

## **Investment program 2016**

2016 Investment program is structured in 3 sections, based on objectives and projects magnitude.

Total investments value allocated for **2016** is **37,372,683 USD**, according below table:

	<b>Budget 2016</b>
<b>Petromidia, from which:</b>	<b>29,089,820 USD</b>
Development	565,132 USD
Compliance	13,932,134 USD
Operational Support	403,215 USD
Capital maintenance	14,189,339 USD
<b>Vega, from which:</b>	<b>7,412,863 USD</b>
Development	232,000 USD
Compliance	3,856,192 USD
Operational Support	213,000 USD
Capital maintenance	3,111,671 USD
<b>Refinery Total Investments</b>	<b>37,372,683 USD</b>

### **Compliance**

This category includes compulsory investments required by environmental and safety regulations:

#### **❖ Expire authorization ISCIR for static equipment (ISCIR 2016)**

Project consists in aligning to legislation requirements in terms of safety functionality of the refinery equipment. In July 2010 occurred new modifications of the existing legislation, namely technical prescriptions C4, C6 and C10, 2010 edition introduced the obligation to prepare Examination, Checks and Investigation (EVI) Programs for all equipment and pressurized pipes older than 12÷18 years in order to perform Technical Checks in Use for Examinations with Technical Character (VTU-IECT).

As of 2004 the Beneficiary was required to prepare Technical Documentation for each pipe and to authorize all pressurized pipes owned. According to Technical prescriptions C6 and C10, old pipes should have been authorized either after performing a technical expertise or based on a technical documentation prepared by an ISCIR authorized company.

- Running with the refinery units in safety conditions according to legislation in force, as a result of detailed verifications which will be performed during this evaluation program which will have as a result the technical evaluation of the equipment after specified years of service, as well as repair or elimination of the faults which will appear after the checks;
- Obtaining the functioning authorization for the pressurized equipment, pipes and lifting equipment as per Technical Prescriptions

❖ **V26/2 Tank Rehabilitation** tank rehabilitation was taken into consideration for capital repairs, being part of General Master Plan Program which have the objective to maintain to an optimal value the storage capacity for refinery products and align to safety requirements. The necessity for tank rehabilitation was needed due to the followings:

- Alignment to the requirements imposed by legislation (GD 893/2005 and GD 568/2001) on environmental protection (reduction of emissions of volatile organic compounds). Failure to comply with the requirements of GD 893 may lead to withdrawal of the Refinery operating permit if the requirement is broken repeatedly. Refinery authorization shall be valid again only until the facility is implemented.
- Tank V26/2 reintroduction in normal operation, upgraded, increasing the storage capacity of finished gasoline.
- Reduce with up to 95% the emissions due to the new internal floating roof.

❖ **Safety Package in Petromidia Platform**

Health and Safety signalization is mandatory according to Romanian safety legislation.

With this project, according to Romanian safety law will follow:

- Install life line system on the loading ramp (auto and railway). Life line system must be complete according to contracted h&s specialists for equipment delivery (design, harness, ropes, shock absorber, rescue intervention equipment, training, tests). Lifeline vertical system (design, harness, ropes, shock absorber, rescue intervention equipment, training, tests – example BRO Railok).
- Procure 8 mobile platforms for each unit to facilitate the access at height;
- Assessment and implement anchoring points systems for working at height (RPP);
- Assessment and implementation for Lock Out Tag Out Implementation System. Contact an external Company for make the assessment for implement LOTO system on the principal lines at the limit of the units and for a critical equipments in Rompetrol Refinery;
- Risk assessment revision after the implementation of new equipment in the areas listed.

Comply with Law in force:

- Law for OHS 319 from 14th of July 2006;
- GD 1425/2006 for applying the Law for OHS 319;
- GD 955/2010 to complete the GD 1425/2006 for applying the Law for OHS 319;
- OHSAS 18001 standard, by assuring protection for personnel referring to the risk existing at the workplace, especially in working at high.
- Implementation of the specific measures specified in the Prevention and protection plan.

#### ❖ **Fire-fighting Water Main Replacement, section J and G**

- Maintain continuously and sustainably the necessary requirements for prevention and protection in case of emergency situations.
- Ensure the safety conditions for fire-fighting, related to fire-fighting network pressure 12barg in standby and 16barg for operation in case of fire.
- Perform replacement and rehabilitation of the fire fighting infrastructure according to the Master Plan for J and G, based on the project design RIS-3C-3244.

### **Development**

This category includes projects for static and dynamic equipment revamp and modernization, in order to keep in good condition for safe operation of the Refineries units.

From this category, a very important place is held by projects from „Storage and logistics“ area, which, consecutive to processing capacity of the refinery increasing to 5mil.tones/year after „2010 Package“ implementation, will solve refinery problems regarding storage possibilities, blending and deliveries of the products in order to get a maximum efficiency by a rational use of all components. Projects from this category:

#### ❖ **Rehabilitation of IPPA facilities**

Project objective is to have auto truck loading terminal at its design capacity (35,000 tons/month) and avoid risk of terminal shutdown due to poor operating condition regarding loading software, automation system and metering SKIDs;

- Decrease/ minimize difference between quantity loaded in PEM and the one received by DWS / customers from current range of 0.5 – 0.7% m/m (which is outside the range accepted by Authorities, respectively  $\pm 0.5\%$ ) to a value of  $\pm 0.25\%$  m/m.
- Prepare IPPA terminal infrastructure and field equipment for integration with Group Terminal Automation System (TAS).
- Within project implementation, following benefits can be highlighted:
- Improve customer satisfaction by minimizing loading differences on deliveries from IPPA terminal to a value of  $\pm 0.25\%$  m/m
- Fulfill the Trading forecasted sales plan by ensuring optimum operating conditions for truck terminal and complying with delivery requirements;
- Reduce the risk of terminal downtime by modernizing terminal automation infrastructure as well as terminal applications:
- Comply with TRG audit findings 2011 and agreed action plan;
- Decrease the maintenance costs with 70k USD/year.

#### ❖ **Modernization of the In Line Blending Unit**

- To make In - Line Blending system, a fully operational, controlled and automated process in order to obtain quality products.
- Optimizing the blends composition to the lowest price of the product, with a greater control over the giveaway and reducing in the same time re-blending operations.
- Implementation and use in DILB of an optimization software for additives.
- C97, C98 tanks configuration to DILB software interface (field works mechanical, electrical and instrumentation will be performed in

"Rehabilitation of C100 and DV20 tanks and relocation to other storage and delivery paths" project.

- Maintain and assure the In - Line Blending system reliability at the lowest cost possible for at least the next five years.

❖ **G1 section 1 pumping station modernization – Phase II**

- To improve energy consumption performance of the Refinery: (reduce energy costs, improve Energy Intensity Index:0.17 points EII approx 0.4 MWh/h=40 USD/h), by:
- Replace recirculation pumps and electrical motors no. 4,5,6, and 7 from G1/section1, according with Hydraulic Study Conclusion, elaborated by Global Energy Services Concept SRL (GES) in 8/03/2012
- To improve operating conditions, by:
- Up-grade electrical equipment (medium voltage breaker and protection relay) for all 4 motors

## **Capital Maintenance**

❖ **Replace SCADA on CF Ramp (Preparation works for TAS implementation)**

- Terminals modernization will consist in replacing the old loading applications with modern another one.
- Elaboration and delivery of budget and time estimation in order to replace the existing SCADA system with new one type SCADA FactoryTalk View on CF ramp;
- Destination of the new SCADA FactoryTalk View system is automation of loading process of railway trucks and integration of CF ramp to Terminal Automation System (TAS).
- New system will be budgeted according to annexed Business and Technical requirements document.
- Time estimation for SCADA system replacement will be according to TAS project schedule;
- Proposed action is to invest in CF terminal modernization, to increase it reliability, to gain more functionalities and very important, in order to receive the full value for the already made investment (refinery increased capacity and SAP).
- The new SCADA with TAS interconnected will provide transparency on all business processes in CF terminal and on all data produced and used in business processes in terminal.
- Loss control; New SCADA is mandatory facility for TAS implementation and will serve the objectives of the losses control, possible easier losses to be identified, and controlled.

❖ **Homogenizers for waste water treatment unit 103/7**

- To assure operation conditions for Refinery and Petrochemical Plant and to avoid emergency shut-down, in case of impossibility of taking-over of waste water flows and to avoid environmental penalties if a contamination occurs, by performing Homogenizer 103/7 capital repairs.
- During CTE Meeting dated 26th of June 2014, it was accepted the solution for homogenizer repairing 103/9, proposed by RIS (with three layers

Polyuria on internal surfaces) prepared before by the chemical washing, hydro-sand-blasting and repair of cracks. It is proposed the same solution for homogenizer 103/7 waterproofing.

❖ **Rehabilitation M92 tank**

- To have the tank fully operational from technological and safety point-of-view by ensuring the needed facilities for proper storage.
- New foam house (alarm and fire extinguishing system);
- Purchase and installing new radar;
- Ensuring the storage capacity required for the reintegration component diesel M90 tank restored to normal operation the long term for long term. Alignment with the latest requirements imposed by legislation on environmental protection and safety.
- Increase the accuracy rate of the product level according to the Master Tank requirements.
- Maximize storage capacity.

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## CAPEX PLAN 2016 BU REFINING

Nr. crt.	Project Name	Total Project estimated Budget	2016 Budget (excluding RIS profit)
	<b>Refining</b>	<b>\$ 104,440,899</b>	<b>\$ 37,372,682</b>
	<b>Petromidia</b>	<b>\$ 83,730,681</b>	<b>\$ 24,391,527</b>
	<b>Petromidia Development</b>	<b>\$ 3,541,100</b>	<b>\$ 401,141</b>
1	Modernization of in line blending unit	\$ 1,060,000	\$ 232,499
2	G1 section 1 pumping station modernization	\$ 2,501,100	\$ 248,642
	<b>Petromidia Operational</b>	<b>\$ 69,352,181</b>	<b>\$ 23,960,386</b>
	<b>Petromidia Operational - Compliance</b>	<b>\$ 17,384,019</b>	<b>\$ 9,366,840</b>
3	LPG Fiscal Measurement to Rosneft Gas	\$ 719,250	\$ 300,000
4	Piezometer wells (3 units) in area dr.22 F315-P12	\$ 70,854	\$ 64,234
5	Safety Package in Refinery Platform	\$ 1,501,343	\$ 1,244,292
6	Fire-fighting Water Main Replacement, section A-P, section G.I.A.J	\$ 37,400	\$ 6,913
7	Fire-fighting Water Main Replacement, section A-P, section G.I.A.J	\$ 707,300	\$ 643,000
8	Expansive of the utilities network estacadas	\$ 195,800	\$ 151,527
9	Capital Repairs to Gasoline Tank V267	\$ 1,353,790	\$ 1,111,750
10	Rehabilitation of civil protection buildings	\$ 800,250	\$ 79,764
11	Equip authorization ISCIR for static equipment's (ISCIR 2016)	\$ 5,500,000	\$ 5,050,000
12	Chemical building for G1 Cooling Tower	\$ 176,242	\$ 86,440
13	Redirect gases from 100V2 to 138GC1	\$ 5,500,000	\$ 200,000
14	Implement cooling solution from delayed coker gases	\$ 618,000	\$ 180,000
15	Precracking system upgrading in control rooms at Railcar Loading Point, black- white products	\$ 163,790	\$ 148,900
	<b>Petromidia Operational - Capital maintenance</b>	<b>\$ 51,968,082</b>	<b>\$ 13,693,546</b>
16	Returned condensate system rehabilitation	\$ 900,599	\$ 209,050
17	General overhaul for power transformers - 3 pieces (SRA 2 - Trafo 7 si SRA 4 - Trafo 1 si 2)	\$ 814,100	\$ 712,349
18	General overhaul for power transformers SRA 1	\$ 220,000	\$ 200,000
19	Rehabilitation of C100 and 10V20 tanks and relocation to other storage and delivery paths	\$ 2,478,100	\$ 1,095,126
20	B63 - tank rehabilitation and radar mounting	\$ 694,650	\$ 487,731
21	Repair heat exchangers for waste water treatment unit 103/7	\$ 830,405	\$ 319,682
22	100 T3 tank rehabilitation	\$ 7,336,380	\$ 1,051,546
23	P48 tank rehabilitation	\$ 1,096,203	\$ 595,429
24	M90 Tank Rehabilitation	\$ 2,318,485	\$ 855,475
25	T2-4170 Tank Rehabilitation	\$ 305,115	\$ 230,427
26	B52 tank rehabilitation	\$ 1,421,087	\$ 923,580
27	Replace bundle of heat exchanger 125 S10	\$ 64,586	\$ 59,586
28	Replace programmable local computer (PLC) to upgrade LPG mixing skids	\$ 82,492	\$ 68,928
29	Petromidia IPDA Preparatory works for TAS Implementation	\$ 1,164,670	\$ 1,030,664
30	IPPA Loading Process Improvement - Replacement of TAS related equipments	\$ 776,170	\$ 690,788
31	Replace SCADA on CF Ramp - Replacement of TAS related equipments	\$ 332,000	\$ 202,810
32	Tank 10H24 rehabilitation	\$ 711,580	\$ 92,000
33	S124 skid tank rehabilitation	\$ 443,120	\$ 66,000
34	P49 tank rehabilitation	\$ 480,900	\$ 80,000
35	B9 Tank Rehabilitation	\$ 640,000	\$ 68,000
36	G5 steam trap installing and condensate pipelines (low and medium) rehabilitation	\$ 681,418	\$ 127,403
37	Replace power meters for our clients	\$ 72,000	\$ 70,000
38	Rehabilitation of P1-M buildings and warehouses	\$ 1,595,000	\$ 250,000
39	Replace the old 6 KV switches and the relay compartments in power station RR - 40 pieces SRA2, SRA 3, SRA 4 Si 10	\$ 1,870,000	\$ 300,000
40	Replace the 6KV cables from SRA 2 and Carasu station to substations optimized	\$ 642,510	\$ 100,000
41	Program of monitoring and evaluation in operation of pipes from plant HB-UltraPIPE: software implementation	\$ 220,000	\$ 200,000
42	Rehabilitation tank 120-188 B8	\$ 825,000	\$ 80,000
43	Replace bundle 120 S10 (D1)	\$ 275,000	\$ 50,000
44	Replace rectangular compressors 2 pieces at 138 FH (CO BOILER)	\$ 330,000	\$ 50,000
45	Replace bundle 180 S10	\$ 495,000	\$ 50,000
46	Replace the elevator for people and materials	\$ 242,000	\$ 70,000
47	Replace bundle 130 S11	\$ 143,000	\$ 30,000
48	Checks and repairs T103 tank	\$ 605,000	\$ 100,000
49	Rehabilitation M92 tank	\$ 1,375,000	\$ 80,000
50	Eliminating losses at skid Berth 9A	\$ 193,760	\$ 174,969
51	Eliminating Losses at skid berth 9B, 4 ways valve replacement	\$ 101,800	\$ 46,800
52	Rehabilitation of Pipe racks	\$ 1,530,000	\$ 250,000
53	Rehabilitation of Civil structure	\$ 1,530,000	\$ 250,000
54	Rehabilitation of Roads	\$ 1,530,000	\$ 250,000
55	Replacement tube bundle heat exchanger 120 SIC (A)	\$ 185,000	\$ 50,000
56	Delayed Coker belt conveyor replacement	\$ 118,250	\$ 107,500
57	Unscheduled capital maintenance	\$ 14,272,702	\$ 1,962,703
	<b>Petromidia Non-Operational</b>	<b>\$ 18,816,809</b>	<b>\$ 850,000</b>
	<b>Petromidia Non-Operational - IT</b>	<b>\$ 1,400,000</b>	<b>\$ 550,000</b>
58	Acquisition of petrochem simulator	\$ 1,000,000	\$ 150,000
59	Change Request BW/ BI	\$ 50,000	\$ 50,000
60	San Change Request 2016	\$ 50,000	\$ 50,000
61	Inventory Upgrade	\$ 300,000	\$ 300,000
	<b>Petromidia Non-Operational - Administrative</b>	<b>\$ 9,416,809</b>	<b>\$ 300,000</b>
62	Illece replacement	\$ 300,000	\$ 300,000
	<b>Petrochemicals</b>	<b>\$ 2,129,180</b>	<b>\$ 5,648,293</b>
	<b>Petrochemical Development</b>	<b>\$ 443,850</b>	<b>\$ 83,991</b>
63	RUPP condensate recovery system	\$ 443,850	\$ 83,991
	<b>Petrochemicals Operational</b>	<b>\$ 2,785,330</b>	<b>\$ 5,564,302</b>
	<b>Petrochemicals Operational - Operational support</b>	<b>\$ 1,849,400</b>	<b>\$ 403,216</b>
64	High capacity die plate for PP Unit	\$ 165,000	\$ 150,000
65	Skid extruder for masterbatch addition	\$ 824,400	\$ 253,215
	<b>Petrochemicals Operational - Compliance</b>	<b>\$ 8,130,150</b>	<b>\$ 4,445,794</b>
66	Angel batchdist reduction	\$ 567,600	\$ 824,294
67	Asphalt and Asphalt platform rehabilitation (continuing from 2012)	\$ 712,550	\$ 341,000
68	Equip authorization ISCIR for static equipment's (ISCIR RUPP 2016)	\$ 3,850,000	\$ 3,500,000
	<b>Petrochemicals Operational - Capital maintenance</b>	<b>\$ 1,685,298</b>	<b>\$ 495,783</b>
69	Thermal insulation rehabilitation	\$ 516,780	\$ 355,791
70	Technical Expense for V3	\$ 55,000	\$ 50,000
71	Monitoring and diagnosis system for K 101 si K 102 hypercompressors in 1.0PI plant	\$ 1,014,000	\$ 90,000
	<b>VEGA</b>	<b>\$ 12,481,638</b>	<b>\$ 7,432,843</b>
	<b>VEGA Development</b>	<b>\$ 640,000</b>	<b>\$ 233,000</b>
72	Replacement plates heat exchanger with welded plates heat exchanger	\$ 200,000	\$ 182,000
73	Replacement of 140-C1 and 140-C2 coloumns	\$ 440,000	\$ 50,000
	<b>VEGA Operational</b>	<b>\$ 11,841,638</b>	<b>\$ 7,199,843</b>
	<b>VEGA Operational - Operational support</b>	<b>\$ 233,600</b>	<b>\$ 213,000</b>
74	Reducing technological consumption in Ramp	\$ 172,450	\$ 111,500
75	Savings to operate centrifugal pumps in AFP	\$ 111,150	\$ 101,500
	<b>VEGA Operational - Compliance</b>	<b>\$ 9,768,998</b>	<b>\$ 3,856,991</b>
76	Firefighting and fire prevention system	\$ 147,100	\$ 124,616
77	VEGA Vapor recovery system at railway loading point	\$ 1,315,000	\$ 1,125,401
78	Hexane technological platform consolidation	\$ 366,800	\$ 14,013
79	Upgrading retention dams system in the AFP tank park	\$ 654,420	\$ 128,858
80	Authorization operating minimal hours as PFR1/2010	\$ 63,850	\$ 33,355
81	Increase security level in VEGA Platform	\$ 913,550	\$ 832,373
82	Safety Package in Refinery Platform Vega	\$ 371,358	\$ 288,416
83	AF-ISCIR C6/2010 for Denormatization pipes	\$ 638,300	\$ 308,717
84	AF-ISCIR C10/2010 for CT pipes	\$ 154,610	\$ 126,259
85	Expansive (PEVIT) at Hexane, Rectification, CT and Compressors equipments	\$ 453,300	\$ 276,135
86	Vega Fiscal marker injection facility in Fuel Oil	\$ 166,900	\$ 134,796
87	Replaced steam system stifled house north gasoline pumps to reduce steam consumption and safety	\$ 77,140	\$ 70,400
88	Wastewater tank filling system	\$ 312,670	\$ 286,019
89	Expense on boiler CRI according to PT- C1/2010	\$ 133,600	\$ 106,833
	<b>VEGA Operational - Capital maintenance</b>	<b>\$ 9,817,440</b>	<b>\$ 3,111,671</b>
90	Re-survey and fixing pipe racks	\$ 980,770	\$ 752,169
91	Made electric lighting plant in North Park Tank	\$ 143,875	\$ 55,840
92	Replacement of the General Distribution Switchboards in Refining electrical stations	\$ 1,000,000	\$ 362,500
93	Replacing heat exchangers from the Heating Station (S6,S7,S9)	\$ 170,000	\$ 155,000
94	Equip the CF Ramp with electronic weighing systems	\$ 154,000	\$ 153,967
95	Replacement of RADAR measurement system at oxidation tanks	\$ 18,000	\$ 27,617
96	Replacement of forklift for Vega Refining	\$ 37,000	\$ 23,808
97	Replacing feeders the 20 Kv in the Vega Refinery	\$ 472,500	\$ 248,500
98	Rehabilitation CF-ramp for loading petroleum products	\$ 98,500	\$ 90,000
99	Repair R01-C1 condenser and 140-S5B coiled tubular	\$ 77,250	\$ 70,750
100	Replacement the pump at well 6	\$ 57,000	\$ 57,000
101	Rehabilitate tanks A28, A57, A58, A59	\$ 961,055	\$ 371,600
102	Replacement of the low pressure motor-compressor assemblies (K1, K2)	\$ 165,000	\$ 150,000
103	Rehabilitation B170 tank	\$ 179,890	\$ 163,900
104	Replacement the heating system from electric stations	\$ 136,100	\$ 124,000
105	Replace pump in Bitumen Unit	\$ 451,000	\$ 160,000
106	Rehabilitation of Vega Buildings	\$ 220,000	\$ 50,000
107	Rehabilitation of Vega Civil structure	\$ 220,000	\$ 50,000
108	Rehabilitation of Vega Roads	\$ 275,000	\$ 100,000
	<b>VEGA Non-Operational</b>	<b>\$ 22,000</b>	<b>\$ 20,000</b>
	<b>Petromidia Non-Operational - Administrative</b>	<b>\$ 22,000</b>	<b>\$ 20,000</b>
109	Repair locker building on trav 185	\$ 22,000	\$ 20,000

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