

Project / Description	Client	Year	NPS	Length Rating	Scope of Work	Product	Location	Software Adopted
Trecate Slug Catcher for Pipeline Displacement <i>Feasibility Study</i>	EXXONMOBIL	2019	-	-	Hydraulic calculation, plant configuration analysis, slug catcher preliminary design and design specification (Exxonmobil standard)	Crude Oil and Nitrogen	Italy	LedaFlow Owned VBA SW
Quiliano Depot Reverse Flow <i>Feasibility Study</i>	EXXONMOBIL	2019	-	-	Feasibility Study for emergency or displacement operation Hydraulic verification, plant configuration and process analysis	Crude Oil	Italy	LedaFlow Owned VBA SW
Fos Refinery Pipeline Network <i>Hydraulic Study</i>	EXXONMOBIL France	2019	4" to 34"	Total length 60 km (11 pipelines)	Hydraulic Studies of Fos refinery pipeline network Stady-state and Transient-state Analysis	Crude Oil, LPG, Propylene, Refined Products	France	AFT Impulse Owned VBA SW
Two New DN24" bi-directional pipelines <i>Hydraulic Study</i>	Repsol	2019	24"	3,6 km	Hydarulic Study for loading and un-loading configuration Steady-state and Transient-state Analysis	Crude Oil Virgin Naphtha	Spain	AFT Impulse Owned VBA SW
New water pipeline DN12" <i>Flow Assurance</i>	ENI Angola	2018	12'	15 km 300#	Flow assurance and feasibility study of a new pipeline (material and diameter selection, thickness calculation)	River Water	Angola	AFT Impulse Owned VBA SW
New TOC Hydrogen Pipeline <i>Feasibility Study</i>	ENI	2018	6"	3 km	Feasibility Study (Flow assurance, material and diameter selection, thickness calculation) Preliminary Pipeline Routing and TOC Metodology Cost estimation	Hydrogen	Italy	LedaFlow
Two Crude Oil Jetty Pipelines DN40"	SARLUX S.r.l.	2017 - 2019	40" - 42" Sealine	3 km 150#	Hydraulic Study, Basic and Detailed Engineering for the two new pipelines, cleaning specification for the two existing ones	Crude Oil	Italy	AFT Impulse Owned VBA SW
NPS 32" Genova - Sannazzaro <i>Nitrogen Displacement</i>	ENI	2018	32" Pipeline	90 km 600#	Pipeline Displacement Procedure, Pipeline Re-filling Proedure, On Site Activities	Crude Oil	Italy	LedaFlow Owned VBA SW
Jetty lines Porto Petroli di Genova <i>Hydraulic Study</i>	PORTO PETROLI DI GENOVA	2017-2018	10"-16"-20"-28" Pipeline	6 km up to 50 km 150#	Hydraulic Study, feasibility, detail desing concernig new safety systems (P&ID, D/S, PFD, Equipment List, Line Sizing)	Crude Oil Refined Products	Italy	AFT Impulse Owned VBA SW
Gas Pipeline DN6" Garaguso-Ferrandina <i>Pigability feasibility study</i>	EDISON	2017-2018	6"	13 km	Pigability feasibility study	Natural Gas	Italy	LedaFlow
Pipeline Poggio Montone <i>Flow Assurance</i>	SORGENIA	2017	8"	3.5 km	Flow assurance and feasibility study of a new pipeline (material and diameter selection, thickness calculation)	Natural Gas	Italy	LedaFlow
Pipeline Trecate – Lacchiarella/Cremona DN6 <i>Hydraulic Study</i>	TAMOIL	2017	6"	90 Km	Pump Design. New pump process D/S. Hydraulic Analysis.	Refined Products	Italy	AFT Impulse Owned VBA SW
Jetty lines Pernis <i>Hydraulic Study</i>	EXXONMOBIL France	2017	4" - 6"- 8"	-	Surge analysis of the jetty lines loading and unloading study	Refined Products	Netherlands	AFT Impulse Owned VBA SW

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MAMBA Project <i>In-Line Inspection Feasibility study</i>	TECMA-ENI	2016/2017	2x22" - 5x16" - 1x8" Sealine	200 km 1500#	In-Line Inspection Feasibility study	Natural Gas - Multiphase	Mozambico	Owned VBA SW
Cooling Water Circuit Study <i>New Plant Feasibility study</i>	ENI	2016	NA	- 150#	Hydraulic Study, P&ID's, PFD, D/S	Water	Italy	AFT Fathom Owned VBA SW
Loading and Offloading 24" <i>Hydraulic Study</i>	API	2016	24" Off & On Shore	5 km 150#	Hydraulic Study in Steady and Transient State.	Crude Oil	Italy	AFT Impulse Owned VBA SW
Multedo - Busalla DN16" <i>Pipeline Recovery After Oil Spillage</i>	IPLM	2016	16" Pipeline	25 km 600#	Company engineering consulting. Documentation Issuing for Authorities. Hydraulic Study, Safety Systems Design, Start up and Shut down Procedure. Decommissioning and Commissioning Activities.	Crude Oil	Italy	LedaFlow AFT Impulse Owned VBA SW
Treccate – Quiliano – Savona – Vado Ligure DN8" Treccate – Chivasso DN10" Treccate – Malpensa DN6" Treccate – Arluno DN12" Treccate – Arluno DN8" <i>Hydraulic Study</i>	EXXONMOBIL	2016	8" – 10" – 6" – 12" Pipeline	20 up to 150 km 600#	Hydraulic Study in Steady and Transient State.	Refined Products	Italy	LedaFlow AFT Impulse Owned VBA SW
Venezia Refinery <i>42"</i>	ENI	2016	42" Sealine		Replacing of sealine coverage	Diesel Oil	Italy	Owned VBA SW SAP 2000 Autocad
DN12" Limito-Sannazzaro <i>Oxygen pipeline cleaning</i>	Air Liquide	2016	12" Pipeline	60 km	Cleaning with nitrogen. Pigging and vent simulation	O ₂	Italy	LedaFlow AFT Arrow Owned VBA SW
DN12" Ostiglia - Sermide <i>Cleaning and abandonment Operations</i>	EP	2016	12" Pipeline	20 km	Cleaning , Abandonment Procedures	-	Italy	Owned VBA SW
DN 20"+16"+12" Ferrera - Aigle <i>Nitrogen displacement</i>	Eni R&M & Oléoduc du Rhône S.A.	2015	20"+16"+12" Pipeline	260 km 600#	Calculations, procedures, equipment definition, technical support and on field supervision.	Crude Oil	Italy - Switzerland	LedaFlow AFT Arrow Owned VBA SW
EESTI Energia <i>Feasibility study for Pipeline Project</i>	Foster & Wheeler	2014	-	18 km	Sour semi-coke gas preparation and transportation	Sour semi-coke gas	Estonia	LedaFlow AFT Arrow Owned VBA SW
Venezia – Mantova DN 20+10" <i>Pipeline Products Re-Conversion</i>	MOL Group / Foster Wheeler	2013-2014	10" Pipeline	120 km 900#	FEED Activities: P&ID, Equipment sizing and Data Sheets and Specification issue, Hydraulic Analysis, Operating and Displacement Procedures, Batch Study, Leakage Calculation, Instrumentation and Civil Engineering	Petroleum Products	Italy	LedaFlow AFT Arrow Owned VBA SW Autocad
Venezia Refinery <i>42" Sealine Products Re-Conversion</i>	Eni R&M Div.	2013	42" Sealine	10 km 150#	Sealine DN42" Hydraulic and Interface length Analysis, Pig Traps Data Sheet	Petroleum Products	Italy	LedaFlow AFT Arrow Owned VBA SW

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Nord Stream Project <i>Detail Design</i>	NSP - Saipem	2008 -2011	2x48" Gas Sealine	1280 km 1500#	Precommissioning, Commissioning, Landfall design, P&ID, Pipe Sizing, Blow Down	Natural Gas	Russia-Germany	Owned VBA SW
Bordolano Early Iniection Project <i>Compression System Design</i>	Bonatti	2009	6-8" Pipeline	900#	FEED Activities: P&ID, Equipment sizing and Data Sheets and Specification issue, Hydraulic Analysis, Instrumentation and Civil Engineering Detailed Engineering Activities.	Natural Gas	Italy	Owned VBA SW Autocad Caeser II
Kerosene and Virgin Naphtha Bi-Directional Transfer Pipelines <i>Revamping and optimization</i>	SEAPAD	2015	28"-20"-12" Pipeline	6 km - 83 km 300# 600#	Hydraulic Report, Interface Analysis, P&ID's, Operating Philosophy	Kerosene Virgin Naphtha	Italy	Owned VBA SW Autocad
DN 20"+16"+12" Ferrera - Aigle <i>Nitrogen displacement</i>	Eni R&M & Oléoduc du Rhône S.A.	2015	20"+16"+12" Pipeline	260 km 600#	Calculations, procedures, equipment definition, technical support and on field supervision.	Crude Oil	Italy - Switzerland	LedaFlow AFT Arrow Owned VBA SW
Pegli - Sannazzaro DN32" <i>Pipeline Services</i>	ENI	2015	32" Pipeline	100 km 600#	Pig Positioning, Pipeline Displacement Study	Crude Oil	Italy	LedaFlow AFT Impulse Owned VBA SW
Sealines: Luna B – Luna A, BEAF – Luna A, Luna A - Crotone <i>Sealines' Cleaning & Inspection</i>	TECMA & Ionicagas (Eni)	2014	14" -10" -16" Sealine	5 km 6 km 7 km	Dynamic Flow Assurance – Sealines Cleaning and Inspection Simulation	Natural Gas	Italy	LedaFlow AFT Arrow Owned VBA SW
DN8" Castelnuovo-Lonato Air Liquide <i>Oxygen pipeline cleaning</i>	TECMA & Air Liquide	2014	8" Pipeline	34 km	Cleaning with nitrogen and pig and vent simulation	O ₂	Italy	LedaFlow AFT Arrow Owned VBA SW
EESTI Energia <i>Feasibility study for Pipeline Project</i>	Foster & Wheeler	2014	-	18 km	Sour semi-coke gas preparation and transportation	Sour semi-coke gas	Estonia	LedaFlow AFT Arrow Owned VBA SW
Venezia - Mantova DN10" <i>Pipeline Services</i>	IES	2014	10" Pipeline	120 km 900#	Pig recovery, Pipeline Displacement Study, Pipeline Pressurization Study, On Site Activities	Petroleum Products	Italy	LedaFlow AFT Fathom Owned VBA SW
Multedo - Busalla DN8" & DN16" <i>Spillage Analysis</i>	IPLOM	2014	8" - 16" Pipeine	25 km 600#	Spillage Analysis and motorized valves' position definition	Petroleum Products	Italy	LedaFlow Owned VBA SW
Flowline water displacement	Foster & Wheeler	2014	4" Pipeline	3,5 km	Temperature variation along the flowline	Crude Oil	Romania	LedaFlow Owned VBA SW
Venezia Refinery <i>42" Sealine Products Re-Conversion</i>	Eni R&M Div.	2013	42" Sealine	10 km 150#	Sealine DN42" Hydraulic and Interface length Analysis, Pig Traps Data Sheet	Petroleum Products	Italy	LedaFlow AFT Arrow Owned VBA SW

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Venezia – Mantova DN 20+10" <i>Pipeline Products Re-Conversion</i>	MOL Group / Foster Wheeler	2013-2014	10" Pipeline	120 km 900#	FEED Activities: P&ID, Equipment sizing and Data Sheets and Specification issue, Hydraulic Analysis, Operating and Displacement Procedures, Batch Study, Leakage Calculation, Instrumentation and Civil Engineering	Petroleum Products	Italy	LedaFlow AFT Arrow Owned VBA SW Autocad
Cremona – Trecate DN 6" <i>Hydraulic Study</i>	TAMOIL	2013-2014	6" Pipeline	115 km 600#	Hydraulic Study in Steady and Transient State relative to 1 bi-directional pipelines having 2 pumping directions	Petroleum Products	Italy	AFT Impulse Owned VBA SW
Pipeline Services	Eni R&M	2013-2014	-	-	Pipeline Displacement Study, Pipeline Pressurization Study, On Site Activities	Petroleum Products	Italy	LedaFlow AFT Arrow Owned VBA SW
Genova – Sannazzaro <i>Kerosene transport</i>	Eni R&M Div.	2013	12" Pipeline	100 km 900#	Feasibility Study: P&ID's, Equipment Sizing, Hydraulic Analysis	Kerosene	Italy	AFT Impulse Owned VBA SW
CO2 Pilot Plant	ICC	2013	4" Pipeline	3 km 900#	Flow Assurance (Steady, Dynamic and Transient) with the scope to define tests to be performed in the pilot plant	CO2	Spain	LedaFlow AFT Arrow Owned VBA SW
OLGA – LEDA Comparison Study	SAIPEM	2013	36" Sealine	220 km	Flow Assurance (Steady, Dynamic and Transient State) with the scope to perform comparison study and validate two CFD software	Natural Gas, Saturated Gas, Saturated Gas with Free Water, Multiphase Oil	Italy	LedaFlow
Ragusa - Mostringiano - Magnisi DN10-24 Pipeline <i>Nitrogen Displacement</i>	Eni / PPC	2012-2013	10" - 24" Pipelines	60 km 7 km	Hydraulic Analysis, Specification and Working Procedure	Crude Oil	Italy	LedaFlow Owned VBA SW
Hydraulic Studies Northern Italy Pipeline Grid,	SIGEMI – Shell Italia	2012-2013	10" - 16" Pipelines	10 ÷ 110 km	Hydraulic Study in Steady and Transient State relative to 6 bi-directional pipelines having 10 pumping directions	Petroleum Products	Italy	AFT Impulse Owned VBA SW
Safety Valves' Installation <i>Detailed Engineering</i>	SIGEMI – Shell Italia	2012-2013	16" Pipeline	10 km 300#	Safety Valves' Dimensioning and Installation at the pipelines' arrival	Petroleum Products	Italy	Owned VBA SW Autocad SAP2000 Caeser II
Ferrera - Fegino DN12 Pipeline, Pig Dislodging & Nitrogen Displacement <i>Services</i>	SEAPAD	2012	12" Pipeline	100 km 900#	Hydraulic Analysis, Specification and Working Procedure	Petroleum Products	Italy	LedaFlow Owned VBA SW
New DN10 Gela – Giaurone Pipeline for CO2 re-injection	Eni E&P Div. / PPC	2012-2013	10" Pipeline	13 km 900#	Base Engineering: Flow Assurance, Pipeline material and thickness definition, P&ID's, Pipe Sizing, Specifications and Data Sheets for various equipment (Linepipe, Induction Curves, Pig Traps, Main Line Valves)	Gas CO2	Italy	LedaFlow AFT Arrow Owned VBA SW
Trans Mediterranean Pipeline Company (Cap Bon - Mazara del Vallo)	TMPC	2012	24" Sealine	380 km	Flow Assurance Study, Gas Pipeline Control Valve sizing with LedaFlow	Natural Gas	Tunisia	LedaFlow AFT Arrow Owned VBA SW

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West Qurna 2 <i>Basic Design</i>	Technip	2011	42" Oil 32" Gas	100 km 900#	P&ID's, Main Line Valves, Blow Down Study, Hydr. Calculation	Crude Oil, Gas, LPG	Iraq	LedaFlow Owned VBA SW Autocad
Congo Marine XII Block Litchend Gas Development <i>Pigging Philosophy</i>	Eni Tecnomare	2011	12" Pipeline	40 km	Pigging Philosophy	Natural Gas and condensates	Congo	Owned VBA SW
El Merk <i>Detail Design</i>	ABB	2011	12"-24" Pipeline	-	Flow Assurance	Crude Oil Multiphase	Algeria	LedaFlow
Nord Stream Project <i>Detail Design</i>	NSP - Saipem	2008 -2011	2x48" Gas Sealine	1280 km 1500#	Precommissioning, Commissioning, Landfall design, P&ID, Pipe Sizing, Blow Down	Natural Gas	Russia-Germany	Owned VBA SW
Treccate – Cremona <i>Pipeline Products Re-Conversion</i>	Tamoil	2011	6" Pipeline	100 km 900#	Hydraulic Study, batch study, products interface length	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
Lacchiarella – Cremona <i>Pipeline Products Re-Conversion</i>	Shell Italia Tamoil	2011	6" Pipeline	80 km 900#	Hydraulic Study, batch study, products interface length	Diesel, gasoline	Italy	LedaFlow AFT Impulse Owned VBA SW
Cornigliano L. – Cervignano Interconnecting Pipeline <i>Conceptual Design</i>	Italgas Storage	2011	42" Pipeline	10 km 600#	Conceptual & Hydraulic Study	Natural Gas	Italy	AFT Arrow Owned VBA SW
San Quirico – Arquata – Lacchiarella <i>Flow Increase Study</i>	Shell Italia	2011	10" Pipeline	110 km 900#	Hydraulic Study	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
Genova Loading System <i>Basic & Detail Design</i>	POPEGE	2011	28" Pipeline	5 km 150#	Hydraulic Calculation	Crude Oil & Petroleum Products	Italy	AFT Impulse Owned VBA SW Autocad
Interconnecting Pipeline Recompression Station <i>Conceptual Design</i>	Italgas Storage	2011	-	-	Conceptual & Hydraulic Study	Natural Gas	Italy	AFT Arrow Owned VBA SW
San Quirico – Arquata – Lacchiarella <i>Pipeline Study</i>	Shell Italia	2010-2011	10" Pipeline	110 km 600#	Hydraulic Study	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
Hewett Gas Storage <i>Pigging Philosophy</i>	Eni Tecnomare	2010	32" Sealine	40 km	Pigging Philosophy	Natural Gas	UK North Sea	Owned VBA SW

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Multedo – Fegino & Fegino – Multedo <i>Pipeline Requalification</i>	SEAPAD	2010	10” Pipeline	7 km 300#	Hydraulic Study	Crude & Oil Products	Italy	AFT Impulse Owned VBA SW
Multedo Booster Station <i>New Pipeline Booster Pump Design</i>	SEAPAD	2010	28” Pipeline	10 km 300#	P&ID's, Basic Design Study, Hydraulic Calculation	Crude Oil	Italy	AFT Impulse Owned VBA SW
Busalla – Multedo & Multedo – Busalla <i>Pipeline Requalification</i>	IPLOM	2010	16” Pipeline	35 km 900#	Hydraulic Study, Thickness & MAOP verification	Crude Oil	Italy	AFT Impulse Owned VBA SW
Sannazzaro – Cremona <i>Pipeline Products Re-Conversion</i>	Eni R&M Div. + Tamoil	2010	22"-26"	120km 900#	Hydraulic Study, batch study, products interface length	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
Venezia – Mantova Nitrogen Displacement & Restart <i>Services</i>	IES	2010	10” Pipeline	120km 900#	Displacement Procedure, Commissioning, Hydraulic Study & Field Operations Management	Crude Oil	Italy	AFT Impulse Owned VBA SW
S. Quirico – Arquata - Lacchiarella Nitrogen Displacement & Restart <i>Services</i>	Shell Italia	2010	10” Pipeline	110km 900#	Displacement Procedure, Commissioning, Hydraulic Study & Field Operations Management	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
San Quirico – Arquata – Lacchiarella <i>Pipeline Study</i>	Shell Italia	2010-2011	10” Pipeline	13km 900#	Hydraulic Study	Diesel, gasoline	Italy	AFT Impulse Owned VBA SW
Cartagena-Puertollano 14” Oil Pipeline <i>Basic & Detailed Engineering</i>	Repsol/Heymo	2007	14” Pipeline	450 km 900#	Hydraulic Study, Thickness & MAOP Definition, Pumping Station Design, P&ID's, MLV Specification	Diesel, gasoline	Spain	AFT Impulse Owned VBA SW
Bordolano Early Iniection Project <i>Compression System Design</i>	Bonatti	2009	6-8” Pipeline	900#	FEED Activities: P&ID, Equipment sizing and Data Sheets and Specification issue, Hydraulic Analysis, Instrumentation and Civil Engineering Detailed Engineering Activities.	Natural Gas	Italy	Owned VBA SW Autocad Caeser II
Venezia Refinery <i>Revamping Isola dei Petroli</i>	Eni	2013-2014	16” - 30” Interconn.	0,5 to 1,5 km	Base & FEED Engineering Activities: P&ID, Hydraulic Analysis, Lines sizing	Petroleum Products	Italy	AFT Impulse Owned VBA SW