

Investment program 2014

2014 Investment program is structured in 3 sections, based on objectives and projects magnitude.

Total investments value allocated for **2014** is **35.811.099 USD**, according below table:

	Budget 2014
Petromidia, from which:	31.774.742 USD
Operational Support	4.496.650 USD
Compliance	15.147.981 USD
Capital maintenance	12.130.111 USD
Vega, from which:	4.036.357 USD
Operational Support	245.342 USD
Compliance	3.218.115 USD
Capital maintenance	572.900 USD
Total investments Rompetrol Refining	35.811.099 USD

Compliance

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

➤ **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.

➤ **New Unit for recovery and separation of C3+ from refinery fuel gas mixture**

Project environmental main objective is reducing the SO₂, thus reducing the CO₂ emissions and improving the energy consumption.

The light hydrocarbons from the reflux vessels of the distillation columns go to the Refinery fuel gas system but only after sweetening. These hydrocarbons contain more or less C₃₊ depending of operating conditions, mean pressure and temperature.

This fraction, C3+, is more valuable as LPG, petrochemical feedstock and gasoline component than as fuel gas.

Project benefits are below highlighted:

- The white products yield will increase with $\sim 1\%$ wt
- CO₂ emissions will decrease, with a potential estimated benefit of 0.5 mil\$/year
- The fuel gases resulted after extracted the heavier hydrocarbons which will be directed to the refinery heaters will be dried and with lower mercapthans content which will improve the heaters operation especially during winter period and SO₂ emissions reduction at furnaces
- Improving the energetic consumption with an estimated benefit of 55 k\$ per winter period.

➤ **Expire authorization ISCIR for static equipments (ISCIR 2014)**

Project consists in aligning to legislation requirements in terms of safety functionality of the refinery equipments. 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

➤ **Install a system to reduce particles from FCC unit emissions to stack.**

The project consists in mounting a system (ESP: Electro-Static Precipitator) for catalyst particles reduction from flue gases on stack in Fluid Catalytic Cracking Unit. Finalization of project is estimated for May 2014.

Operational Support

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:

➤ **Diesel delivery optimization for three direction simultaneously**

Starting with 2013, product quantities reached 2.3 millions of tons per year but products diversity will increase, according to Refinery strategic business plan. These aspects will surely affect Berth 9 capacities and will cause delays at diesel loaded ships with effect on Refinery income by paying penalties due to demurrages. In the actual situation, must be highlighted that, due to existing piping system, deliveries can be assured only by two paths simultaneously

Within project implementation, following benefits will be assured increased delivery flexibility by increasing diesel evacuation capacity through different delivery paths simultaneously.

Increasing the loading rate to Berth 9.

Avoid further diesel storage bottlenecks within increased product evacuation facilities.

➤ **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.

➤ **Increasing diesel loading capacity on RTCs**

Project objective is to increase Ramp Loading Capacity in order to offer the possibility to deliver higher quantity to DWS, as per Trading diesel sales plan.

Based on the ramp capacity and taking into consideration forecasted sales during peak season, starting with 2016, the gap between sales plan and ramp capacity, is 40 ktons/year of diesel which Refinery will not be able to load by RTCs.

By not having possibility to load through railcar ramp, refinery will be forced to direct this diesel quantity to the export market by ships which will lead to a lower margin of 40\$/t.

After project implementation, Railcar Ramp will have an increased capacity with 20 kt/month in order by assuring necessary loading capacity for domestic market.

➤ **Jet A1 (V28 tank) connecting to export delivery paths via Berth 9**

Project objective is to assure Jet A1 delivery facilities to Refinery Berth 9.

Given the fact that the rail and truck ramps capacities allow higher quantities that can be delivered through these loading points, domestic market is at its maximum limits, thus, possibility to increase market share is not possible. After analyzing Jet

delivery channels, it was concluded that the remaining quantity to be valued is to sell by ships through Berth 9 or to be used as component to produce Diesel Euro 5. Project benefits within ensuring JET A1 export facilities from V28 tank, via Berth 9 are:

- Increase profitability for Jet A1 product by ensuring facilities for export delivery via marine vessels.
- Align with market demands.

➤ Also, from operational support category, a very important place is held by **2015 Refinery General Turnaround** project, technological shut down for equipments periodic inspections, catalysts replacement, maintenance, etc.

For refinery, general shut down means a scheduled large-scale maintenance activity wherein an entire process unit is taken off stream for an extended period for comprehensive revamp and renewal. This operation involves a lot of preparations and requires many precautions, especially at during startup.

For proper refinery equipment reliability, once at 5 years, according to best practices, it is mandatory to perform mechanical verifications, equipment checks and internal inspection.

To reach refinery goal by having a high mechanical availability, refinery must have high reliability at low cost. This can be assured only by having periodically refinery turn around. According to Solomon statement, each 1% increase in mechanical availability can translate into a 10% reduction in maintenance cost, that's why refinery should follow its strategy to reach its objective.

As per refinery scheduled turnaround, Rompetrol followed in the last years, same approach in order to keep refinery reliability at its best value.

The Refinery General Shutdown scheduled for 2015 will take into consideration a series of cyclical activities, such as: regeneration of catalyst and replacement of catalyst (procurement and executing of the mechanical works), the inspections activities from furnaces and dynamic strategic equipment, but also the activities which occur after the execution of the technological process such as: mechanical works to heat exchangers with problems (dismantling or mounting, inspections, washing the tube bundle, pressure tests) the mechanical works to safety valves with problems (dismantling/mounting, inspections, tests) and projects type Capital Maintenance.

Within this project, the benefits are as follows:

1. Make plant safe to operate till next planned shutdown;
2. Improve efficiency of plant within high mechanical availability;
3. Reduce routine maintenance costs.
4. Perform Regulatory Inspection.
5. Increase reliability / availability of equipment during operation
6. Maintain Refinery at its nominal capacity.
7. Complete corrective/preventive maintenance.
8. Achieve 96.5 % mechanical availability after restarting the plants

P&E Director
CRISTIAN BOLOHAN



CAPEX PLAN 2014 BU REFINING

Nr. crt.	Project Name	Total Project estimated Budget	Approved Budget for 2014 (excluding RIS profit)
	Refining	\$ 163,220,541	\$ 35,811,099
	Petromidia	\$ 152,902,296	\$ 28,280,322
	Petromidia Operational	\$ 152,752,296	\$ 28,130,322
	Petromidia Operational - Operational support	\$ 15,776,695	\$ 4,570,845
1	Gasoline flow rate increasing to ships (continuing from 2012)	\$ 1,190,409	\$ 46,369
2	Diesel delivery optimization for three direction simultaneously	\$ 937,350	\$ 777,500
3	Rehabilitation of IPPA facility	\$ 2,740,628	\$ 200,000
4	Jet A1 (V28 tank) connecting to export delivery paths via Berth 9	\$ 3,838,600	\$ 2,130,000
5	Raffinate/gasoline and Jet/diesel loading segregation at Railcar Ramp (Line 17)	\$ 1,054,800	\$ 240,000
6	New loading facility for diesel in Railcar Ramp (increase up to 165kT) (Line 18)	\$ 1,691,700	\$ 350,000
7	Install 2 (two) sws condensate pumps to route the condensate from 313V-V3 to SWS feed line	\$ 298,980	\$ 26,800
8	313V-C1	\$ 41,800	\$ 38,000
9	Supplying and installing meters on the inlet pipes from Willacy Unit centrifuges	\$ 872,300	\$ 40,000
10	Revamp and automation meteo pumping stations (2 pumping stations)	\$ 329,700	\$ 172,630
11	Returned condensate system rehabilitation	\$ 77,550	\$ 70,500
12	Forklift and sludge containers purchasing in Willacy Unit	\$ 2,526,636	\$ 318,826
13	G1 section 1 pumping station modernization	\$ 176,242	\$ 160,220
14	Chemical building for G1 Cooling Tower	\$ 47,692,841	\$ 12,650,685
15	Petromidia Operational - Compliance	\$ 11,151,120	\$ 3,112,041
16	Install a system to reduce particulates emissions to the stack in FCC unit (continuing from 2012)	\$ 608,520	\$ 154,200
17	Fiscal marker injection facility in Fuel Oil	\$ 141,350	\$ 126,300
18	Fiscal measurement utilities for third parties	\$ 414,500	\$ 378,200
19	LPG Fiscal Measurement to Rompetrol Gas	\$ 462,000	\$ 420,000
20	Fire-fighting Water Main Replacement, section A-P, section 125-128 (continuing from 2013)	\$ 56,950	\$ 51,850
21	Directing pigabile discharge valves in V1, V2 vessels	\$ 671,000	\$ 521,125
22	Safety Package in Refinery Platform	\$ 304,940	\$ 277,218
23	FGHI pipe rack rehabilitation	\$ 165,000	\$ 150,000
24	Expertise of the utilities network pipe racks	\$ 45,980	\$ 41,800
25	135 C1- C7-Seismic evaluation of columns foundations (not C2)	\$ 233,641	\$ 212,401
26	De-clogging the lagoon no.1 entrance area	\$ 1,353,790	\$ 125,550
27	V26/2 Tank Revamp	\$ 1,350,800	\$ 600,000
28	Increase security level in Petromidia Platform - Refinery Plant	\$ 24,032,650	\$ 380,000
29	New Unit for recovery and separation of C3+ from refinery fuel gas mixture	\$ 6,700,600	\$ 6,100,000
30	Expire authorization ISCIR for static equipment's 2014	\$ 89,282,760	\$ 10,908,792
31	Petromidia Operational - Capital maintenance	\$ 1,095,600	\$ 467,254
32	180 M16-Storage tank rehabilitation (continuing from 2011)	\$ 1,199,033	\$ 680,000
33	Capital maintenance at railway Line no 15 (continuing from 2013)	\$ 47,960	\$ 32,300
34	REHABILITATION STATIC EQUIPMENT FOR REFINERY- Section II	\$ 446,070	\$ 391,718
35	Replace bundle 180 S1A	\$ 366,300	\$ 333,000
36	Replacement tubes bundles heat exchangers 130 S3B and 130 S6, RC plant	\$ 369,600	\$ 336,000
37	Replacement tubes bundles heat exchangers 120 S1A and 120 S9, HB plant	\$ 127,600	\$ 116,000
38	Replacement cannular bundle heat exchanger 125 S4D	\$ 165,000	\$ 150,000
39	Replacement of the old railway weighbridge-railway line no 4 (zone CFU)	\$ 401,500	\$ 365,000
40	General overhaul for power transformers - 3 pieces (SRA 2 - Trafo 2 si SRA 4 - Trafo 1 si 2)	\$ 790,000	\$ 720,000
41	Homogenizers for waste water treatment unit 103/9	\$ 145,200	\$ 124,000
42	Replace the waste water pipe lines metalical supports (RR - WWTP estacades)	\$ 23,100	\$ 21,000
43	Precision measurements by surveying in plants MHC, FH2, NEW SRU, NEW FLARES	\$ 417,160	\$ 265,100
44	T102 Tank Capital Repair (continuing from 2013)	\$ 2,480,620	\$ 234,018
45	Rehabilitation of C100 and DV20 tanks and relocation to other storage and delivery paths	\$ 365,860	\$ 322,600
46	Bz63 - tank rehabilitation and radar mounting	\$ 7,336,380	\$ 1,598,365
47	100 T3 tank rehabilitation	\$ 39,345	\$ 35,850
48	Replace steam heating system at SRM V1 system with electrical heating	\$ 640,000	\$ 148,600
49	B9 Tank Rehabilitation	\$ 510,692	\$ 177,000
50	P48 tank rehabilitation (continuing from 2013)	\$ 1,072,225	\$ 357,616
51	M90 Tank Rehabilitation	\$ 281,115	\$ 81,820
52	T2-417E Tank Rehabilitation	\$ 2,064,900	\$ 53,000
53	Replacement 100 A1, DAV plant	\$ 874,300	\$ 796,000
54	Replacement 100 A2, DAV plant	\$ 53,264,010	\$ 1,978,792
55	Refinery 2015 General Turnaround	\$ 707,015	\$ 183,000
56	B52 tank rehabilitation (continuing from 2013)	\$ 14,052,175	\$ 940,759
57	Unexpected capital maintenance	\$ 150,000	\$ 150,000
58	Petromidia Non-Operational	\$ 150,000	\$ 150,000
59	Petromidia Non-Operational - IT	\$ 150,000	\$ 150,000
60	Upgrade Pims	\$ 4,297,474	\$ 3,494,420
61	Petrochemicals Operational	\$ 3,857,474	\$ 3,122,140
62	Petrochemicals Operational - Compliance	\$ 36,300	\$ 49,250
63	Reducing noise level for the equipments belonging HDPE, PP, LDPE units - study (continuing from 2012)	\$ 506,684	\$ 238,890
64	Piping replacement: T 51-2-25C, 043-13003A-100-PL-C40C, 045-13001A-150/80-PL-C40C2 and 80-P-1020-C25C2 pipe repair	\$ 2,192,900	\$ 2,000,000
65	NDT 2014 RPP	\$ 422,400	\$ 384,000
66	Angel hair/dust reduction	\$ 369,190	\$ 150,000
67	Increase security level in Petromidia Platform - Petrochemicals Plant	\$ 330,000	\$ 300,000
68	Safety Package in Petrochemical Platform	\$ 440,000	\$ 372,280
69	Petrochemicals Operational - Capital maintenance	\$ 440,000	\$ 372,280
70	Rehabilitation of cryogenic insulation (storage-unloading line-berth 9)	\$ 6,020,771	\$ 4,036,357
71	VEGA Operational	\$ 376,081	\$ 245,342
72	VEGA Operational - Operational support	\$ 74,697	\$ 60,257
73	Delivery optimization for SE solvents	\$ 106,810	\$ 20,650
74	Rehabilitation of existing electrical heating system and expanding this system	\$ 50,699	\$ 33,300
75	Assembly frequency converters on P6R pumps and P2R	\$ 143,875	\$ 131,135
76	Made electric lighting plant in North Park Tank	\$ 286,110	\$ 255,900
77	VEGA Operational - Compliance	\$ 439,450	\$ 376,300
78	Revamp 30/60 storage tank A70 (continuing from 2013)	\$ 63,250	\$ 57,500
79	Mount floating membranes on tanks	\$ 135,000	\$ 87,040
80	Rehabilitate Ag4v tank	\$ 144,100	\$ 36,800
81	Upgrading B170 tank	\$ 35,200	\$ 22,000
82	Firefighting and fire prevention system	\$ 1,315,000	\$ 1,082,775
83	Equip the CF Ramp with a towing system similar to that of PEM	\$ 60,300	\$ 55,300
84	VEGA Vapor recovery system at railway loading point	\$ 442,500	\$ 406,500
85	Replacement Lighting instalataion at C1 and C2 columns-Rectifications	\$ 366,800	\$ 335,000
86	AF ISCIR metal pipes - Rectification Unit- according to PT C6/2010	\$ 913,550	\$ 400,000
87	Hexane technological platform consolidation	\$ 113,000	\$ 103,000
88	Increase security level in VEGA Platform	\$ 1,330,430	\$ 572,900
89	VTU-Boilers 200-CA2- according to PT C1/2010	\$ 980,770	\$ 300,000
90	VEGA Operational - Capital maintenance	\$ 217,000	\$ 197,600
91	Re-survey and fixing pipe racks (continuing from 2012)	\$ 18,480	\$ 8,500
92	Revamp of cells as S1, S2 and The separator 20kV at power station PA	\$ 58,960	\$ 38,600
93	P6/1 and P6/2 pumps replacement	\$ 55,220	\$ 28,200
94	Rehabilitation technological sewerage		
95	Replacing PETROCOUNT fiscal system		


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