

Investment program 2019

2019 Investment program is structured in 3 sections, based on objectives and projects magnitude. Total investments value allocated for 2019 is 63,822,404 USD, according below table:

	Budget 2019
Petromidia, from which:	50,551,766 USD
Development	6,313,127 USD
Operational Support	3,474,287 USD
Compliance	14,282,567 USD
Capital maintenance	26,481,785 USD
Vega, from which:	8,049,382 USD
Development	80,118 USD
Compliance	4,143,247 USD
Capital maintenance	3,826,017 USD
RIS Profit	5,221,256 USD
Refinery Total Investments	63,822,404 USD

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:

❖ Increase railway diesel loading capacity

Project consist in upgrading the CF ramp for diesel loading / unloading including: 2 new bottom loading / unloading arms for diesel, one for each loading point and 2 new diesel pipeline sections for connecting the new pump to the new CF ramp - with partial re-use of an existing DN 250 pipeline and also new diesel collector (for the new loading arms) at CF ramp and connections to the loading arms; new pump for diesel loading activity with a nominal flow rate of 250 mc/h, powered through a frequency converter in order to allow the loading of one/two RTCs; will be located on the pump platform from Objective 431; new pump for diesel unloading activity and new connection pipelines. The pump will be mounted in fuel oil ramp, on a common platform with the fuel oil unloading pump; 2 new unidirectional skids for diesel (fiscal) and degassers for taking thermal dilatations (separate from the one included in the skid); Needed utilities stations.

Following project implementation, the loading capacity of diesel for domestic market on the Automated Ramp will be increased with 15 kt/month;

❖ Maximize usage of 185 unit condensate thermal potential

The project main objective consist in increasing Refinery Energy efficiency by:

- reducing EII with 0.29 points,
- by maximizing usage of condensate from amine unit.

❖ **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.

Compliance

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

❖ **Expire authorization ISCIR for static equipment (ISCIR 2019-2020)**

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. By project implementation, the following benefits are expected:

- 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

The project main objective consist in 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 N years of service, as well as repair or elimination of the faults which will appear after the checks.

❖ **Fire-fighting Water Main Replacement section T003**

- Increase the safety level for personnel and assets.
- Increase the level of prevention and protection in case of emergency situations (fire) by providing the necessary operating conditions for firefighting system: 12barg in standby mode and 16barg in case of fire.

Capital Maintenance

❖ Rehabilitation tank T103-417E

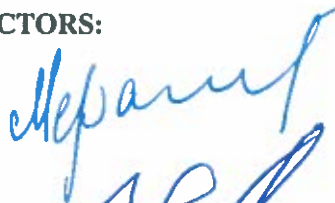
- To have the tank fully operational from technological and safety point-of-view by ensuring the needed facilities for proper storage.
- Repair T103 tank and observing the legislation in force (893/2005 HG) concerning the limitation of volatile compounds.
- Reduce gasoline losses through evaporation.

❖ Rehabilitation tank C100 and connection to delivery paths

- Ensuring the needed facilities for safe operation of the C100 tank from technological and safety point-of-view
- Running with Diesel In Line Blending Unit through automation and use in a proper operational way diesel component from HPM, HPR, HDV and MHC units
- Increase storage capacity for diesel component and finished product in order to ensure operational and logistic flexibility and to operate the refinery at a processing capacity of 5 mil tons / year.

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PPO Manager

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DMCI Manager

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PLAN CAPEX 2019 BU REFINING

Nr. crt.	Project Name	Estimated Total Project Budget	2019 Budget (including RIS profit)
	Refining	\$ 229.589.925	\$ 63.822.404
	Petromidia	\$ 179.995.927	\$ 50.986.132
	Petromidia Development	\$ 14.117.502	\$ 6.944.400
1	100C1 Atmospheric distillation column- increase heat removal from gasoil pumparound	\$ 2.494.378	\$ 1.272.598
2	Revamp Fuel Oil ramp to relocate black products from automated ramp	\$ 2.381.930	\$ 1.687.488
3	Increase railway diesel loading capacity	\$ 637.837	\$ 785.975
4	Improve 180C2 Coker fractionator operation by installing Light Coker GasOil pumparound	\$ 2.169.031	\$ 583.606
5	Increase Coker severity by introducing HCGO recycle	\$ 355.550	\$ 391
6	New Condensate pipeline between G291AB condensate pumps from Petrochemicals and UTM battery	\$ 882.745	\$ (4.585)
7	Modernization of in line blending unit-Implementation	\$ 1.998.046	\$ 1.169.572
8	Increase FCC feed preheat 138FE2	\$ 828.784	\$ 32.825
9	Maximize usage of 185 unit condensate thermal potential	\$ 1.073.249	\$ 437.529
10	New HP pipelines 36 barg between Ref UTM limit-node A and RPP node H	\$ 1.295.953	\$ 979.000
	Petromidia Operational	\$ 160.718.159	\$ 40.863.944
	Petromidia Operational - Operational Suport	\$ 8.898.780	\$ 3.771.793
11	MHC Debottleneck/VDU	\$ 5.390.000	\$ 2.090.000
12	Improving the operability of the hexane ramp	\$ 463.185	\$ 86.350
13	Increased capacity of storing gasoline RC in 343 objectives through reconfiguration of the Park and fa	\$ 3.045.596	\$ 1.595.442
	Petromidia Operational - Compliance	\$ 42.109.340	\$ 9.008.589
14	Vary-frequency converters for flow adjustments for pumps motors (instead of recalculating loop) -3	\$ 709.772	\$ 8.896
15	Detailed Design Engineering For Fire-Fighting System Rehabilitation	\$ 986.871	\$ 499.366
16	Fire-fighting Water Main Replacement 2019	\$ 935.000	\$ 935.000
17	Rehabilitation of civil protection buildings	\$ 951.442	\$ 76.788
18	Unclogging channel suction- Tasaul source	\$ 356.462	\$ 354.582
19	Chemical building for G1 Cooling Tower	\$ 364.024	\$ 217.800
20	Expire authorization ISCIR for static equipment's (ISCIR 2017-2018 PEM)	\$ 11.453.750	\$ 90.202
21	Expire authorization ISCIR for equipment's with due date in 2019, ISCIR 2018 PEM	\$ 4.895.290	\$ 723.195
22	Expire authorization ISCIR for static equipment's (ISCIR PEM 2019-2020)	\$ 20.422.900	\$ 5.023.000
23	Install online wastewater parameters monitoring system	\$ 438.195	\$ 402.366
24	Centralized system of warning and alarm in Petromidia Platform	\$ 543.950	\$ 81.950
25	Restoring the storage capacity and operability of the warehouse for acids and bases	\$ 791.561	\$ 85.314
26	Replace Low NOx burnes at 130H1,H2,H3, Reformer Catalytic Unit	\$ 2.499.065	\$ (13)
27	Mounting online analyzers to monitor gaze arse at FCC, FH2 and SRU	\$ 470.477	\$ (11)
28	LOTO implementation in Petromidia	\$ 481.971	\$ 413.819
29	Drainage pumping station automation (5 pumping stations)	\$ 112.182	\$ 96.337
	Petromidia Operational - Capital maintenance	\$ 109.710.038	\$ 28.083.562
30	Refinery 2020 General Turnaround	\$ 33.590.700	\$ 2.121.246
31	Rehabilitation of compressors 352 K111, K511, HPP Unit	\$ 1.375.000	\$ 1.375.000
32	Emergency works for unexpected capital maintenance 2019	\$ 1.535.411	\$ 1.495.412
33	Rehabilitation of fuel oil ramp facilities	\$ 936.150	\$ 804.600
34	Replacement of VRU system at IPPA and CF Ramp	\$ 1.193.414	\$ 1.116.287
35	Replace Refinery static equipment 2019	\$ 533.682	\$ 534.250
36	Replacement of tubular bundles for 122S3C and 122S100 heat exchangers	\$ 173.193	\$ 173.193
37	Replace caustic tank 138-Me-V14	\$ 165.000	\$ 165.000
38	Rehabilitation and reconfiguration of the field equipment's from In Line Blending System	\$ 1.281.867	\$ 1.144.532
39	LPG recovery from DCU gases	\$ 5.212.253	\$ 4.465.548
40	Replace the strategical safety valves with double safety valves	\$ 202.840	\$ 202.840
41	Crude oil pipeline rehabilitation between 50.000 storage tanks and DAV plant	\$ 180.145	\$ 180.229
42	Replace field operators cabines	\$ 160.000	\$ 176.000
43	Replace ignition and surveillance system at 138FH4 CO Boyler, FCC Unit	\$ 530.825	\$ 74.536
44	Replacement of reactor 130R1R2R3	\$ 3.113.196	\$ 2.106.007
45	Replacement of tubular bundle 100S12 heat exchanger, DAV Unit	\$ 56.557	\$ 56.557
46	Rehabilitation of electrical connectors for fuel oil pipes, Ob. 415	\$ 165.000	\$ 55.000
47	Replace pumps 715SP5R and 715SP6R	\$ 253.681	\$ 53.932
48	Repair work on tanks TL70, V26/1B and V27	\$ 654.604	\$ 200.234
49	Replacement of the actual carpet and vertical blinds in CCR	\$ 85.822	\$ 94.404
50	Increasing Biodiesel unloading capacity through CF ramp	\$ 880.000	\$ 198.000
51	RBI software implementation for HB plant	\$ 684.300	\$ 441.754
52	Purchase reformer recycle hydrogen online analyzer for molecular weight	\$ 72.727	\$ 64.021
53	Rehabilitation parking on waiting and exit area from IPPA	\$ 462.245	\$ 3.994
54	Refinery 2018 Shutdown	\$ 17.740.685	\$ 779
55	Refinery 2018 Catalyst Change	\$ 2.877.000	\$ 256
56	Up-grade the existing acces control system - PEM	\$ 12.750	\$ 14.025
57	Install acces control equipment for car drivers - PEM	\$ 29.750	\$ 32.725
58	Rehabilitation of Roads 2018-2021	\$ 127.500	\$ 140.250
59	Replace old 6 KV swithces and relays compartments in power station SRA2-4, 301 Nitrogen Plant	\$ 1.100.000	\$ 330.000
60	Replacement for all old turnstiles with new full-size turnstiles - PEM	\$ 25.500	\$ 28.050
61	Rehabilitation of utilities network piperacks, section CDEFU1	\$ 1.310.595	\$ 297.000
62	Replacement of Convective System 138FH4 CO Boiler, FCC Unit	\$ 3.705.546	\$ (1.406)
63	Installing a low pressure steam reboiler instead of the current means of bringing heat to the stripping	\$ 176.636	\$ 42.317
64	Replacement of pumps P121-P6A,R (HPR) and pumps P122-P5A,R (HPM) with two new pumps servir	\$ 423.500	\$ 84.150
65	Rehabilitation of C100 tank and connection to delivery paths	\$ 3.730.232	\$ 2.952.025
66	Optimization of NSRU operation	\$ 335.626	\$ 57.168
67	Replacement of absorbtion column 185C1	\$ 880.000	\$ 74.800
68	Rehabilitation V25/3 tank	\$ 494.740	\$ 97.294
69	G3 cooling tower PI system implementation	\$ 74.917	\$ 34.236
70	Reconstruction tank T103 and upgrade new firefighting system facilities and infrastructure	\$ 1.064.596	\$ 382.864
71	Purchase shells of heat exchangers 180S5, 180E100, 180E101, 180E102 and tubes bundle of heat ec	\$ 314.600	\$ 276.451
72	Reconstruction and upgrade of the slop oil tank S125 and modernization of the afferent firefighting fa	\$ 690.833	\$ 677.246
73	Replacement crossover and inlet system, HPP unit	\$ 1.595.926	\$ 214.416
74	Improvement LPG recipes and transfer between spheres, loading ramp, Berth 9A	\$ 550.000	\$ 224.400
75	Refinery 2019 Catalyst Change	\$ 1.714.560	\$ 1.616.000
76	Replace 0.4kv equipment TGD 107/1 si TGD 109/1-Delay Coker Unit and AFPE	\$ 1.268.300	\$ 138.161
77	FCC Unit Rehabilitation	\$ 1.268.300	\$ 1.114.464
78	Rehabilitate LPG Ramp with mounting articulated loading arms on posts 7 and 10	\$ 7.944.189	\$ 157.339
79	100 T3 tank rehabilitation	\$ 6.755.148	\$ 1.795.976

80	Petromidia Non-Operational	\$ 5.160.267	\$ 3.177.788
81	Petromidia Non-Operational - IT	\$ 4.660.267	\$ 2.627.788
82	APC in all Refinery units	\$ 3.964.001	\$ 1.950.036
83	Implementation of electronic permit to work (EPTW)	\$ 321.000	\$ 321.000
84	Replace electric infrastructure Petromidia Data Center	\$ 76.016	\$ 83.618
85	Automation of evidence for pressure vessels, boilers, pressure pipes and lifting equipment	\$ 228.000	\$ 228.000
86	IT non-standard equipments 2019	\$ 17.000	\$ 17.000
87	Replace UPS for PEM IT equipment's	\$ 21.250	\$ 21.250
88	Implementation soft for weighing automatization on Ob431	\$ 33.000	\$ 6.884
89	Petromidia Non-Operational - ADMINISTRATIVE	\$ 500.000	\$ 550.000
90	Administrative building rehabilitation, PEM Platform	\$ 100.000	\$ 110.000
91	New ventilation system-for RQC	\$ 400.000	\$ 440.000
92	Petrochemicals	\$ 22.346.439	\$ 4.030.555
93	Petrochemicals Operational	\$ 22.346.439	\$ 4.030.555
94	Petrochemicals Operational - Compliance	\$ 17.135.418	\$ 2.209.269
95	Expire authorization ISCIR for static equipment's (ISCIR 2019-2020 PET)	\$ 6.463.045	\$ 1.526.000
96	Expire authorization ISCIR for static equipment's (ISCIR 2018-2019 PET)	\$ 2.462.783	\$ 684.734
97	Expire authorization ISCIR for static equipment's (ISCIR 2016-2017 PET)	\$ 8.209.590	\$ (1.465)
98	Expire authorization ISCIR for static equipment's (ISCIR 2016-2017 PET)	\$ 709.286	\$ (1.465)
	Petrochemicals Operational - Capital maintenance	\$ 5.211.021	\$ 1.821.286
93	Bottom valves replacement of vessels V108A-E and V107, LDPE plant	\$ 1.508.997	\$ 148.168
94	Rehabilitation of propylene tank F911	\$ 486.719	\$ 454.215
95	Increase capacity for D209 column by increasing the Propylene polymer grade flow with a booster pu	\$ 1.544.334	\$ 77.719
96	Replace tubes for Intercoolers E103 and E104, LDPE Unit	\$ 624.448	\$ 393.685
97	Petrochemicals 2020 General Turnaround	\$ 628.452	\$ 747.500
98	Monitoring and diagnosis system for K 101 si K 102 hypercompressors in LDPE plant	\$ 418.072	\$ (0)
	VEGA	\$ 27.247.559	\$ 8.805.717
	VEGA Development	\$ 1.180.301	\$ 88.118
99	Jet working point in Vega	\$ 1.180.301	\$ 88.118
	VEGA Operational	\$ 26.067.258	\$ 8.717.599
	VEGA Operational - Compliance	\$ 12.980.550	\$ 4.533.246
100	Mount floating membranes on hexane tank T7, T8, A64, A65, Vega Platform	\$ 463.276	\$ 424.252
101	VEGA Vapor recovery system at railway loading point	\$ 1.907.601	\$ 989.141
102	Replacement of 140-C1 and 140-C2 coloumns	\$ 1.529.204	\$ 71.529
103	Wastewater tank filling system	\$ 482.584	\$ 20.000
104	Expertise (PEVIT) for pressure equipments and metallic pipes authorized (ISCIR 2018)	\$ 868.734	\$ 130.836
105	Expertise (PEVIT) for pressure equipments and metallic pipes authorized (ISCIR 2020)	\$ 1.607.100	\$ 110.174
106	New Boiler at heating station Vega	\$ 1.689.632	\$ 1.611.861
107	Install mobile and adjustable bridge in unloading fuel oil ramp	\$ 264.449	\$ 249.072
108	Purchased incinerator in Bitumen unit	\$ 3.681.204	\$ 451.962
109	Vapor recovery system at Auto loading points	\$ 486.768	\$ 474.418
	VEGA Operational - Capital maintenance	\$ 13.086.707	\$ 4.184.353
110	Replacement plates heat exchanger with welded plates heat exchanger.	\$ 155.487	\$ (2.188)
111	Replacement of the General Distribution Switchboards in Vega Refining electrical stations (PT2)	\$ 424.541	\$ 401.579
112	Replacing heat exchangers from the Heating Station (S6,S7,S9)	\$ 187.991	\$ 6.325
113	Consolidation CF ramp	\$ 169.091	\$ 9.013
114	Rehabilitate tanks A52	\$ 447.607	\$ 407.288
115	Rehabilitate tank A63	\$ 772.069	\$ 658.608
116	Replacement of the high pressure motor-compressor assemblies (Resita 1, Resita 2, Resita 3)	\$ 383.258	\$ 383.258
117	Replacement of the low pressure motor-compressor assemblies (K1, K2)	\$ 104.851	\$ (2.483)
118	Replacement of the motor-pump assemblies with higher energy performance aggregate (cooling tow	\$ 316.800	\$ 13.745
119	Vega Corlatesti sewerage system pipe line replacing	\$ 297.335	\$ 152.483
120	Replace pump in Bitumen Unit	\$ 153.580	\$ 12.505
121	SCADA electric	\$ 335.815	\$ 316.057
122	Vega Shut Down 2018 (for mounting 140C1-C2)	\$ 968.845	\$ 378.838
123	Vega Shutdown 2020	\$ 2.773.100	\$ 220.000
124	Purchase a pump for asphalt mass evacuation from VD unit	\$ 342.990	\$ 173.704
125	Consolidation of the CT Building and annexes	\$ 93.337	\$ 93.337
126	Rehabilitation of Vega Buildings (2018-2023)	\$ 1.265.000	\$ 55.000
127	Replace on-line analyzer for flue gases CT Vega	\$ 261.113	\$ 259.520
128	Replaced heater in VD unit	\$ 2.997.292	\$ 338.704
129	Replace heat exchangers 101-S1 and 101-S2, Vega DV Unit	\$ 227.407	\$ 66.059
130	Optimize heating system for modified bitumen at BA1, BA2, BA3 tanks	\$ 55.000	\$ 46.750
131	Optimize heating system for raw material modified bitumen at B164 tank	\$ 18.700	\$ 4.610
132	Optimize RSE 65/80 loading at barrel ramp in Dearomatization unit	\$ 27.500	\$ 23.375
133	Replace 101-B47 tank	\$ 165.000	\$ 73.059
134	Connect A35 tank to 101-PS1 pump	\$ 11.000	\$ 6.010
135	Rehabilitate B48 tank	\$ 33.000	\$ 28.050
136	Rehabilitate B72 tank	\$ 33.000	\$ 28.050
137	Rehabilitate B12 tank	\$ 33.000	\$ 28.050
138	Replace gasoline pump in the North Pump House	\$ 33.000	\$ 5.049

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