

**Investment program 2021**

2021 Investment program is structured in 3 sections, based on objectives and projects magnitude. Total investments value for **2021** is **38,547,246 USD**, according below table:

	Budget 2021
Petromidia, from which:	32,725,893
Development	103,730
Operational Support	1,959,520
Compliance	4,691,463
Capital maintenance	25,971,180
Vega, from which:	5,821,353
Compliance	1,232,000
Capital maintenance	4,589,353
Refinery Total Investments	38,547,246

Development

This category includes projects whose implementation leads to a change in the technological process, resulting an increase of production capacity compared to the current status.

From this category, a very important projects is 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:

- **Side extruder for masterbatch additivities**

Project business objective consist in:

- Increase of the type of grades to respond to the market demand.
- Development of new grades for new markets.
- Improving of a LDPE quality, by reducing of volatile contents.
- Reducing technological risks.
- Enhance staff protection by reducing risk.

- **Swing HDPE to PP**

It is a strategic project who has the goal to convert existing HDPE plant to produce both polypropylene and high-density polyethylene, giving more flexibility on propylene side avoiding remaining captive to Oltchim, buyer of extra propylene production from FCC.



Additionally, it will enhance the propylene value by producing PP, instead of selling it as it is by polymerization to polypropylene.

Following benefits of the project can be considered:

- Increase production capacity on the polypropylene range by converting the HDPE plant to PP, covering the entire production of propylene supplied by the FCC.
- Add value to propylene by producing PP, which has a better market quotation.
- Split of PP production in two units conducts to more flexibility of production process, giving possibility to increase the quantities of special grades with add value.
- based on market requests, the unit will be able to also produce HDPE grades.

The project is under developing in two stages: basic Design & Detail Design Elaboration and project implementation. Currently, the project is in basic Design & Detail Design Elaboration, following to be reassessed in April 2021 when the basic design will be finalized.

Compliance

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

- **Expire authorization ISCIR for static equipment (ISCIR 2021-2022)**

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 Package 2021 sections T031, T054, T056, T059**
 - 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.
 - For 2021 the rehabilitation program will be continued with a package of 1,412 m, in which 4 sections will be replaced T031, T054, T056 and T059.

Capital Maintenance

- **Reconstruction tank T103 and upgrade new firefighting system facilities and infrastructure**
 - 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.
 - 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.
 - Ensure necessary flexibility for storing different grades of gasoline. Currently there is a high number of gasoline grades stored in a low number of tanks which may cause delivery giveaways.
- **Slow Down 2021 – RC, HPM and CX Units Shut Down**
 - The project benefits consist in:
 - Maintain PEM Refinery at the highest level in terms of mechanical availability, until 2022 next scheduled SD.
 - Increase operational efficiency of repaired, washed and inspected equipment
- **Refinery 2021 Catalyst Change/ 2021 DHT Catalyst Replacement**
 - The benefits from project implementation are:
 - Operate 122-DHT unit at maximum capacity (130 m³/h) in order to obtain required quality of hydrotreated diesel (sulphur content lower than 10 ppm).
 - Running refinery at nominal run rate.
 - The business objective consists in:
 - Maintain Refinery at its nominal monthly capacity.
 - Obtain EURO 5 diesel component from 122-DHT Unit.



- **Replace heater in VD unit, Vega Platform**
 - The benefits estimated from project implementation consist in:
 - Reducing the specific consumption of utilities natural gas.
 - Increasing heater efficiency from 60% to 86-95%;
 - Reduced maintenance costs.
 - to meet the latest environmental standards, according to Environmental Integrated Accord laws.
 - Operation of the DV unit without constraints and increasing of production capacity from 125.000 tons/year to 165.000 tons/year and increasing of asphalt product from 107.000 tons/year up to 127.000 tons/year.

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PLAN CAPEX 2021 BU REFINING

Nr. crt.		Project Name	Total Project estimated Budget	2021 Budget
		Refininig	\$ 121,867,659	\$ 38,547,245
		Petromidia	\$ 105,193,957	\$ 31,298,863
		Petromidia Operational	\$ 99,794,859	\$ 29,548,312
		Petromidia Operational - Operational Suport	\$ 11,218,070	\$ 1,959,520
1		Purchase of electronic block and detector of 180 R1 drume coker	\$ 2,090,000	\$ 400,400
2		Mild Hydrocracking Unit Revamp	\$ 4,398,070	\$ 747,100
3		Refinery dynamic equipment replacement	\$ 4,730,000	\$ 812,020
		Petromidia Operational - Compliance	\$ 15,381,630	\$ 4,267,963
4		Fire-fighting Water Main Replacement 2021	\$ 1,897,180	\$ 1,511,263
5		Expire authorization ISCIR for static equipment's (ISCIR 2021-2022 PEM)	\$ 13,200,000	\$ 2,530,000
6		VOC detection camera purchasing for PEM Refinery	\$ 127,700	\$ 127,700
7		Expertise and repair project for Utilities Piperacks - Spheres area	\$ 156,750	\$ 99,000
		Petromidia Operational - Capital maintenance	\$ 73,195,159	\$ 23,320,829
8		Tank DH24 rehabilitation	\$ 3,176,800	\$ 753,961
9		P49 tank rehabilitation	\$ 1,634,944	\$ 551,300
10		Rehabilitation tank 120-388 B9	\$ 1,486,000	\$ 660,000
11		Improve biodiesel unloading process by rehabilitation of dynamic weightscale from B area	\$ 110,000	\$ 149,600
12		Refinery 2021 Catalyst Change	\$ 1,894,417	\$ 1,800,000
13		Refinery 2022 Shutdown	\$ 17,600,000	\$ 261,980
14		Refinery 2021 Slowdown	\$ 1,388,020	\$ 1,388,020
15		Replace Refinery static equipment 2021	\$ 950,000	\$ 770,495
16		Repair work on tanks TL70, V26/1B and V27	\$ 654,600	\$ 470,000
17		Replacement of strategic equipment	\$ 6,000,000	\$ 1,650,000
18		Rehabilitation of PEM buildings	\$ 2,750,000	\$ 110,000
19		Preparing to 2024 general repair and 2020 partial repairs on H201 elements, HPP Unit	\$ 2,672,678	\$ 690,731
20		Rehabilitation tank 100 T6	\$ 6,050,000	\$ 2,200,000
21		Reconstruction tank T103 and upgrade new firefighting system facilities and infrastructure	\$ 1,367,860	\$ 1,224,602
22		Rehabilitation M92 tank	\$ 4,153,060	\$ 2,024,000
23		Modernization of the 185V22 fresh solution tank	\$ 350,000	\$ 350,000
24		Rehabilitation EB80 tank	\$ 772,664	\$ 550,000
25		Rehabilitation M95 tank AFPR	\$ 2,200,000	\$ 110,000
26		Expertise of DGRS piperacks lines DEA and MEA	\$ 55,000	\$ 29,700
27		Replace coke drilling-cutting system in the DCU unit	\$ 9,659,642	\$ 2,200,000
28		Emergency works for unexpected capital maintenance 2021	\$ 550,000	\$ 550,000
29		Unforeseen works 2021	\$ 550,000	\$ 550,000
30		Tubular bundle replacement at 313/V-S3	\$ 127,000	\$ 127,000
31		2 trucks vessels (one acid, one hipoclorite)	\$ 80,000	\$ 80,000
32		New pumps for DHT and KHT units	\$ 1,103,433	\$ 549,000
33		Replacement of absorbtion column 185C1	\$ 880,000	\$ 605,000
34		Replace drainage pumps SP II	\$ 275,000	\$ 275,000
35		Replaced LES (underground electrical line) 110kV in oil with dry cable between SRA and UT Mid	\$ 1,650,000	\$ 990,000
36		Replacement of electrical equipment in the power station 110 G1Towers; 6kV circuit breakers,	\$ 1,100,000	\$ 990,000
37		Rehabilitate actual Safety Induction Centre and new safety induction equipment	\$ 99,000	\$ 99,000
38		Replace the strategical safety valves with double safety valves	\$ 1,705,000	\$ 411,400
39		Up-grade the existing acces control system - PEM	\$ 150,040	\$ 150,040
		Petromidia Non-Operational	\$ 5,399,099	\$ 1,750,551
		Petromidia Non-Operational - IT	\$ 5,069,099	\$ 1,420,551
40		APC in all Refinery units	\$ 3,993,099	\$ 249,551
41		IT non-standard equipments 2021	\$ 30,000	\$ 30,000
42		Corrosion predict RT	\$ 306,000	\$ 306,000
43		TAS Infrastructure 2021	\$ 40,000	\$ 40,000
44		Replace Vblock Petromidia	\$ 700,000	\$ 700,000
45		Replace electric infrastructure Petromidia Data Center	\$ 95,000	\$ 95,000
		Petromidia Non-Operational - ADMINISTRATIVE	\$ 330,000	\$ 330,000
46		New ventilation system-for RQC	\$ 330,000	\$ 330,000
		Petrochemicals	\$ 7,298,250	\$ 1,427,030
		Petrochemicals Development	\$ 1,426,429	\$ 103,730
47		Side extruder for masterbatch additivation	\$ 1,426,429	\$ 103,730
		Petrochemicals Operational	\$ 5,871,821	\$ 1,323,300
		Petrochemicals Operational - Compliance	\$ 2,200,000	\$ 423,500
48		Expire authorization ISCIR for static equipment's (ISCIR 2021-2022 PET)	\$ 2,200,000	\$ 330,000
49		Safety Life Line for vertical equipment on Petrochemical (RPP)	\$ 203,500	\$ 93,500
		Petrochemicals Operational - Capital maintenance	\$ 3,671,821	\$ 899,800
50		Petrochemicals 2022 Shutdown	\$ 3,300,000	\$ 550,000
51		Regeneration of F211 AB dryers with nitrogen steam cracker	\$ 371,821	\$ 349,800
		VEGA	\$ 9,375,451	\$ 5,821,352
		VEGA Operational	\$ 9,375,451	\$ 5,791,352
		VEGA Operational - Compliance	\$ 2,090,000	\$ 1,232,000
52		Expertise (PEVIT) for pressure equipments and metallic pipes authorized (ISCIR 2022)	\$ 1,100,000	\$ 242,000
53		Purchased incinerator in Bitumen unit	\$ 990,000	\$ 990,000
		VEGA Operational - Capital maintenance	\$ 7,255,451	\$ 4,559,352
54		Vega Shutdown 2022	\$ 1,100,000	\$ 220,000
55		Rehabilitation of Vega Buildings (2018-2023)	\$ 1,265,000	\$ 99,000

56		Replaced heater in VD unit	\$	4,080,811	\$	3,544,712
57		Purchase equipment 140-V1, 140-V2	\$	180,000	\$	66,000
58		Tanks rehabilitation Vega	\$	110,000	\$	110,000
59		Replacing Petrocount systems at 4,5 and 10 loading posts	\$	249,700	\$	249,700
60		PI&D for AFP unit	\$	169,950	\$	169,950
61		Install acces control equipments in gate nr. 1 and nr. 2 and Headquarter building - VEGA	\$	99,990	\$	99,990
		VEGA Non-Operational - IT	\$	30,000	\$	30,000
62		VGA IT Non standard 2021	\$	10,000	\$	10,000
63		Purchase and install new backup system at Vega 2021	\$	20,000	\$	20,000

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