cables & Cablir	g accessories		8 530		
	Cable trays and Ladders	d All frames and trays supporting the cables		1 430		
	Cabling accessories	Cables glands for hazardous areas and for safe areas Earthing conductors Termination kits Cables penetrations				
	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 E	quipment 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 & Light	ing 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     2		2016	1 290		
	Lighting panels	ng panels Lighting panels 20				
	Low Voltage Eq	uipment < 1kV		9 100		
	Low Voltage Bus ducts	Low Voltage bus ducts		3 040		
Electrical	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		
Equipments & Systems	Medium Voltag	Nedium Voltage Equipment and Sub-station (>1kV<44kV)				
oystems	Compact Substation Containerization			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, Genera	tors & 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	О		
	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		

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21 / 36



		PACKAGES SUMMARY				
Packages Family	Packages Names	Packages Descriptions	Year of <u>award</u>	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	m Management System Protection System, PLC System, Minic panels, Annunciator panels DC Measuring System Zoll Load Shedding & Power Balance of plant				
	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 Bu	Ik & 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		
1	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 & I	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 Equ	lipments		45 390		
	Compressors &	Vacuum pumps		900		
	Vacuum pumps	Vacuum pumps	2016	900		
	Fans & Blowers			1 680		
	HVAC	Heat Ventilation and Air Conditioning for buildings	2016	1 680		
	Pumps		2010	14 700		
	Centrifugal Pumps	Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2016	12 880		
	Multi Phases Pumps	PMP Pumps		0		
Mechanical Equipments	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					
	Diesel & Gas engines	Generating sets	2016	28 110 3 450		
	Gas Expender Turbo Generators	Gas Expender Generators	2016	1 900		
	Turbo Generators	Steam Turbine Generators Gas Turbines Generators	2016	22 760		
	Instrumentatio	n Products, Systems & Services		103 000		
	Advanced Man	agement Systems		1 880		
nstrumentation	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		
Products, Systems &	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		
Services	Automation - I (	CSS		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		

22 / 36

Edited on 2015/06/15



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	PACKAGES SUMMARY		
Packages Names	Packages Descriptions	Year of award	Business Opportunitie
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
Instrumentatio	on - 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 Analyt	ic - 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	1		26 940
Automation Services Telecom Services Advanced Management	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissionin,g and Start up assisitance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2016	26 940
System Services			
Services	ations Package		11 150



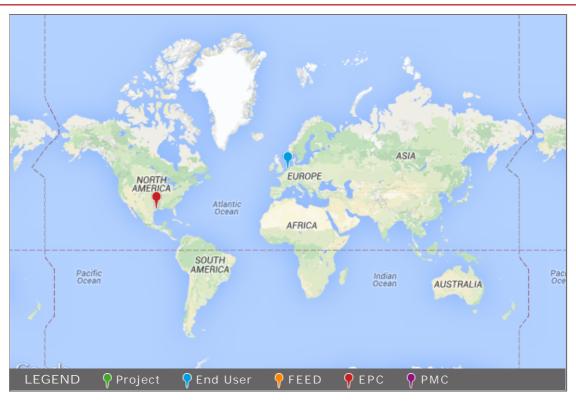
PACKAGES SUMMARY							
Packages Family	Packages Names	Packages Descriptions					
	Data Transmission System	Local Area Network (LAN), Fiber optic network multiplex system, Structure cabling system	2016	2 620			
	Protection Systems	Meteorological system, Environmental system Vessel traffic management 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						
	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			



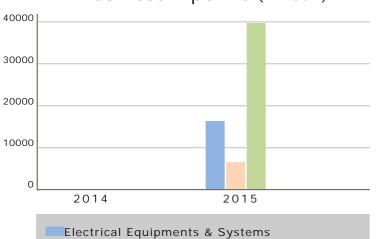








# LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION



Business Pipeline (in KUSD)

Electrical Equipments & Systems Mechanical Equipments Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipeline in KUSD		
		Smart Data	2014	2015	
	Electrical Equipments & Systems	16 440	0	16 440	
Packages in KUSD	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	

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25 / 36







# LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION

	Last up date	Date	24/12/2014					
	Last up date ye	ear	2014					
	Status				Active			
	Project Name	Project Names						
	Project Site Cou	ntry			USA			
		Project End user Name			Lyondellbasell			
		End Users & Stakeholders	Lyondellbasell					
	End User	End Users Countries	USA					
		Key Stakeholders	Operational Leader					
		Expected year of Completion			2017			
		Bidders						
	"Feed Engineering Company (Front End Engineering & Design)	Awarded	KBR					
		FEED Companies Country	USA					
		FEED Stage year	2014					
	"PMC or EPCM Company Engineering	Name						
	Company (Project manager Consultant oe EPC	PMC or EPCM Country						
	Manager) if appointed"	Year of appointment						
		Bidders						
Iroloot	"EPC Company	Awarded			KBR			
roject Iarket	(Engineering, Procurement & Construction)"	EPC Company Country			USA			
Data		EPC Stage year			2015			
	Main Standard	ds	ANSI/NEMA					
	Sourcing Strate	egy			Global			
	General Information about the project							
	The global chemical and plastics mar Texas USA. During the last twenty years, Lyondell The accumulation of debts to finance t After cleaning its balance sheet and c the US to restore a competitive mode In this new context, LyondellBasell op Corpus Christi and La Porte, all in Tex In a period when engineering and cor by mid-sized investments, enable an	Basell has grown up pretty he acquisitions and the 200 pptimizing its diversified as el of petrochemical activitie ted for organic growth in i as USA. tracting resources are all a	r fast in Europe and D8 crisis led Lyondell ssets portfolio, Lyon es. nvesting in series of absorb by the multip	North America ma Basell to apply for dellBasell was wel debottlenecking p plication of project	inly through acquisi the Chapter 11 prot I positioned to bene rojects in its existin	tions. ection in US in 200 fit from the shale o g chemical comple:	9. gas development in kes in Channelview,	

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.

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

New LyondellBasell Channelview Ethylene Expansion 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 methy terbutyl 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.

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. With this new investment, LyondellBasell is planning to increase capacity by 270,000 t/y of ethylene in Channelview. 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







# LYONDELLBASELL CHANNELVIEW ETHYLENE SECOND EXPANSION

		PACKAGES SUMMARY				
Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunitie		
		Copyright 2B1st Consulting		KUSD		
	Electrical Equipments & Systems					
	Cables & Cablin	g 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 E	quipment 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 & Light	ting 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 Eq	uipment < 1kV		1 330		
	Low Voltage Bus ducts	Low Voltage bus ducts	2015	330		
Electrical	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		
Equipments & Systems	Medium Voltag	e Equipment and Sub-station (>1kV<44kV)		6 4 4 0		
oystems	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, Genera	tors & 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		

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27 / 36



Pricing         Pricing         Order of the set of the se			PACKAGES SUMMARY		
Votage Actions         Low Votage Actions up to 2-born Models for Sale and on Instandous areas         All         All           Central Control         High or Needow 1975 to 26 and the Action Votage generators allow by a variable         2015         4.30           Descriptions         Main Canada Control Systems Control System For Sale Control Sale Control System For Sale Control Sale Contr			Packages Descriptions	of	
Cenerators         Tend of Moutine Variage generators drive fly a Urbane         All of Urbane           Distribution         Control & Specimics Variants         All of Urbane         All of Urbane           Distribution         Control & Specimics Variants         All of Urbane         All of Urbane           Distribution         Control & Specimics Variants         All of Urbane         All of Urbane           Power         Control Information System Rever, Annual Networks and Urbane         All of Urbane         All of Urbane           System Rever, Fulk & Variants Floreshicaled, factory assemblids and urbane         All of Urbane         All of Urbane         All of Urbane           System Rever, Fulk & Variants Floreshicaled         For urbane         All of Urbane         All of Urbane         All of Urbane           System Rever, Fulk & Variants Floreshicaled         For urbane         All of Urbane         All of Urbane         All of Urbane           Transformer         HV/LV Ol or Dry Transformers Inducing lighting transformers         All of Urbane         All of Urbane         All of Urbane           Transformer         HV/LV Ol or Dry Transformers Inducing lighting transformers         All of Urbane         All of Urbane         All of Urbane           Transformer         HV/LV Ol or Dry Transformers Inducing Urbane         All of Urbane         All of Urbane         All of Urbane			Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	290
Destination System         Control Control A Supervised y Moltan Watege needs of Subacing System System         205         4-30           Near System         Continuence of the Production System, Name Control of Sin concents or multiple Subacing System Parts DC Measuring System         205         0           Stratel Rower Bulk & Variaus Eleptrical         150         150         0           Stratel Rower Bulk & Variaus Eleptrical         150         0         0         0           Stratel Rower Bulk & Variaus Eleptrical         150         0			High or Medium Voltage generators driven by a turbine	2015	0
Mechanical Figure 1         Mechanical System Pedicsion System, PC System, Minic parels, Annuclator parks DC Managing System, 2015         430           Power System, Minic System, All Construction or mails housing, comprising System, Minich System, Construction or mails housing, comprising part -nound researches and mails that is concrete or mails housing, comprising part -nound researches and mails that is part of the system part -nound researches and mails that is part of the system part -nound researches All Ministry System, 1000         901         0           Annual Power Buck & Vancus Electrical Control         Loss control tation Pow huttom         2015         60           Annual Power Buck & Vancus Electrical Control         Power All VA VOI or Dry Transformers and heard does and part transformers         2015         60           Destribution Transformers         14V/1 VOI or Dry Transformers Large Drives Transformers         2015         60           UPS System & Relaterines including lighting transformers         2015         60         50           UPS System & Ca Du UPS System All Ca DU UPS System         2015         60         50           UPS System All Ca DU UPS System All Ca DU UPS 2016         733         60         50           UPS System All Ca DU UPS System All Ca DU UPS 2016         733         60         733           UPS System All Ca DU UPS System All Ca DU UPS 2016         730         60         730           UPS System All Ca DU UPS System All Ca DU UPS 201		Power Systems	& Distribution Control Systems		430
MCMMP Instrume         Integrated distribution transformer, fiedum voltage and two voltage switchger, UFS and teatries, including Instrum, constrainting in the proposition.         2015         0           Small Power Buck & Various Electrical Control         Instrum, constrainting and biol typication.         1900           Control         Local control button hash button         2015         40           Marcines         Junctions tooses Motors Startly flaces Weiding authet         2015         60           Sockets         For sale areas and hazardous areas         2015         60           Transformers         For sale areas and hazardous areas         2015         60           Power         HV/LV OI or Dry Transformers. Including lighting transformers.         2015         60           Power         HV/LV OI are provide the sale areas and hazardous areas         2015         60           Transformers         2015         60         60         620           Transformers         A DO US System of thicked Batteries for UES System Sale Batteries including the batteries for UES System Sale Batteries including the batteries for UES System Sale Batteries areas and hazardous areas         2015         110           VIS System         A DO US System on thicked Batteries for UES System Sale Batteries including the batteries for UES System Sale Batteries including the batteries for UES System Sale Batteries including the batteries for UES System Sale Batteries includ			Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system	2015	430
General         Control buttom Pash buttom         2015         4.0           Junctions         Junctions         Junctions         2015         5.0           Sockets         For safe areas and hazardous areas         2015         6.0           Transformers         UPS         9.00         9.00           Transformers         10/14 Cill or Dry Transformers         2015         4.00           Transformers         10/14 Cill or Dry Transformers         2015         4.00           Special         Special         Power         HV/HV Oil Transformers         2015         4.00           UPS System & Batteries included         Batteries included         2015         4.00         3.00 <td></td> <td>Management</td> <td>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,</td> <td>2015</td> <td>0</td>		Management	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,	2015	0
Junctions         Junctions boxes A Motins Safety Boxes Weiting outlet         2015         90           Sackets         For safe areas and hazardous areas         2016         460           Transformers         560         560         560           Distribution         HV/LV Oil or bry Transformers         2015         400           Prover         Prover         HV/LV Oil Transformers         2015         400           Prover         Prover         Prover         Prover         560         560           UPS System         AG & DC UPS System         Prover convorsion Transformers         2015         120           Batteries         Compressors & Vacuum pumps         2015         120         120           Vacuum pumps         Vacuum pumps         Vacuum pumps         520         110           Fars & Entowers & HVAC         Heat Vontilation and Air Conditioning for buildings         2015         1730           HVAC         Heat Vontilation and Air Conditioning for buildings         2015         1730           HVAC         Heat Vontilation and Air Conditioning for buildings         2015         1730           HVAC         Heat Vontilation and Air Conditioning for buildings         2015         1730           HVAC         Heat Vontilation and Air Conditio		Small Power Bu	IK & Various Electrical		150
Sockts         For safe areas and hazardous areas         2015         40           Transformers         560           Printsformer         560           Printsformer         560           Printsformer         560           Printsformer         560           Printsformer         600           Printsformer         600           Printsformer         600           Special         Power conversion Transformers Large Drives Transformers         205           Special         Power conversion Transformers Large Drives Transformers         205           Batteries         Special         800         205           UPS System & Setteries included         6         200           Orgenessors & Vacuum pumps         6         201           Compressors & Vacuum pumps         110           Transformers & Movers & MVAC         205         100           Prints & Holovers & MVAC         Heat Ventilation and Air Conditioning for building         201         203           Outprints         Askall flew pumps         Noeun pumps         205         100           Prints & Holovers & MVAC         Heat Ventilation and Air Conditioning for building         2015         1730           Outprints         Preportional		Control	Local control button Push button	2015	40
Machanical purple         560           Distribution         HVLV OIl or Dry Transformers including lighting transformers         2015         100           Power         HVLV OIl or Dry Transformers including lighting transformers         2015         400           Spocial         Power conversion Transformers Large Drives Transformers         2015         60           UPS System & Batterices included         9005         60         5000           Batteries         Batteries for UPS System         2015         120           Vocump pumps         AC & D CUPS System not including the batteries Rectifier, inverter, By pass Distribution panets for AC & D CUPS 100         300           Vocump pumps         Vocum pumps         6 s200           Compressors & Vocum pumps         110           Vocum pumps         Vocum pumps         2015           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         Atal flow pumps, Progressive Cavity Pumps, Compressive Cavity Pumps, Compressive Cavity Pumps, Compressive Cavity Pumps, Compressive Cavity Pumps, Compres		Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	50
Distribution Transformers         HVLV Oil or Dry Transformers including lighting transformers         205         100           Poper Transformer         HVLV Oil Transformers         205         400           Special Transformers         Power conversion Transformers Large Drives Transformers         205         40           UPS System & Batteries included         500         40         500         500           UPS System & C & DC UPS System not including the batteries For UPS System         405         120           UPS System & A & DC UPS System not including the batteries Rectifier, inverting, By pass Distribution panels for AC & DC UPS         800           Machanical Equipments         6120         110           Vacuum pumps         2015         100           Tores & Blowers & Wacuum pumps         2015         100           Pane & Bolewers & Wacuum pumps         2015         200           Invice         Heat Venthation and Air Conditioning for buildings         2015         200           Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         50           Mult Phase         Propertional pumps Air operated disphragem pumps Special pumps         2015         50           Mult Phase         Properting Properting Special pumps         2015         0		Sockets	For safe areas and hazardous areas	2015	60
Transformers         HVLV 0 if or Dry iransformers including lighting transformers         2015         0.00           Power Transformer         Power onversion Transformers Large Drives Transformers         2015         400           Special Transformers         Power onversion Transformers Large Drives Transformers         2015         60           UPS System & Batterices included         2015         120         2015         120           UPS System & C & C & DC UPS System not including the batteries Routfiler, Inverter, By pass Distribution panels for AC & DC UPS 100         300         300           Mechanicat Equipments         6 520         110         300         300           Value Drapmys         Vacuum pumps         110         300         100		Transformers			560
Image formage         Image formage         Aud           Special Transformacs         2016         400           UPS System & Batteries included         2016         2016           UPS System & Calce During System Not Calce During Strate System         2016         2016           UPS System & A C & D C UPS System not including the batteries Rectifier, Inverter. By pass Distribution panels for AC & D C UPS         2016         2016           Mechanical Equipments         6 520         6 520         6 520           Compressors & Vacuum pumps         Vacuum pumps         2015         110           Yaaum pumps         Axial flow pumps, Propeiller pumps Close coupled pumps Other centrifugal pumps         2015         1720           Pumps         Axial flow pumps, Propeiller pumps Close coupled pumps pumps Special pumps         2015         550           Pumps         Special pump         1000         1000         1000           pumps         Special pumps         2015         550         2015         1000           Pumps         Special pumps         Special pumps<			HV/LV Oil or Dry Transformers including lighting transformers	2015	100
Transformers         Jobe         Jobe         Jobe           UPS System & Batteries included         500           Batteries         Batteries         Batteries         2015         120           UPS System & C & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS         2015         380           Mechanical Equipments         6520         110         6520         110           Fans & Biovers & Vacuum pumps         Vacuum pumps         2015         210         110           Vacuum pumps         Vacuum pumps         2015         210         110           Fans & Biovers & HVAC         Heat Ventilation and AIr Conditioning for buildings         2015         220           HVAC         Heat Ventilation and AIr Conditioning for buildings         2015         1730           Multi Phases         Reciprocating         Reciprocating Pumps         2015         1100           Reciprocating         Reciprocating Pumps         2015         550         1100           Special pumps         Proportional pumps Air operated disphragm pumps Special pumps         2015         1130           Up lifting pumps         Proportional pumps Air operated disphragm pumps Special pumps         2015         1430           Deel & Cas         Generators </td <td></td> <td></td> <td>HV/HV Oil Transformers</td> <td>2015</td> <td>400</td>			HV/HV Oil Transformers	2015	400
BatteriesBatteries For UPS System2015120UPS SystemAC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS2015380Mechanical EquipmentsCompressors & Vacuum pumpsVacuum pumps110Compressors & Vacuum pumpsVacuum pumps2015110Fans & Blowers & HVAC220HVACHeat Ventilation and AIr Conditioning for buildings2015220PumpsQuint System Conditioning System Conditioning System20150ReciprocatingReciprocating pumps20150ReciprocatingReciprocating pumps2015550Rotary pumpsProportional pumps Air operated disphragm pumps Special pumps20151100Special pumpsProportional pumps Air operated disphragm pumps Special pumps20151100Special pumpsGenerating sets201501430InstrumentationProportional pumps in Generators Gas Expender Generators20150Turbines - ExpenderGas Expender Generators20150Turbines - Relations of NRS (Process Information Management System Nation System System Assets Management Systems2014120National Special pumpsSteam Turbine Generators Gas Turbines Generators20150Turbines - ExpenderGas Expender Generators20150Turbines - ExpenderGas Expender Generators20150Turbines - ExpenderGas Expender Generators20150InstrumentationProduc			Power conversion Transformers Large Drives Transformers	2015	60
UPS SystemAC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS2015380Mechanical Equipments $6 520$ Vacuum pumpsVacuum pumps2015110Yacuum pumpsVacuum pumps2015220HVACHeat Ventilation and Air Conditioning for buildings2015220HVMSImage: State Stat		UPS System & I	Batteries included		500
Machanical Equipments         6 520           Compressors & Vacuum pumps         110           Vacuum pumps         2015           Vacuum pumps         2015           Fans & Blowers & HVAC         220           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         4760           Contrifugal         Axial flow pumps. Propeller pumps Close coupled pumps Other centrifugal pumps         2015           Multi Phases         Pumps         2015         0           Multi Phases         Pumps         2015         0           Reciprocating pumps         Screw pumps Other rotary pumps         2015         1100           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         1           Pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         1           Instrumentation         Generating sets         2015         1         0           Turbines - Engines - Gears         Generating sets         2015         1         0           Turbines - Engines - Gears         Generators         2015         0         1           Generators         Steam Turbine Generators Gas Turbines Generators         2015         0<		Batteries	Batteries For UPS System	2015	120
Compressors & Vacuum pumps         110           Vacuum pumps         Vacuum pumps         2015           Pars & Blowers & HVAC         220           Pumps         4760           Centrifugal         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         220           Pumps         Centrifugal         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         1730           Multi Phases         Pumps         2015         550         205         180           Pumps         Reciprocating         Reciprocating pumps         2015         180           Special pumps         Proportional pumps Air operated disphragm pumps Special pumps         2015         180           Uilting pumps         Esep Pumps, Progressive Cavity Pumps (PCP)         2015         0           Turbines - Engines - Cears         2015         1430         0           Cenerators         2015         0         1430         0           Cenerators         2015         0         0         1430           Special pumps         Frequence Control         2015         0         0           Turbines - Engines - Cears         2015         0         0         0         0		UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	380
Vacuum pumps         Vacuum pumps         2015         110.           Fans & Blowers & HVAC         220           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         220.           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         220.           Pumps         Atial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Multi Phases         Pumps         Atial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Reciprocating         Pumps         Atial flow pumps, Propeller pumps Close coupled pumps Other rotary pumps         2015         0           Reciprocating         Pumps         Screw pumps Other rotary pumps         2015         0           Retary pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         1430         0         0         0           Turbines - Engines - Gears         2015         0         0         0           Turbines - Engines - Gears         2015         0         0         0           Advanced Management System Services         Gas Expender Generators         2015         0         0		Mechanical Equ	Jipments		6 520
Mechanical Equipments         Fans & Biowers & HVAC         220           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         220           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         220           Pumps         Centrifugal Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Multi Phases         Pumps         2015         0         0           Reciprocating pumps         Reciprocating pumps         2015         1100         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0         1380           Up fifting pumps         Generating sets         2015         1430         0         1430           Ges Expender Turbo Generators         Ges Expender Generators         2015         0         0         0           Instrumentation Products. Systems & Services         40 110         Advanced Management Systems         120         0         120           All processes         Real Time Database or PIMS (Process Information Management System Dackion suport system Advanced Control system Anagement System Control Reck System Control System System Cont		Compressors &	Vacuum pumps		110
HVAC         Heat Ventilation and Air Conditioning for buildings         2015         220           Pumps         4 760         4 760           Centrifugal Equipmential Equipmential         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         1 730           Multi Phases Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Multi Phases Pumps         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         1 330           Up lifting pumps         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0           Turbines - Engines - Gears         2015         1 430         1 430           Generators         2015         0         0         1 430           Generators         Construction System Securities Generators         2015         0         0           Turbines - Engines - Gears         2015         0         0         0         0         0         0         0         0         0         0         0         0         0		Vacuum pumps	Vacuum pumps	2015	110
Mechanical Equipments         Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         1730           Multi Phases Pumps         Multi Phases Pumps         Pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         1100           Special pumps         Propertional pumps Air operated diaphragm pumps Special pumps         2015         1380           Up lifting pumps         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         1430           Turbines - Engines - Gears         2015         1430           Dises & Gas engines         Generating sets         2015         1430           Gas Expender Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Advanced Management Systems & Services         40 110         120         120           Advanced Management Systems & Services         40 110         120         120           Products, Systems & Services         Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SOC Process Modeling and Training Sinulation System Assets Management System Sustem Real Toric Data Base Management System Reports (RDBMS) Energy         2014         120           Refining Products, System S & Services <t< td=""><td></td><td>Fans &amp; Blowers</td><td>s &amp; HVAC</td><td></td><td>220</td></t<>		Fans & Blowers	s & HVAC		220
Machanical Pumps         Centrifugal Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         1 730           Multi Phases Pumps         Multi Phases Pumps         PMP Pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         100           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         1380           Up lifting pumps         ESP Pumps, Progeneted diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         1 430         0         1430           Generators         Generating sets         2015         0         1           Turbines - Engines - Gears         Construction Generators         2015         0         0           Generators         Gas Expender Generators         2015         0         0         0           Turbine - Turbine - Foducts, Systems & Services         40 110         Advanced Management Systems         2014         0           All processes         Real Time Database or PIMS (Process Information Management System Data reconciliation Advanced Control and Control System System System Calculation System Calculation System Calculation System Calculation System Calculation System Calculaton System Calculation System Calculation System Calculation Syste		HVAC	Heat Ventilation and Air Conditioning for buildings	2015	220
Pumps         Adda flow pumps, Properties pumps close coupled pumps offer certainlugal pumps         2015         17.30           Mechanical Equipments         Multi Phases Pumps         PMP Pumps         2015         0           Mechanical Equipments         Reciprocating pumps         Reciprocating pumps         2015         1100           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         1380           Up lifting pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turboines - Engines - Gears         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0           Turboines - Engines         Gas Expender Turbo         Gas Expender Concenerators         2015         0           Gas Expender Turbo         Gas Expender Second         Steam Turbine Generators Gas Turbines Generators         2015         0           Advanced Management System & Services         Advanced Management System Second Control and Optimization SPC/SOC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Management System Northoring System Management System Management System Northoring System Management System Management System Northoring System Management System Management System Management System Control (BPC) Oil Movement and Optimization SPC/SOC Process Modeling and Training Simulation System Optimization SPC/SOC Processes Modeling and Training Simulation System Optimizatio		Pumps			4 760
PumpsPumpsAutoReciprocating pumpsReciprocating pumps2015550Rotary pumpsReciprocating pumps Other rotary pumps20151100Rotary pumpsProportional pumps Air operated diaphragm pumps Special pumps20151380Up lifting pumpsProportional pumps Air operated diaphragm pumps Special pumps20151380Up lifting pumpsESP Pumps, Progressive Cavity Pumps (PCP)20150Turbines - EnginesCenerating sets20151430Responder Turbo Generators201514300Rotary pumpsSteam Turbine Generators Gas Expender Generators20150Turbo GeneratorsCenerators20150Turbo GeneratorsInstrumentation Products, Systems & Services20150Advanced Margement SystemsSteam Turbine Generators Gas Turbines Generators20150All processesAll processesNational Products, Croces Modeling and Training Simulation System Decision support system Assets and Control System System Integration, Relational Data Base Management System Control (BRC) and Biend Property Control (BRC) Biend Wanagement System Control (BRC) and Biend Property Control (BRC) Biend Wanagement System Control (BRC) and Biend Property Control (BRC) Biend Wanagement System Control System Stem Control System Burner Systems & System System System System Control System Control System Burner2015240ProcessesBuilding Management System Control System Control System Burner management system System Control System Control System Burner management System System Control System Control System Burn			Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	1 730
Equipments         pumps         pumps         control retronuction         retronuction <thretronuction< th=""> <thretronuction< th=""></thretronuction<></thretronuction<>			PMP Pumps	2015	0
Special pumps       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 - Cears       1.430         iengines       Generating sets       2015       1.430         iengines       Gas Expender rurbo       Cenerators       2015       0         Gar Expender rurbo       Turbo       Gas Expender Generators       2015       0         Turbo       Turbo       Steam Turbine Generators Gas Turbines Generators       2015       0         Generators       Products, Systems & Services       40 110       14.30         Advanced Management Systems & Services       40 110       120       120         All processes       Real Time Database or PIMS (Process Information Management System Decision support system Assets)       2014       120         All processes       Management Performance Calculation Electronic Document Management System Environment Monitoring System Assets       2014       120         Products, System System Integration, Relation Data Base Management System Enstremace Calculation System Decision support system Assets       2014       0         Processes       Tark Farm Management System Integration, Relationa Data Base Management System Control System System Stere Cold Sistem			Reciprocating pumps	2015	550
by lifting pumps       ESP Pumps, Progressive Cavity Pumps (PCP)       2015       0         Turbines - Engines       1 430         Diesel & Gas engines       2015       1 430         Gas Expender Turbo Generators       2015       0         Turbines - Engines       2015       0         Turbo Generators       2015       0         Turbo Generators       2015       0         Turbo Generators       2015       0         Advanced Management Systems & Services       40 110         Advanced Management Systems       120         All processes       Real Time Database or PIMS (Process Information Management System Decision support system Assets Management Performance Calculation Electronic Document Management System Decision support system Assets Management Performance Calculation Electronic Document Management System Decision support system Assets Management System System Control (RPC) Oil Movement and and Control System System Integration, Relational Data Base Management System (IMSDMS) Energy Management System Control (RPC) Oil Movement and products       2014       0         Services       Tank Farm Management Ratio Control (RPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling       2014       0         Automation - LCSS       9 390       9 390       9 390         Building Management       Building Management System Control system Control system Burner System		Rotary pumps	Screw pumps Other rotary pumps	2015	1 100
Turbines - Engines - Gears       1 430         Diesel & Gas engines       Gas Expender Turbo       2015       1 430         Gas Expender Turbo       Gas Expender Generators       2015       0         Generators       2015       0         Turbo Generators       Steam Turbine Generators Gas Turbines Generators       2015       0         Turbo Generators       Steam Turbine Generators Gas Turbines Generators       2015       0         Advanced Management Systems & Services       40 110       120         Advanced Management Systems       120       120         Advanced Management Systems       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 (RDBMS) Energy Management System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System (LIMS) Scheduling       2014       0         Automation - ICSS       9 390       9 390       9 390       9 390         Building Management System       Building Management System Clock synchronization System       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 Burner ma		Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	1 380
Diesel & Gas englines         Diesel & Gas englines         Cenerating sets         2015         1 430           Gas Expender Turbo Generators         Control         Gas Expender Turbo         2015         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Advanced Management Products, Systems & Services         40 110         40 110           Advanced Management Systems         120         120           All processes         Real Time Database or PIMS (Process Information Management System Decision support system Asset and Control System System Integration, Relational Data Base Management System Control and Optimization SPC/SQC Process Modeling and Training Simulation System Environment Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         0           Automation - I CSS         9 390         2015         240         240         240         240         240         240         240         240         240         240         240         240         240         240         240         240		Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0
engines         engines         2015         11430           Gas Expender Turbo Generators         Gas Expender Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           All processes         Instrumentation Products, Systems & Services         40 110           Advanced Management Systems         120         120           All processes         Real Time Database or PIMS (Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SOC 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 Control (BRC) and Blend Property Control (BPC) Oil Movement and Optimization SPC/SOC Process Modeling and Training Simulation System (LIMS) Scheduling         2014         0           Processes         Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Optimization Spc.         9 390           Building Management System         Building Management System Clock synchronization         2015         240           Services         Management System         Buildin		Turbines - Engi	nes - Gears		1 430
Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           Turbo Generators         1205         0           Instrumentation Products, Systems         Instrumentation Performance Optimization SPC/SQC Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Information Management System) Data reconciliation Advanced Control and Optimization SPC/SQC Process Information Management System Decision support system Assets and Control System System Integration, Relational Data Base Management System Monitoring System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Control GRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         0           Refining Processes         Tank Farm Management System Bend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         0           Building Management System         Building Management System Clock synchronization         2015         240           Systems         Machine and performances monitoring system Control system control system Burner management system Steam or Gas turbine control system control system Control system Burner         2015         270			Generating sets	2015	1 430
Generators         Steam furbine Generators Gas furbines Generators         2015         0           Generators         Instrumentation         Products, Systems & Services         40 110           Advanced Management Systems         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 Anagement System Calculation System Data Base Management System Environment Monitoring System and Control System System Information Data Base Management System (RDBMS) Energy Management System Control System (RDBMS) Energy Management System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         0           Automation - ICSS         9 390         9 390         2015         240 <t< td=""><td></td><td>Turbo</td><td>Gas Expender Generators</td><td>2015</td><td>0</td></t<>		Turbo	Gas Expender Generators	2015	0
Advanced Management Systems         120           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 Outlity Management System Processes         2014         120           Refining Products, Systems & Services         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         9 390         2015         240           Building Management System         Building Management System Clock synchronization         2015         240			Steam Turbine Generators Gas Turbines Generators	2015	0
All processesReal 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 Management System Control Refining Products, Systems & ServicesReal Time Database or PIMS (Process Information Management System Decision support system Assets Management Performance Calculation Electronic Document Management System Environment Monitoring System Management System Ouality Management System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling2014120Refining ProcessesTank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling20140Automation - ICSS9 390Building Management SystemBuilding Management System Clock synchronization2015240Control PackageMachine and performances monitoring system Anti surge system compressor control system Burner management system Steam or Gas turbine control system Control system cabinet Multi point temperature2015270		Instrumentatio	n Products, Systems & Services		40 110
All processes         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 Control (BPC) Oil Movement and Processes         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         9 390         9 390         2015         240		Advanced Man	agement Systems		120
Products, Systems & Services       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       9 390       9 390       9 390       9 390       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       2015       270	Systems &	All processes	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		120
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     2015     270				2014	0
Management System       Building Management System Clock synchronization       2015       240         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       2015       240	Services	Automation - I	CSS		9 390
Control Package management system Steam or Gas turbine control system Control system cabinet Multi point temperature 2015 270		Management	Building Management System Clock synchronization	2015	240
		Control Package	management system Steam or Gas turbine control system Control system cabinet Multi point temperature	2015	270

28 / 36

Edited on 2015/06/15



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	PACKAGES SUMMARY		
Packages Names	Packages Descriptions	Year of award	Busine: Opportun
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
Instrumentatio	on - Measurement		4 09
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 09
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 Analyt	ic - Analyzers - Shelters		1 39
Analytical Shelters	Modules of analyzer data systems, engineered and prefabricated or containerized "turn-key" analytical systems	2015	1 06
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 82
Automation Services Telecom Services Advanced	Project Management Functional design Configuration and internal Testing Factory and Site Acceptance Tests (FAT and SAT) Precommissioning, commissionin,g and Start up assisitance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	13 82
Management System Services			
Management System Services	ations Package		5 03



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		









# LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION



# Business Pipeline (in KUSD)

Electrical Equipments & Systems Mechanical Equipments Instrumentation Products, Systems & Services Contracting & Utilities Packages

			Business Pipe	eline in KUSD
		Smart Data	2014	2015
	Electrical Equipments & Systems	26 650	0	26 650
	Mechanical Equipments	10 240	0	10 240
Packages in KUSD	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

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31 / 36







# LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION

	Last up date		Date	22/05/2014			
	Last up date ye	2014					
	Status				Active		
	Project Name	LyondellBasell Corpus Christi Ethylene Expansion					
	Project Site Cou	ntry			USA		
		Project End user Name			Lyondellbasell		
		End Users & Stakeholders	Lyondellbasell				
	End User	End Users Countries	Netherlands				
		Key Stakeholders	Operational Leader				
		Expected year of Completion			2016	·	
		Bidders					
	"Food Engineering Commence	Awarded	KBR				
Project Market	"Feed Engineering Company (Front End Engineering & Design)	FEED Companies Country	USA				
Data		FEED Stage year			2014		
	"PMC or EPCM Company Engineering	Name					
	Company (Project manager Consultant oe EPC	PMC or EPCM Country					
	Manager) if appointed"	Year of appointment					
		Bidders					
	"EPC Company (Engineering, Procurement &	Awarded			KBR		
	Construction)"	EPC Company Country			USA		
-		EPC Stage year			2015		
	Main Standard	ls	ANSI/NEMA				
	Sourcing Strate	gy			Global		
	General Information about the project						
	LyondellBasell plans to add an addition executive said on Wednesday.	<u> </u>	<u> </u>			-	

executive said on Wednesday. "This investment of around \$420m (â, ¬323m) could add \$250m-300m in annual potential growth value, aclessing said Tim Roberts, senior vice president of olefins and polyolefins â€" Americas. He spoke at the companyã€<sup>™</sup>s annual investor day. It was the first time LyondellBasell announced planned additional capacity for its Corpus Christi expansion. Currently, LyondellBasell has an ethylene capacity of 771,000 tonnes/year at Corpus Christi --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

is expected on early 2016.









# LYONDELLBASELL CORPUS CHRISTI ETHYLENE EXPANSION

		PACKAGES SUMMARY				
Packages Family	Packages Names	Packages Descriptions	Year of award	Business Opportunitie		
		Copyright 2B1st Consulting		KUSD		
	Electrical Equipments & Systems					
	Cables & Cablir	g 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 E	quipment 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 & Ligh	ting installation		1 1 4 0		
	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 Eq	uipment < 1kV		2 200		
	Low Voltage Bus ducts	Low Voltage bus ducts	2015	710		
Electrical	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		
Equipments & Systems	Medium Voltag	e Equipment and Sub-station (>1kV<44kV)		10 230		
oystems	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, Genera	tors & 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		



Parkage Processor         Processor         Processor         Science Processor         Science P			PACKAGES SUMMARY		
Voting:         Low Voting/ endors in your and starting of the			Packages Descriptions	of	
Concertable         Concertable         Use         Use           Destruction         Control Systems         Super-Vision Vision Vi			Low Voltage Motors up to 250HP Motors for Safe areas and Hazardous areas	2015	430
Distribution System         Control Control & Supervisery Modelan Wilsings and/or Low Wolking Distribution System Noval System         2015         5600           Private Management System Noval Management System Management System Noval Management System Noval Management System Management System Noval Management Noval Management System Management System Management Noval Management System Management Noval Management N			High or Medium Voltage generators driven by a turbine	2015	0
Mechanical Fuel Protection System Protectio		Power Systems	& Distribution Control Systems		590
Model by Spring 1000000000000000000000000000000000000			Management System Protection System, PLC System, Mimic panels, Annunciator panels DC Measuring system	2015	590
Gentral         Local control buttom hoses & Motions Gately Boses Welding cutlet         2015         50           Junctions         Junctions         Junctions boses & Motions Safety Boses Welding cutlet         2015         40           Sackets         For safe areas and mazerdous areas         2015         80         90           Transformers         International         10/1/V Oil or Dry Transformers including lighting transformers         2015         50           Transformers         Prover         HV/HV Oil Transformers         2015         50           UPS System & Ratteries includied         Batteries includied         2015         400           Des System & Ratteries includied         Batteries for UPS System         2015         400           Vacuum pumps         Ac & DC UPS System not including the batteries for UPS System         102 420         102 420           Compressors & Vacuum pumps         100         100         100         100         100           Vacuum pumps         Ac & DC UPS System on and Ac & DC UPS System on and Ac & DC UPS System and Including the batteries for UPS System         100         100         100           Vacuum pumps         Ac & DC UPS System on and Ac Conditioning for batlerings         2015         180         180           For San & Biloweres & HVAC         Heact Ventilation and Air Condi		Management	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,	2015	0
Junctions         Junctions boxes & Matters Safely Boxes Welding outlet         2015         6.0           Sockets         For safe areas and hazardous areas         2015         80           Transformers         100         100         100         100           Distribution         HV/LV Oil or Dry Transformers Including lighting transformers         2015         200           Prover         Prover         HV/LV Oil Transformers         2015         80           UPS System         Act DC UPS System or Transformers Largo Drives Transformers         2015         2015           Prover         Prover         Prover         100         2015         2015           Prover         Prover         Prover         Prover         755         2015         2015           Prover         Act DC UPS System net including the batteries For UPS System         102         2015         120           Vacuum pumps         Act DC UPS System net including the batteries For UPS System         102         2015         180           Vacuum pumps         Vacuum pumps         Vacuum pumps         7550         300         190         190         190         190         190         190         190         190         190         190         190         190         190 <td></td> <td>Small Power Bu</td> <td>Ik &amp; Various Electrical</td> <td></td> <td>190</td>		Small Power Bu	Ik & Various Electrical		190
Societs         For safe areas and hazardous areas         205         80           Transformars         901         802           Transformars         905         802           Transformars         905         802           Transformars         905         80           Transformars         905         200           Preper         Proper         10/11/10/11         10/11           Transformars         1001         10/11         10/11           Special         Proper         10/11         10/11           Transformars         10/11         10/11         10/11         10/11           Mechanical Equipments         001         10/11         10/11         10/11           Compressors & Vacuum pumps         Vacuum pumps         10/11         10/11         10/11           Vacuum pumps         Vacuum pumps         Vacuum pumps         10/11         10/11           Pumps         Vacuum pu		Control	Local control button Push button	2015	50
Mechanical purps         420           Power Conversion         201           Power Conversion         205           Spocial Power Conversion Transformers including lighting transformers         205           Spocial Transformer         104/14/01 Transformers         205           VPS System & Batterics included         770           UPS System & C & DUPS System C         205           VPS System & C & C & DUPS System C         205           VPS System & C & C & DUPS System C         205           VPS System & C & C & DUPS System C         205           VPS System & C & C & DUPS System C         205           Mechanical quipments         10240           Compressors & Vacuum pumps         Vacuum pumps           Vacuum pumps         Vacuum pumps           Vacuum pumps         Vacuum pumps           Controlling         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps           Pumps         Pumps           Pumps         Pumps           Pumps         Pumps Close coupled pumps (Porter Centrifugal pumps           Pumps         Proportional pumps Arc operated diaphragm pumps (Porter Centrifugal pumps           Pumps         Proportional pumps, Propelier pumps (Porter)         2015           Pumps         Proportional pu		Junctions	Junctions boxes & Motors Safety Boxes Welding outlet	2015	60
Overthalion         HVLV Oil or Dry Transformers including lighting transformers         205         210           Power         HVLV Oil or Dry Transformers         205         5.50           Special         Special         Transformers         205         6.00           UPS System & Batteries Included         Transformers         205         205           UPS System & C & DUPS System         C & DC UPS System To Including the batteries for UPS System         205         205           UPS System & C & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS         205         480           Machanical Equipmonts         10240         102         205         350           Promps         To 240         102         205         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           Pomps         Contringal         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         350           Mult Phase         PMP Pumps         2015         280         0         1180           Special pumps         Froportioning pumps Air operated of diphyragm pumps Special pumps         2015         120           UPS system & BUPAC         Secole pumps         2015 <td< td=""><td></td><td>Sockets</td><td>For safe areas and hazardous areas</td><td>2015</td><td>80</td></td<>		Sockets	For safe areas and hazardous areas	2015	80
Instatements         INVLV OIL or Dry Instatements including lighting transformers         ADIS         210           Power         HW/LV OIL or Dry Instatements         2015         533           Special         Power conversion Transformers Large Drives Transformers         2015         630           UPS System & Batterices included         2015         2015         2015         2015         2015         2015         2015         2015         2015         2015         2015         480         2015         2015         480         2015         480         2015         480         2015         480         2015         480         2015         480         2015         480         2015         180         2015         180         2015         380         480         470         470         470         470         350         470         <		Transformers			820
Itransformer         Profestion         2010         3.8.2           Special Transformers         Power conversion Transformers Large Drives Transformers         2010         30           UPS System & Batteries included         7500         3015         2010         3015         2010         3015         2010         3015         2010         3015         2010         3015         2010         3015         2010         3015         2010         3015         2010         3015 <td></td> <td></td> <td>HV/LV Oil or Dry Transformers including lighting transformers</td> <td>2015</td> <td>210</td>			HV/LV Oil or Dry Transformers including lighting transformers	2015	210
Transformers         Joins			HV/HV Oil Transformers	2015	530
Batteries         Batteries for UPS System         2015         270           Mechanical Equipments         AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS         2016         480           Mechanical Equipments         10 240         10 240         10 240           Vacuum pumps         Vacuum pumps         10 240         2015         180           Fans & Biovers & HVAC         350         350         350         350           Pumps         Fans & Biovers & HVAC         7 950         350         350           Pumps         Centrifugal         Acial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Reciprocating         Reciprocating pumps         Earth         2015         0         0           Pumps         Reciprocating pumps         Proportional pumps Are operated disphragm pumps Special pumps         2015         0         0           Pumps         Cenerators         Generators         2015         0         0         0           Reciprocating pumps         Proportional pumps Are operated disphragm pumps Special pumps         2015         0         0         0         0         0         0         0         0         0         0 <t< td=""><td></td><td></td><td>Power conversion Transformers Large Drives Transformers</td><td>2015</td><td>80</td></t<>			Power conversion Transformers Large Drives Transformers	2015	80
UPS System         AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS         2015         440           Mechanical Equipments         10 240         10 240         100 240           Vacuum pumps         Vacuum pumps         2015         180         180           Vacuum pumps         Vacuum pumps         2015         350         180           Fans & Blowers         HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           HVAC         Fans & Blowers         2015         2800           Multi Phases         Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2           Multi Phases         Pumps         Screew pumps Other rotary pumps         2015         0           Rotary pumps         Propertional pumps Air operated diaperagin pumps Special pumps         2015         0           Turbrines - Engines         Generating sets         Generating sets         0         0           Turbrines - Engines         Generating sets         Generating sets         2015         0           Turbrines - Engines         Stetem Turbine Generators		UPS System & I	Batteries included		750
Mechanical Equipments         10 240           Compressors & Vacuum pumps         180           Vacuum pumps         2015           Fans & Blowers & HVAC         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015           Pumps         2015         360           Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2880           Multi Phases         Pumps         2015         0         0         0           Requipments         Rediprocating pumps         2015         0		Batteries	Batteries For UPS System	2015	270
Compressors & Vacuum pumps         180           Vacuum pumps         Vacuum pumps         2015         180           Pans & Blowers & HVAC         350         350           Pumps         Centrifugal         HVAC         Heal Ventilation and Air Conditioning for buildings         2015         350           Pumps         Centrifugal         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2880           Pumps         Centrifugal         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2880           Pumps         Reciprocating         Reciprocating         2015         2015         0           Reciprocating         Reciprocating pumps         2015         2310         0         1860           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         2310         0           Turbines - Engines - Cears         1760         0         0         1760         0           Turbo - Centrifus         Special pumps         Special pumps         2015         0         0           Turbo - Centrators         2015         0         0         0         0         0           Turbo - Centrators         2015		UPS System	AC & DC UPS System not including the batteries Rectifier, Inverter, By pass Distribution panels for AC & DC UPS	2015	480
Vacuum pumps         Vacuum pumps         2015         180           Fans & Blowers & HVAC         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         2800           Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2         2800           Multi Phases Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         9         0           Reciprocating pumps         Axial flow pumps, Air operated diaphragm pumps Special pumps         2015         9         0           Turbines - Engines - Gears         1760         1840         2         1800         0           Up lifting pumps         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0         1         760           Turbines - Engines - Gears         Gas Expender Generators         2015         0		Mechanical Equ	Jipments		10 240
Mechanical Equipments         Fans & Blowers & HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           HVAC         Heat Ventilation and Air Conditioning for buildings         2015         360           Pumps         7 950         7 950           Centrifugal Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         0           Multi Phases Pumps         Pumps         2015         0         920           Reciprocating pumps         Reciprocating pumps         2015         920         1840           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turboines - Lengines - Gears         Cenerating sets         2015         0           Turboines - Special pumps         Gas Expender Turbo         1760         0           Generators         Gas Expender Turbo         2015         0         0           Turbo         Secter Products, Systems & Services         49 670         2015         0           Advanced Management Systems         Secter Products, Systems & Services         2016         0         2016           Advanced Management Systems & Services         49 670         2016         0         2016         0		Compressors &	Vacuum pumps		180
HVAC         Heat Ventilation and Air Conditioning for buildings         2015         350           Pumps         7 950         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           Multi Phases Pumps         PMP Pumps         2015         920           Reciprocating pumps         Reciprocating pumps         2015         920           Rotary pumps         Special pumps         2015         0           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Turbines - Engines - Gears         1760         2015         0           Turbines & Engines - Gears         2015         0         0           Generators         Generating sets         2015         0           Turbine disc Road         Generators         2015         0           Generators         Control Turbine Close sets         2015         0           Turbine additionary pumps         Generators         2015         0           Control Turbine additionary pumps         Generators         2015         0           Control Turbine ad		Vacuum pumps	Vacuum pumps	2015	180
Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2.880           Mechanical Equipments         Multi Phases Pumps         Pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         1.840           Special pumps         Propertional 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         1.760           Diesel & Gas engines         Generating sets         2015         1.760           Gas Expender Turbo         Gas Expender Generators         2015         0           Advanced Management Systems & Services         49.670         2         2           Advanced Management Systems & Services         49.670         2014         2           Advanced Management System Solutional Data Base Management System Decision support system Assist Management System Support Closes Stores         2014         2014         2           All processes         Real Time Database or PIMS (Process Information Management System Decision support system Assist Management System Support System Real Management System Support System Real Management System Support System Real Management System Support System Real Managem		Fans & Blowers	s & HVAC		350
Machanical Equipmentation Equipmentation Section pumps         Centrifugal Pumps         Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps         2015         2 880           Multi Phases Pumps         Multi Phases Pumps         PMP Pumps         2015         0           Reciprocating pumps         Reciprocating pumps         Reciprocating pumps         2015         1840           Special pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0           Up lifting pumps         ESP Pumps, Progressive Cavity Pumps (PCP)         2015         0           Dises Id Gas englines         Generating sets         2015         1 760           Generators         Gas Expender Turbo Generators         2015         0         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0         0           Advanced Management Systems & Services         49 670         270         270         270         270           All processes         Real Time Database or PIMS (Process Information Management System Could Wanagement		HVAC	Heat Ventilation and Air Conditioning for buildings	2015	350
Pumps         Adda now pumps, Propender pumps utoes coupled pumps offer centinitigal pumps         2016         2280           Mechanical Equipments         Multi Phases Pumps         PMP Pumps         2015         0           Mechanical Equipments         Reciprocating Pumps         Reciprocating pumps         2015         920           Rotary pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         2015         0           Up lifting pumps         Proportional pumps Air operated diaphragm pumps Special pumps         2015         0         0           Turbines - Engines - Gears         1760         0		Pumps			7 950
Pumps EquipmentsPumps PumpsAutoMechanical EquipmentsReciprocating pumpsReciprocating pumps2015920Rotary pumpsRotary pumpsScrew pumps Other rotary pumps20151840Special pumpsProportional pumps Air operated diaphragm pumps Special pumps20150Up lifting pumpsESP Pumps, Progressive Cavity Pumps (PCP)20150Turbines - EnginesGenerating sets20151760Case Expender TurboCase Expender Turbo20150Turbo GeneratorsCase Expender Turbo20150Turbo GeneratorsSteam Turbine Generators Gas Expender Generators20150Turbo GeneratorsSteam Turbine Generators Gas Expender Generators20150Advanced Margement Systems & ServicesAdvanced Control and Optimization SPC/SOC Process Modeling and Training Simulation System Environment Monitoring System Management System Control System Casion support System Environment Monitoring System Management System Casion System Ca			Axial flow pumps, Propeller pumps Close coupled pumps Other centrifugal pumps	2015	2 880
Equipments         pumps         pumps         pumps         constraint         constraint <thconstraint< th=""> <thconstraint< th=""></thconstraint<></thconstraint<>			PMP Pumps	2015	0
Special pumps       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         Gas Expender runbo       Generating sets       2015       1.760         Gar Expender runbo       Generators       2015       0         Turbo       Generators       2015       0         Turbo       Steam Turbine Generators Gas Expender Generators       2015       0         Turbo       Turbo       Steam Turbine Generators Gas Turbines Generators       2015       0         Advanced Management Systems & Services       49 670       49 670         Advanced Management Systems & Services       49 670       49 670         All processes       Real Time Database or PIMS (Process Information Management System Environment Monitoring System Assets and Control System System System Colculation System Decision support system Assets and Control System System System Could bata Base Management System Could Bata Base Manage			Reciprocating pumps	2015	920
Image: Line of the second system of the second system of the second system of the s		Rotary pumps	Screw pumps Other rotary pumps	2015	1 840
Turbines - Engines - Gears       1 760         Diesel & Gas engines       Generating sets       2015       1 760         Gas Expender Turbo Generators       2015       0       0         Turbo Generators       Steam Turbine Generators Gas Expender Generators       2015       0         Turbo Generators       Turbo Generators       2015       0         Advanced Management Systems & Services       49 670         Advanced Management Systems       2014       270         Advanced Management Systems       2014       270         All processes       Real Time Database or PIMS (Process Information Management System) Data reconclilation Advanced Control and Optimization SPC/SOC Process Modeling and Training Simulation System Decision support system Assets Management Performance Calculation Electronic Document Management System (RDBMS) Energy Management System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Blend Ataito Control (BPC) Oil Movement and Drocesses       2014       0         Automation - ICSS       11 840       11 840         Building Management System       Building Management System Clock synchronization System       2015       290         Building Management System       Machine and performances monitoring system Anti surge system Control system Burner management system Steam or Gas turbine control system Control system Burner management system Steam or Gas turbine control system Control system Burner management syst		Special pumps	Proportional pumps Air operated diaphragm pumps Special pumps	2015	2 310
Diesel & Gas englines         Diesel & Gas englines         Cenerating sets         2015         1 760           Gas Expender Turbo Generators         Turbo Generators         2015         0         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Advanced Management Systems & Services         49 670         49 670         40         40         40         670           Advanced Management Systems         Real Time Database or PIMS (Process Information Management System) Data reconcillation Advanced Control and Optimization SPC/SQC Process Modeling and Training Simulation System Environment Monitoring System Anagement Performance Calculation Electronic Document Management System Instrumentation Products, System Services         2014		Up lifting pumps	ESP Pumps, Progressive Cavity Pumps (PCP)	2015	0
engines         engines         Centrel failing sets         2015         1 780           Gas Expender Turbo Generators         Gas Expender Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           Turbo Generators         Steam Turbine Generators Gas Turbines Generators         2015         0           Turbo Generators         Instrumentation         Products, Systems & Services         49 670           Advanced Management Systems         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 and Control System Stem Integration, Relational Data Base Management System (RDBMS) Energy Management System Integration, Relational Data Base Management System (RDBMS) Energy Management System Control (BPC) Oil Movement and Optimization SPC/SQC Process Modeling and Training Simulation System (LIMS) Scheduling         2014         0           Processes         Tank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Optimization SPC/SQC Process Modeling Management Information System (LIMS) Scheduling         2014         0           Services         Refining Processes         Tank Farm Management System Steam Clock synchronization         2015         290           Building Management System         Building Management System Clock synchronization         2015         290		Turbines - Engi	nes - Gears		1 760
Turbo Generators         2015         0           Turbo Generators         Turbo Generators         2015         0           Turbo Generators         2015         0           Turbo Generators         2015         0           Instrumentation Products, Systems         Instrumentation Systems & Services         49 670           Advanced Margement Systems         270           Advanced Margement 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 and Control System System Integration, Relational Data Base Management System Controling System and Control System System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System (RDBMS) Energy Management System Quality Management System (RDBMS) Energy Management System Quality Management System (LIMS) Scheduling         2014         0           Automation - ICSS         Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2015         290           Building Management System         Building Management System Clock synchronization         2015         290           Control Package         Machine and performances monitoring system Anti surge system Control system Burner management system Steam or Gas turbine control system Control system Control system Control system Surgement System Steam or Gas turbine co			Generating sets	2015	1 760
Generators         Steam furbine Generators Gas furbines Generators         2015         0           Generators         Instrumentation         Fred 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 Anagement System Information Data Base Management System Control System System (RDBMS) Energy Management System Ouality Management System (RDBMS) Energy Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         2014         2014         2016           Network of the system         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         Building Management System Clock synchronization         2015         290           Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system Control system Burner         2015         360		Turbo	Gas Expender Generators	2015	0
Advanced Management Systems         270           Advanced Management Systems         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         2014         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         2014         270           All processes         Refining Processes         Tank Farm Management System Integration, Relational Data Base Management System (RDBMS) Energy Management System Quality Management System         2014         0           Services         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         11 840         2015         290           Building Management System Building Management System Clock synchronization         2015         290         290			Steam Turbine Generators Gas Turbines Generators	2015	0
All processesReal 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 Outlity Management System2014270Products, Systems & ServicesTank Farm Management System Blend Ratio Control (BRC) and Blend Property Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling20140Automation - ICSSUtomation - ICSS11 840Building Management SystemBuilding Management System Clock synchronization2015290Machine and performances monitoring system Anti surge system Compressor control system Burner management system Steam or Gas turbine control system Control system Control system Burner anagement System Steam or Gas turbine control system Control system Control system Control system Burner2015360		Instrumentatio	n Products, Systems & Services		49 670
Instrumentation Products, Systems & Services         All processes         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 Control (BPC) Oil Movement and Training System Control (BPC) Oil Movement and Storage (OMS) Laboratory Management Information System (LIMS) Scheduling         2014         0           Automation - ICSS         Automation - ICSS         11 840           Building Management System         Building Management System Clock synchronization         2015         290           Machine and performances monitoring system Anti surge system Control system Control system Burner control Package         Machine and performances monitoring system Anti surge system Control system Control system Burner         2015         360		Advanced Man	agement Systems		270
Products, Systems & Services         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         Automation - ICS         11 840         12 90         290         290         290         290         290         290         2014         2015         290         2015         290         2015         290         2015         290         2015         2016         2015         2016         2016         2015         2016         2016         2015         2016         <		All processes	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		270
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     2015     360				2014	0
Management System       Building Management System Clock synchronization       2015       290         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       2015       360	Services	Automation - I	CSS		11 840
Control Package management system Steam or Gas turbine control system Control system cabinet Multi point temperature 2015 360		Management	Building Management System Clock synchronization	2015	290
		Control Package	management system Steam or Gas turbine control system Control system cabinet Multi point temperature	2015	360

34 / 36

Edited on 2015/06/15



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	PACKAGES SUMMARY		
Packages Names	Packages Descriptions	Year of award	Business Opportunitie
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
Instrumentatio	on - 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 Analyt	ic - 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, commissionin,g and Start up assisitance Training Control Loop Diagrams Project Documentation Safety Validation On-call Maintenance Services	2015	16 560
1	ations Dockago		6 030
Telecommunic			0000



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	

