

# SOUTH EAST MED ENERGY & DEFENSE

#4/2018

THE ANALYSIS INSTRUMENT FOR THE STAKEHOLDERS



## Hellenic Navy

### In search of affordable solutions to meet new challenges...

#### “Apple of Discord” for major defense industries

Greece towards the third decade of the 21<sup>st</sup> century faces more **complex and demanding challenges**. On the one hand to upgrade its defense capability against Turkey’s increased provocations and on the other, to efficiently support its enhanced geostrategic role in the Balkans and the new energy routes in the broad region of South East Mediterranean.

In order to maintain security and stability, **Hellenic Navy** strives in a very austere financial context, to counter the Turkish naval expansion program, defend the Aegean islands, The Dodecanese and Crete, as well as to efficiently protect logistics chains. Not considering the possibility of the need to **protect Cyprus’ EEZ** and drillings program from Turkey’s threats.

In this context, major defense stakeholders are eager to offer cost effective and affordable solutions to meet Hellenic Navy’s search for new vessels and modernisation programs, trying to win a new contract with a not “rich” however prestigious client, in a potentially “hot waters” region.

# French frigates for the Hellenic Navy

## GDDIA executives visited the “Naval Groupe” shipyards

Following the meeting between the Minister of National Defense, Mr. Panos Kammenos and the French Minister of the Armed Forces, Mrs. Florence Parly, on the sidelines of the last NATO meeting, another **important step** was made in the NAVAL GROUP shipyards, which were visited by a small group from the General Directorate for Defence Investments and Armaments (GDDIA), headed by its Director-General, **Vice-Admiral (ret.) Kyriakos Kyriakides**, at the invitation of the NAVAL GROUP executives, **promoting the maturity** of the relevant discussions to a higher level.

In any case, this meeting was a useful



preparation for the next **“summit” meeting** between Panos Kammenos and Florence Parly in Athens, as the French defence minister is expected to visit Greece in the near future. Besides, in their recent meeting in Brussels, Kammenos and Parly examined the outline of this Greek-French cooperation, the Greek aim for which is the **maximum possible engagement of Greek Shipyards**.

### Bellh@rra and ... the others

For the Greek government, the decision to acquire a new type of warship to cover the op-

erational needs in the Aegean Sea and also the increased demands that will arise from the forthcoming accession of our country to the energy chessboard of the Eastern Mediterranean is already a **“fait accompli”**.

In this context, the French stealth super-frigate Bellh@rra is the first option. Given however, that it shall not be available before 2023, at the earliest, an **interim solution**

**is sought** for which the procurement is now considered certain. The program’s budget is estimated to exceed €1.5 bn. and to **cover its funding** the utilisation of the “piggy bank” of Greek bond super-profits, which the French Central Bank has not returned to the Bank of Greece is being discussed.

Deputy MoD mr. Fotis Kouvelis, confirmed recently the positive momentum saying: “... the discussions between the two parties are in good progress. There is indeed **close contact with the French PM mr. Makron** and I believe that final decisions will be announced soon”.



## Lockheed Martin to propose modernization solution for Greek MEKO 200HN frigates

Phaidon Karaiosifides – Managing Editor “Flight & Space”

Hellenic Navy acquired four 3,700 ton MEKO200HN from German Shipyards in the early ‘90s, with one ship constructed in Germany and the rest in Greece, all entering service as HYDRA-class between 1992 and 1998. In 2007 the frigates were **partly upgraded** (their STIR fire control system to allow firing of the RIM-162 ESSM surface-to-air missiles) however, today after 20-25 years of use a mid-life upgrade (MLU) program **is long overdue**.

Hellenic Navy planned to implement such a program in early 2010 but the intention was **postponed** due to the financial crisis in Greece at that time. The Navy resurrected such plans again, early this year, however the scope of the modernization program **is limited** from the available financial resources. As more money might become available in the near future, a for-

mal RFI (Request For Information) **will be issued soon**, already creating an interest among related companies.

Recently, a **Lockheed Martin** technical delegation requested permission to **visit a HYDRA class frigate** in order to evaluate the condition and status of the ship and its systems, with the intention **to submit a proposal**. Lockheed Martin Canada was the winner of a similar competition in New Zealand in 2014 and is already working on the **Royal New Zealand Navy’s (RNZN’s) ANZAC-class Frigate Systems Upgrade (FSU)** programme. Under the FSU programme the combat systems fitted on board the RNZN’s two ANZAC-class frigates –HMNZS “Te Kaha” and HMNZS “Te Mana”– will be modernised to sustain capability through the end of life. The programme includes the installation of an FSU Integrated Surveillance

and Air Defence Solution, combining a new combat management system, surveillance radar, identification friend-or-foe, and a local area air defense capability based on an active missile system.

Although the cost per frigate of the ANZAC-class FSU programme -at \$220 million- **is much higher** than the money allocated for the potential Greek MLU, according to information Lockheed Martin will provide **a scalable and cost effective solution** close to the Greek needs and financial means. In two previous MLU programs, one concerning 6 Dutch-build **Kortenaer class frigates** in the mid 2000s and another concerning French-build **La Combattante III** missile armed Fast Patrol Boats in the late 2000s, the Hellenic Navy turned to either the original manufacturer or European companies that “traditionally” supplied subsystems for Greek ships, mainly because of the **confidence** that they would provide verified solutions.

In the case of the **potential MEKO200HN MLU** program Lockheed Martin presents a unique case, since through the involvement with the ANZAC-class modernization program, the American company acquires the necessary expertise on the exact same type of ship and any **proposed solution** for the Greek case will be fortified by this fact, thus presenting **a real challenge** to European competitors. After issuing an RFI, the Hellenic Navy expects to **move swiftly** with an international competition and a decision about the program by the end of 2018 or early 2019.



# Italian DDGs for the Hellenic Navy?

*A not so obvious, however, affordable and possible solution for its AAW capacity*



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In 2014 the Italian Navy enjoyed - a **new extraordinary funding law** (Legge Navale) for a total of €5.4 Bn (including financial charges). This law was drawn to grant the Italian Navy the construction of some necessary new major combatants. In particular the new Law was funding:

- 1 x LHA F-35B capable to flank the CVL Cavour and substitute the smaller and older CVL Garibaldi
- 7 x FFG (PPA) in three than two version, one full another light, with the full version being also able to provide ATBM defense through the new AA missile Aster 30 B1NT
- 1 x major Logistic Support Ship (LSS) ("Vulcano" launched in June)
- 2 x Fast Boats for SF forces (the first "Angelo Cabrini" already launched)
- These extra funds allow to complete the running programs that also include:
- Completion of the 10 FREMM type FFG program (8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> are already under various phases of construction, one already launched, the first seven have already been commissioned);
- 2 x more U-212A advanced
- Completion of the deliveries of Navy new helicopters fleet (AW-101/NH-90)
- More vessels are then programmed by the Navy and in particular:
- 2 x new DDG (DDX)
- 3 x PPA in option
- 2 x U-212A advanced
- 3 x LSD (substituting the existing San Marco, San Giorgio and San Giusto)
- 8 light combatants type PPX (4 light FFG and 4 in heavy OPV version)
- 1 x Submarine Support and recovery vessel
- 1+1 Logistic Support Ship ("Vulcano" Class)
- 1 x Major Hydrographic Vessel
- 10 COV (ocean-going fast mine hunters)

This means that by the end of the 20's the Italian Navy will have a main line made of:

#### Flattops: 5

- 1 x CVL Cavour F-35B capable

- 1 x LHS Trieste F-35 B capable
- 3 x LSD Type improved "Qatar"

#### DDGs AAW: 4

- 2 Orizzonte class
- 2 DDX

#### FFGs: 21

- 10 FREMM (6 General Purpose + 4 ASW)
- 7 PPA (3 Full AAW + 4 light) + 3
- 4 PPX ASW

#### SSKs: 8

- 4 U-212A
- 4 U-212 Advanced

This renovation process is taking a large amount of ships to **decommissioning**, including some still valuable combatants like the CVL Garibaldi, the three LSDs (San Marco, San Giusto, San Giorgio) the two "De la Penne" class DDGs, and some "Maestrale" class FFGs. Once decommissioned the vessels are managed by **AID, Agenzia Industrie Difesa** (Defense Industries Agency), a company of the Italian Ministry of Defense. Vessels are then sold to other armed forces after restoration in the Italian shipyards, thus achieving various advantages:

- Generate extra budget for the Navy
- Create new value for the Italian industry and preserve jobs
- Increase Italian exports

Sales can be promoted by the Government or private industry, while deals always happen on a G2G base.

#### A good solution for the Allied Navies in East Mediterranean?

Various Countries like Greece, Bulgaria, Romania are planning a renovation and upgrading of their Navy. Budget constraints, due to the price of new constructions, create bottlenecks in the number of units to commission. **Greece** in the first place, will have to counter the Turkish naval expansion program to efficiently protect Aegean islands, The Dodecanese, Crete and the logistic chains. Not considering the possibility of the need to protect **Cyprus' EEZ**, which doesn't possess able naval units, from Turkey's threats.

The Greek Navy is in deal with the French Government, aiming to purchase a number (4/6 according to the various sources) of new generation frigates **Bellh@rra**. This FFGs are needed in order to strengthen its ageing line of major combatants. The Navy is still looking for a Long Range AAW defense system, a service DDGs can offer. In May 2018 the **Chief of the Hellenic National Defense General Staff**, Admiral Evangelos Apostolakis, during his visit in the USA, took some information about the possibility of procuring two DDGs type "**Arleigh Burke**" from US excess. Thus, confirmed the need for enhancing the long range AAW capacity of the Greek fleet. Long Range Radars and ability to engage multiple targets in the long distance. A capacity that neither the existing vessels, nor the Bellh@rra have. Only a proper DDG can offer such a service.

#### New vessels or refurbished?

The cost of a new DDG, including the extended service (5 to 10 years), personnel training and weaponry is too expensive. Italy is planning a new couple of DDG (called DDX), derived from the already in service DDG "Orizzonte" class, fruit of an Italo-French cooperation (2 DDGs per each of the countries). Due to the development costs of new programs, to be split on few new constructions, Italy is considering the new DDG as being an enhanced development of the existing "Orizzonte". Still this would imply a cost of €2.0 to €2.5 Bn approx. Sums **out of range** for Greece's defense budget. Still the problem exists...

One **possible solution** could be the purchase of the two Italian DDGs "De la Penne" class, the D550 "Durand de La Penne" and the D551 "Mimbelli" of the same class. The two vessels are **set to be phased out** within the first half of the 20's, being substituted by the 2 new DDGs and the 3 PPA Full AAW. The two "De la Penne" class **would give Greece the ability** of retaining a superior capacity in comparison to the programmed Turkish DDGs "T-2000" class. The two refurbished "De la Penne" would enter the line almost in the same period (post 2025).

## Costs, funding solutions and affordability

The cost of the program can be roughly summarized as follows:

- €100 m for each ship as is
- €72 m for the purchase of 40 x RIM-66 Standard (SM-2MR)
- €50 m for refurbishing and maintenance of systems and hull
- €50 m for ammunition, Aspide SAM and various spare parts, training, simulators, e.t.c...

This makes a total of about **€272m** for a totally updated and state of the art AAW DDG. With a total expense of **€550m**, the Greek Navy would have 2 fully operational and state of the art DDGs, granting the necessary C4I and LRR AAW cover to the fleet.

On the side of funding a very affordable G2G solution could be arranged with the Italian MoD, involving the **Cassa Depositi e Prestiti (CDP)** and **SACE SpA**, the Italian Export Credit and Insurance Agency. Under such a scheme, CDP could operate as Mandated Lead Arranger and SACE as Credit Insurance Provider, by using a Greek or Foreign Bank as Agent acting as Security Trustee, coordinating a banking pool operating as Lenders for the Greek MoD being the Borrower.

### A preliminary evaluation

We can make a very preliminary hypothesis for a similar funding structure as:

- Contract Price: €550.000.000
- Arrangement Fee (0.5% of total financed amount): €2.200.000
- Disbursement Fee: €1.130.000

- Legal & Advisory Fees (1,5% of the total loan): €650.000
- Subtotal: €555.980.000
- Minus 20% Equity: €111.196.000
- Subtotal: €444.784.000
- SACE Premium (2.25% of the total loan amount): €10.220.000

**Total Financed Amount: €455.004.000**

So, a cost of the operation of €566.200.000 of which:

- €111.196.000 funded by the Greek MoD
- €455.004.000 funded by the lending banks for a period of 5 years

Under the **Secured Loan Agreement**, the Greek MoD (Borrower) would benefit from the following terms:

- 20% equity brought forward
- Floating interest rate, hypothesis BCE 0.25% + 2% Interest rate, say 2,25%
- Commitment Fee 0,125% per year
- 5 years (possibly 10) loan's term

By calculating the cost of the loan 5 Years @ interest rate + commitment fee = 2,375% per year and 10 biannual payments (5 years), we have a total interest rate cost of €28.000.000. The cost of the operation is equal to:

- Contract Value: €566.200.000
- Interest Rate + Commitment Fee: €28.000.000

**Final Grand total: €594.200.000**

### Return for the Greek economy

Another set of benefits for the Greek Navy would be:

- Refurbishment or at least a part of it can be done at **domestic shipyards** with positive fiscal and

occupational effects

- An as large as possible contribute by the **Greek industry** in the supply of refurbished systems
- Maintenance to be done at **Greek shipyards**

### A cost-effective solution

At a small fraction of the Bellharra deal (about 1/4 of the total), say €594.200.000, out of which €111.196.000 to be paid upfront by the Greek MoD and the remainder €483.004.000 to be paid in 5 years (€96.600.800/year), Greece would enjoy a **full fleet's LRR AAW capacity** to tackle the increasing Turkish threat in the Aegean Sea. That means an affordable cost for the MoD and a highly cost/effective operation.

### What about alternative LRR SAM systems?

There are some technical solutions to improve the two De la Penna DDGs performances, thought these solutions would be too expensive. Still worth a short analysis:

#### ALTERNATIVE 1:

##### SYLVER A50 VLS for ASTER 15 & 30

The old Mk13 launcher and the Aspide can be substituted with a more modern VLS type Sylver A-50 (Naval Group, former DCNS). The VLS can be used to launch the MBDA/Eurosam Aster 15 for short/medium range AAW defense and Aster 30 for long range defense. So, the Aster 15 would substitute the Aspide and the Aster 30 the SM-2MR. Both missiles can be used also for anti-missile protection. The VLS Sylver A-50 would, also, require the installation of the same EMPAR radar system installed on the Italian and French Orizzonte/Horizon class DDGs. Another pitfall would be the loss of the hangar. This solution, though granting logistic communalities with the future Bellh@rra class, has as the disadvantage its high cost.

Total estimated cost of the operation (to be added to the cost of purchase/refurbishing of the vessels):

- Substitution of Mk13 and installation of VLS Sylver 50: €80.000.000
- Substitution of RAN-40L Radar and installation of EMPAR Radar: €120.000.000
- Purchase of Aster 15/30 stock: €80.000.000
- **Minus** the avoided cost of purchasing SM2-MR missiles stock: €80.000.000

**Total extra** for installing Sylver A50 VLS and acquire missiles: €200.000.000/ship

**Total extra per 2 ships**, including financial and legal charges: €430.000.000

#### Missiles Technical Specifications:

##### ASTER 15

- inertial guidance with up-link and Active RF seeker
- effective range >30 km
- weight 310 kg
- length 4.2 m
- diameter 180 mm
- max speed Mach 3.5
- price ~900k

##### ASTER 30

- inertial guidance with up-link and Active RF seeker
- effective range >120 km
- weight 430 kg
- length 4.9 m

## Who is "Cassa Depositi e Prestiti" (CDP)

**C**assa Depositi e Prestiti (CDP SpA) is an **Italian investment bank founded in 1850 in Turin**; after the unification of Italy, in 1863 it was restructured and the headquarters moved to Rome; it was constituted in its current form as a joint-stock company on 12 December 2003. 83% of the share capital is **owned by the Italian Ministry of Economy and Finance**, the 16% is held by various banking foundations, while the remaining 1% in treasury shares.

CDP is today the **third largest Italian bank** according to the value of the total assets owned by the group (around 420 billion euros in 2017), after the banks UniCredit and Intesa

Sanpaolo. Cassa Depositi e Prestiti manages the entire Italian Postal savings that represent its first source of financial resources. These resources are used by the bank to lend money to the Italian State or local governments, acquire strategic equities and invest in financial, infrastructural and economical projects considered strategic for the development of the Italian economy. CDP owns today several stocks of companies listed in the Italian stock market such as Fincantieri, Eni, Poste italiane and Terina. In 2009, Caisse des Dépôts, Cassa Depositi e Prestiti, KfW and European Investment Bank founded the Long-Term Investors Club.

## Who is SACE Spa

**S**ACE Spa, is one of Italy's **leading players in credit management**. The group offers insurance cover in **more than 155 countries** and at present insures commercial transactions and financing world-wide for an overall value of approximately €46bn. Through a comprehensive range of insurance, financing and credit management products, SACE can guarantee more stable cash flows, thereby transforming counterpart insolvency risks into development opportunities.

In addition to credit insurance, SACE provides integrated credit management solutions, such as the protection of investments, sureties and financial guarantees for commercial and financial transactions, as well as offering arrangements for project and structured finance. SACE SpA has obtained an Aa2 rating from Moody's. SACE operates in Italy and overseas through its four international offices in Johannesburg, Sao Paulo, Moscow and Hong Kong.



# DDG “DE LA PENNE” Class

## TECHNICAL SPECIFICATIONS

- Displacement: 5.400 tons
- Length: 147,7 mt
- Beam: 16.1 mt
- Draught: 5 mt
- Propulsion:
  - 2 x Turbogas 55.000 HP (40.441 kW) GE/Avio LM-2500
  - 2 x Diesel 12.600 HP (9.264 kW) GMT BL-230.20-DVM
  - 6 x Diesel Engine Generators Fincantieri DMD 203-6
- Speed: 32 knots turbogas, 21 knots diesel
- Autonomy: 7.000 Nm @ 18 knots (diesel)
- Crew: 32 officers and 345 NCOs and commons
- Double Hangar

## SENSORS

- 1 x C4I System on SADO 2 enhanced Combat Management System (CMS)
- 1 x 3D Early Warning Radar, 400 Km, Selex RAN-40L D Band (NATO)
- 1 x IFF Selex SIR M/5
- 1 x Naval Fire Control System (NFCS) for enhanced land attack and ASW fire
- 1 x Medium Range Radar AESN MM/SPS -794 E/F Band (NATO)
- 1 x 2D, Navigation and Surface Radar AMS MM/SPS-702 (RAN 11L/X) I/J Band (NATO)
- 1 x Navigation and Surface Radar MM/SPN-730 LPI KIT
- 1 x Nautical Radar Gem Elettronica MM/SPN-735B ARPA
- 2 x Raytheon Tartar GMLS Mk13 Mod. 5 WDS
- 1 x SAM Fire Control System (MFCS) TAR-TAR Mk. 74 Mod. 15
- 1 x Automatic Tracking System AN/SYS-1 integrated in the CMS
- 2 x Raytheon AN/SPG-51D Illuminators X/C Band for SM-1MR SAM
- 1 x Weapons Control System Dardo-E
- 3 x AESN Radar Orion RTN-30X (MM/SPG-76) for Aspide SAM and guns
- 1 x Navigation Radar SMA SPN 703 (3 RM 20)
- 1 x TACAN URN-25
- 2 x Selex VHF-SHF SICRAL SATCOM
- 1 x Multi Data Link Processor (M-DLP) Elsag Datamat ((LINK 11A, LINK 11B, LINK- 16, LINK-22, JREAP & VMF)

## ELECTRONIC WAR & DECOYS

- 1 x ECM/ESMa System Elettronica SLQ-732 Nettuno
- 2 x Oto Melara SCLAR chaffs & decoys vs SSMs
- SAGEM Sagaie Decoy Launching System
- 1 x ASW AN/SLQ-25 Nixie, SSTD



## WEAPONS

- 1 x single launcher for SM-2MR SAM with 40 Standard SM-2MR missiles (HAW & MCS)
- 1 x 8 cells Albatros launcher for CAMM-ER SAM with 48 Aspide Missiles
- 4 x OTOMAT Mk2 SSMs (180 km range) – capable also for Land Attack
- 4 x Milas ASW and ASuW torpedo carrying Missiles
- 1 x Oto-Breda 127/64 mm gun 120 km range Vulcano Long Range Guided ammo, 32 rounds/pm AsuW and NGS, with proven AAW capability
- 1 x Vulcano Automated Ammunition Handling System, 56 rounds, reloadable
- 3 x Oto Melara 76/62 mm Strales, AAW and ASW gun, DART, 120 rounds per minute 8 km/range AAW and 13.5 km/range ASW
- 2 x 324 mm WASS B515/3 Triple Torpedo Launchers
- 2 x NH-90 or AB-212 ASW helicopters

## SPECIAL AMMUNITIONS

### VULCANO 127 mm

- The 127/64 LW - VULCANO System consists of four key sub-systems:
  - the large caliber 127/64 LW Gun assembly
  - the Automated Ammunition Handling System,
  - the Naval Fire Control Support
  - the VULCANO family of ammunition

The **127mm VULCANO** ammunition family, is composed by Ballistic Extended Range (BER) and Guided Long Range (GLR) ammunition with different multifunctional fuses, sensor and final guidance that extend the range of the gun up to 100km.

The **127/64 LW - VULCANO** is a state of art medium caliber gun suitable for installation on large and medium size ships and intended for surface fire and naval gunfire support as main role and anti-aircraft fire as secondary role. The compactness of the gun feeding system makes possible the installation on narrow section crafts. It is equipped with a modular feeding magazine,

composed by 4 drums with 14 ready to fire ammunition each, reloadable during firing, and highly flexible in terms of selection of ammunition, independently from their position in the drums. Ammunition flow is reversible as rounds can be downloaded automatically.

### VULCANO 76 mm

GPS and IR guidance 40 km range

**VULCANO 76 mm** allows the 76/62mm Naval Artilleries to reach a substantial increase of range and pin point accuracy when engaging surface threats, as well as supporting troops or neutralizing valuable targets onshore. The guidance technology provided for this new family of ammunition is based upon GPS and IR guidance (and SAL in the future), allowing “fire and forget” operations. It therefore, may respond to the requirement of split fire distribution: a target further ahead can be engaged with no need to wait for lethality assessment on the previous target. This requirement is considered particularly important since there is a consolidated trend in littoral warfare operations where a single gun may be requested to engage multiple targets within short distances and short reaction time.

### DART (Driven Ammunition Reduced Time of Flight) for 76/62 STRALES gun

- effective range >8km
- double ammunition feeding system,
- digital console
- guidance antenna
- gun shield r
- electronic equipment specifically designed for the DART ammunition guidance.

Strales (the most effective CIWS) is extremely effective against today generation of anti-ship missiles and also in ASuW, especially where simultaneous engagement of multiple maneuvering targets is involved, cooperating with the unique sustained firing capability of 76mm gun.

- diameter 180 mm
- max speed Mach 4.5
- price ~1.6 millions each

### ALTERNATIVE 2 VLS Mark 41 for SM2-MR

A **less expensive solution** could be the installation of the VLS Mark 41 for 24 missiles SM-2MR Block IIIA. This solution is already proven as used by Sachsen class and De Zeven Provinciën class FFGs. For the short range the original Aspide 2000 could be retained.

Total estimated cost of the operation (to be added to the cost of purchase/refurbishing of the vessels):

- Substitution of Mk13 and installation of VLS Mark 41: €80.000.000
- Purchase of SM2-MR: already included in the base case calculations

**Total extra** for installing Sylver Mark 41

€80.000.000/ship

**Total extra for 2 ships**, including financial and legal charges: €175.000.000 approx.

### Missiles technical specifications: SM-2MR Block IIIA

- guidance inertial and command midcourse guidance
- effective range 74 to 167 km
- weight 707 kg
- length 4.72 m
- diameter 340 mm
- speed high Mach 3.5
- price ~2 millions each

### ASPIDE 2000

- guidance semi-active homing
- effective range >25 km
- weight 220 kg
- length 3.7 m

- diameter 234 mm
- speed high supersonic
- price ~400k

The missile has outstanding capabilities in range and it can ensure a wide area defense against all types of air threats. It incorporates modern electronic features that improves its guidance and the effectiveness in heavy clutter and ECM environment.

### Some considerations:

**Alternative 1** is almost doubling the cost of the operation and seems not affordable at the time being, due to budget restrictions.

**Alternative 2** would increase the final cost of the operation by almost the 30% in comparison to the base case.

Consequently, the base case might be **the sole alternative** under current economic circumstances.



## Italian investments in East Med face an increased need of protection

ASTER 30 Block 1 NT & CAMM ER for the Italian armed forces

Aurelio Giansiracusa – Editor Forum Difesa

**I**taly has huge interests in the Eastern Mediterranean where the presence of ENI, SAIPEM and SNAM is massive between Egypt, Cyprus and Lebanon, are-

as where huge deposits as Zohr and Calypso have been found. It is worth noting too, that ENI has obtained the concession for exploration offshore of Crete, making Italian com-

mitment in the area very intense in the near future.

The rush looking for gas and hydrocarbons that has been initiated by all Mediterranean countries in offshore of their exclusive economic zones, is causing instability, disputes and deterioration of the ancient and unresolved issues of sovereignty and defense of waters (this is the case of litigation, Greek-Turkish Cypriot/Greek-Turkish, Lebanese-Israeli and that Palestinian-Israeli).

All these result in new operational profiles for the Italian armed forces, especially the Italian Navy and the Air Force, both called upon to operate in completion in order to defend present and future platforms and aerial, naval and underwater pipelines affected by threat. It is interesting to note that the Israeli Navy is providing point defence system or C-RAM, the IRON DOME, also for naval applications for the defense of the Israeli coastline gas mining platforms, from possible attacks from the Lebanese coast or by fast and stealthy missile speedboats.

### ASTER 30 BLOCK 1 NT the first european anti-missile system

**T**his version was created by having to cope with increasingly complex defensive needs, born from large-scale dissemination of short and medium range ballistic missiles, cruise missiles and naval surface-to-surface missiles in high field performance, not only of supersonic cruise but also with a high range, all targets particularly difficult to deal with and at present cannot be intercepted with missiles if not under certain conditions and with various types of systems. The current system ASTER 30 has an active role in NATO ALTBMD (Active Layered Theatre Ballistic Missile Defence) programme, active layered defense

**ASTER 30 Block 1 NT**

- Lower layer capability providing enhanced capability and force protection against tactical Ballistic Missiles;
- Improved seeker to increase system capability;
- Maintains dual AAW & BM capability;
- Compatible with existing Sylver A50 launcher.

• Block 1NT development programme commenced 2016; entry into service (Fr) anticipated 2022 onwards.

ASTER 30 Bk 1 NT (AAW & BMD)  
Assigned and tested 1/30 missiles  
First AAW/BMD intercept  
New Seeker  
New Autopilot Electronics

Not Protectively Marked

MBDA

against theatre ballistic missile to defend Allied contingents from missile threats and as such, it represents the Italian-French contribution to this vital program.

The naval version of the missile ASTER 30 PAAMS Type 45 version is currently embarked

on the Royal Navy, DDG “Doria” and “Duilio” of the MM and the FFG “Bergamini” (Fremm G.P.) and “Mada” (Fremm ASW), and on two DDG “Chevalier Paul” of the French Navy. The land version SAMP-T is currently deployed in southern Turkey to defend the country from any aggression coming from Syria.

### Technical Characteristics

- Weight: 450 kg
- Length: 4,90 m
- Diameter: 180 mm
- Range against planes: 100 + km
- Range against cruise missiles: 35 + km
- Speed: 4,5 + mach

The program is managed by OCCAR (Organisation for Joint Armament Cooperation) and by EUROSAM, the Consortium created by Thales and MBDA and the contract covers the development of new ammunition, as well as the possibility to use the current version with the new Block 1 Block 1 NT version.



## The new Italian defense claws: ASTER 30 Block 1 NT & CAMM ER

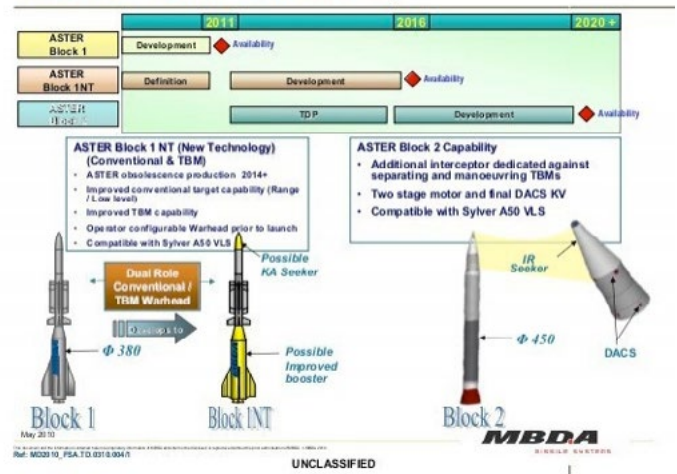
Owning weapon systems like the ASTER BLOCK 1 NT and CAMM-ER means being able to ensure the defense of these sensitive targets, like platforms offshore mining at a distance, creating a sort of bubble of air carriers, with joint deployment of A2AD CAEW, KC767A, Typhoon, Tornado and F-35 into perspective, as well as their maritime defense with upcoming PPA and the newly DDG-X that can take on any threat from the air, sea and land.

At the end of 2017 and the early months of 2018, there were two important innovations for the Italian defense, with the green light of the mid-June 2016, ratified by the Government Commission Parliament's defense. The Italian participation to the programme launched by Paris in December 2015 for developing a specific missile, ASTER 30, a version produced by EUROSAM Consortium and the industrialization of the brake medium-range anti-aircraft missile defense system CAMM-ER, derived from short-range missile defense system CAMM, developed by MBDA UK for the British army and Navy requirements, for the replacement of the Rapier and Sea Wolf, now obsolescent having been deployed since the 1980s the past century and now deprived of the possibilities of further improving.

By participating in the program and the launching of ASTER 30 BLOCK 1NT program CAMM ER, besides achieving high operational capabilities, technical and industrial benefits will be obtained because the Italian industry will be called upon to invest the best human and professional resources, increasing even more the quality profile of missile systems in question.

In a span of a few years, Italy will get new missile defense capabilities for the armed forces, that will be called upon to manage increasingly complex scenarios and increasingly complex and dangerous threats, emphasizing that Italy can assure the defense of an area at land as at sea, as well as to guarantee the security of NATO and/or other allies against such targets as the MEDIUM-RANGE BALLISTIC MISSILE. This means, also, ensuring indirectly defense to

### MBDA ASTER Evolution – A Route Map



countries that "host" in their waters offshore platforms, with obvious benefits in terms of operations and international prestige. This involves envisioning a greater commitment of the Italian Navy and Air Force in the waters and in the skies of the Eastern Mediterranean, with permanent or semi-permanent operating deployments, apart from the national bases.

## CAMM ER the new Medium-Range Defense

CAMM ER is the evolution of CAMM, British born missile to replace the Rapier in the British Army and the RAF as well as the Sea Wolf in the Royal Navy Type 23 frigates. The program begun to replace the Aspide/Skyguard and Aspide/Spada respectively in the Italian Army and the Italian Air Force for short-range defense of troops, civilian and military installations. Recently, there has been confirmation that the Italian Navy too, intends to use the system, complementary to the two aforementioned Military-Naval version development that should take the place of older systems Aspide/Albatross still in use on the CG "Garibaldi", DDG "Mimbelli" and "De La Penne" and the residual FFG "Maestrale". Subsequently, the CAMM will replace the current ASTER 15 spent by "Cavour" and "DUILIO" and will be deployed on DDG "Doria" class and FFG "Bergamini" class and "Margottini" class, on PPA Full unit and Light Plus and with each odds on future DDX pair that you start talking and the new multi-purpose Patrol deep-PPLa or Light should integrate the largest PPA, replacing the current Constellation class OPV-Vega and NUMC or Lesser Fighters (new units of corvette read basically) class Comandanti.

The CAMMER is being developed by MBDA Italy, obviously in competition with the whole group MBDA and particularly with MBDA UK



that developed first the air-to-air missile ASRAAM of which CAMM retains structural components and motor, then the SEA CEPTOR which is the naval version of CAMM, embarked on FFG Type 23 to replace obsolete Sea Wolf and is integrated into the PAAMS Type 45 Daring class on DDG and intended to be installed on new FFG Type 26.

The naval version of the Sylver A50 Launcher will be used by CAMM ER quadruple version augmenting exponentially the number of missiles on board for each pitcher. The land version also may employ more missiles within the same canister by increasing the capabilities of engagement. For the Italian Air Force the SIRIUS will be integrated into the complex system that CAMM ER, the hoped-for full version, should also have the capability of missile defence, currently not covered cause it was not financed, the phase of industrialization of the Medium Extended Air Defence system MEADS or System that will be deployed from Germany. The Italian Army, however, intends to replace the existing Aspide/Skyguard with the new missile, building real clusters with more stable ASTER 30 BLOCK 1 and BLOCK 1 NT.

The missile is compatible with any kind of surveillance radar for the detection of targets. Vertical launch mode allows you the ability to engage targets in all areas to 360°, making the missile a seeker-weather active RF (Radio Frequency). Having that particular seeker CAMM ER does not require a dedicated and expensive lighting and shooting radar and also has a great stamina to clutter.

Particular to CAMM ER is the presence of dual data link between missile and launcher that allows control of the rocket in case of malfunction. Other features of the missile are the minimum required maintenance and logistical support. The CAMM ER is characterized by the high rate of simultaneous fire against multiple targets. The missile launch is in portrait mode with cold launch system, which allows the missile to activate the booster away from the canister and battery with obvious benefits in terms of safety of the personnel. Another interesting fact is that the missile costs considerably lower than the ASTER 15, that its complex technology for high performance demands considerable cost.



# “Hot fall” in East Med Something is going on...

## New energy routes and the geopolitics spheres of influence

Tassos Tsiplakos – Strategy Consultant S.E.Med Energy&Defense

**F**rench Total and Italian ENI are examining the possibility of expanding their co-operation in an effort to spot new potentially important natural gas deposits in the EEZ of the Republic of Cyprus. Their joint course in **field 8 of the Cypriot EEZ** has been finalised, with each side having secured a 50% share, while Total seems to be negotiating with the U.S. leadership about the possibility of exempting it from the sanctions being re-imposed on Iran.

By fostering **the French presence** in the Eastern Mediterranean, hydrocarbon exploration in the Republic of Cyprus’s EEZ following the fruitless attempts to locate new gas reserves and the disappointment that followed, have a **renewed momentum** now, while Ankara is closely monitoring developments in the region. According to information, the French-Italian co-operation seems to be expanding further and will include Plot 3, that is the cause of the **Turkish provocation** in February when, with Ankara’s command, warships hampered the drilling rig of ENI’s “Saipem 12000”, to approach the area. The two European companies are expected to proceed with drillings on Plot 8 **next autumn**. At the same time, **U.S. Exxon Mobil** has also planned to do its own on Site 10.

### Israel puts forward new round of concessions

Israel decided to proceed to a second round of concessions, a total of 25 “pieces” within its EEZ, at the end of 2018 or at the latest in early 2019, thus **triggering a resurgence** of international investment interest if the site is proven to host significant natural gas reserves. According to the **top Israeli geologist Miki Gardosh**, one of the Israeli Ministry of Energy officials, the individual “pieces” will be grouped into 3 or 4 “Plots” to make the offer **“more attractive for businesses”**. In any case, as he noted during his recent visit to the U.S., this maritime region, which lies **south of the Israeli EEZ**, is promising and has not yet been thoroughly researched.

The interest of the energy industry in its **previous attempt** to attract interest when announc-

ing the first round of concessions was particularly limited; for that reason Israel, according to a statement by Yuval Steinitz, the country’s **Energy minister**, is expected to modify the terms of the contracts in order to make them more attractive to businesses. According to Miki Gardosh, “... **large quantities of oil are expected to be discovered in the near future**,” as oil “depots” are located at a greater depth than natural gas. If these expectations are verified, Israel will strengthen its

**French Total SA, Italian Eni SPA and Russian OAO Novatek.**

### Cyprus shall proceed with its energy exploration and exports to Europe despite of Turkey

Cyprus doesn’t cease to declare “urbi et orbi” that will proceed with its program and the commercial exploitation of the “Aphrodite” deposit, which is located on Plot 12 of the Cypriot EEZ. The prospects appear to be positive since it was



position as a natural gas producer on the international scene, and it will now need to look for a more **urgent solution** to how to export the produced hydrocarbon quantities to Europe, that is via Egypt, Cyprus or Turkey **through pipelines or in the form of liquefied natural gas (LNG)**.

Progress has been made in talks with Lebanon too, according to statements by Israeli Energy Minister Yuval Steinitz, who said that “...*some new ideas have been presented but beyond that, I cannot say anything more, as nothing has yet been agreed*”. **Since February**, Lebanon has, despite the unfavourable climate in the region, granted two “Plots” for exploration and exploitation to

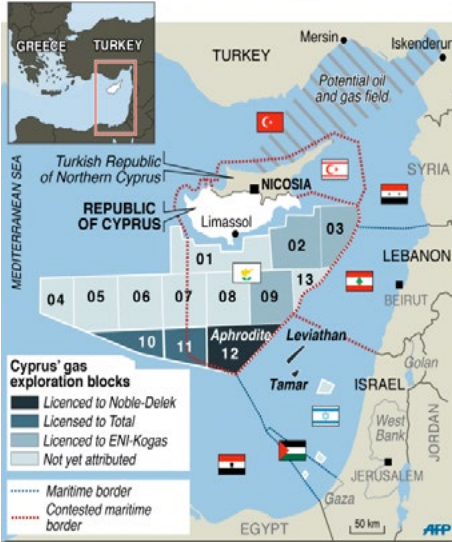
pointed out that the whole effort is at the final stage. The aim is to complete the dialogue with the companies in the next few weeks, despite Turkey’s general threats, and the deal with Israel, which claims 10 billion c.m. of natural gas out of the 100 billion c.m., according to estimates, of **the “Aphrodite” deposit**, as this latter is from a geological point of view, **a continuation of the Yishai field, which is within the Israeli EEZ**.

Cyprus’ Minister of Energy, Commerce and Industry **Yiorgos Lakkotrypīs** commented: “*I think the aggressive behaviour of Turkey is a constant. What we’re doing is, first of all, without wavering, proceeding to execute our energy plans*”



and within that context enhance, strengthen the partnerships that we have both with countries that would form what we call the **Eastern Med Natural Gas Corridor** to Europe, and also with the companies which are operating in our Exclusive

## Gas reserves around Cyprus



Economic Zone. You'll see over the next few weeks further strengthening of these relationships”.

The Cypriot Energy Minister reminded that the European Union supports efforts to export hydrocarbons from the East Mediterranean to Europe. “We have seen very strong political support. For example, right now, we're in the process of **discussions with Egypt** for an intergovernmental agreement for a pipeline that would connect Cyprus EEZ to Egyptian LNG plants and we're seeing very strong political support from the Commission”, and added “We're also seeing the European Union **backing us with funding**, for example they are funding us with €100 million for the Cyprus gas to EU project and also with 35 million for the studies for the engineering and design of the East Med pipeline. We're seeing the EU strongly behind the creation of this corridor so that we diversify not only the supplies of gas but also the routes”.

Mr. Lakkotrypīs stressed that Cyprus **can play a key role** in EU energy security. “Take, for example, the East Med pipeline, should the contents be sufficient to justify that project or the markets justify that project, then you could be transporting gas also by pipeline. There is also the possibility, should the discoveries be sufficient, to build an **LNG plant in Cyprus** as well for liquefaction, not regasification. So, all these methods are being analysed while, of course, we are anticipating the results of the exploration programme”.

There is, also, a **possibility** to transport gas from the East Mediterranean through the Trans Adriatic Pipeline (TAP), the IGI Poseidon pipeline and the Interconnector Greece Bulgaria (IGB) once East Med gas reaches continental Europe.

### The significance of EastMed

The political decision for the construction of the EastMed pipeline following the tripartite Cyprus - Greece - Israel provoked the **Turkish reaction**. This confirms the significance of this

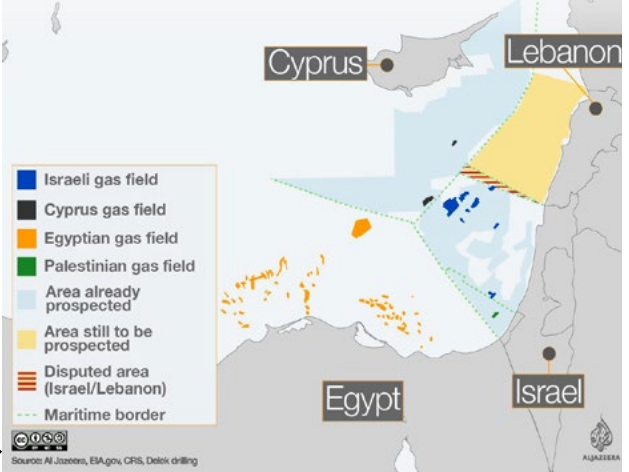
pipeline, which beyond its main energy nature also possesses a **clear geopolitical and geostrategic** nature. It may even take on the guise of a **security subsystem** that will alter not only the **military** but also the **energy and economy balances** between Cyprus, Greece and the EU, on the one hand, in comparison to those between the EU and Turkey, on the other. EastMed creates a new **geopolitical and geostrategic environment** that serves a dual strategic purpose:

a. Maintaining the existence of the Republic of Cyprus on the one hand and deterring its dissolution as well as the Turkish threat on the other.

b. Making secure the exploitation of natural gas.

## Natural gas in the eastern Mediterranean

Natural gas reserves are at the centre of a maritime border dispute between Israel and Lebanon. Both countries lay claim to an area that might have gas fields.



## A loud and meaningful U.S. message to Turkey



Assistant Secretary, Bureau of European and Eurasian Affairs, **Wess Mitchell**, sent the message that the United States of America **counts in its strategic planning Greece and Cyprus** as pillars of stability for the wider region of the Southeastern Mediterranean and the Balkans, while he was addressing the think tank Heritage Foundation in Washington. Analyzing how the US plans to build a **stronger US presence in the Eastern Mediterranean**, Mitchell referred to the geopolitical role of Greece as well as the upgrading of Greek-American relations. “We support Greece as a pole of stability in the Eastern Mediterranean and the Western Balkans,” he said. In this context, we observe that the Draft U.S. Defense Budget for 2019, includes 2 sums of \$47.850.000 and \$2.220.000 for future infrastructures at the U.S. Suda Bay Navy Base. These sums are considered as large and obviously show its **high importance to the U.S. and NATO**, together with the commitment to its upgrading as well as their presence in the region. Finally, referring to **Cyprus** Wess Mitchell stressed that the U.S. **will not remain idle** in case Turkey trespasses its EEZ either by drilling actions or harassment and interdiction of the programmed drillings.

On the same page is the U.S. Ambassador in Athens **Geoffrey Pyatt** who recently said that the **strong trilateral alliances** between Greece, Cyprus and Egypt or Greece, Cyprus and Israel “have been in existence for millenia”. The ambassador also referred to the strong and deepening ties between Greece and the United States, **in both security and energy**, reminding the recent meeting of U.S. Secretary of State Pompeo in Washington with Foreign Minister Kotzias. In that meeting the two governments agreed **to establish high-level strategic dialogue** that will further enhance cooperation on a full range of bilateral issues (for further details on the meeting see our Newsletter #3).

He went on to highlight the significance of the **defence relationship** in “...our joint efforts to maintain security and stability in the Aegean” and added “Our shared interest in Europe's energy security is why we **oppose the development** of Nord Stream II, the second pipe of Turkish Stream. Nord Stream II would concentrate two thirds of Russian gas imports to the EU through a single route, **creating a choke point** that would significantly increase Europe's vulnerability to a supply disruption” Pyatt said.

Cyprus realizing its strategy to become the **outmost E.U. frontier** in the region whatever it takes, as well as the growing needs for the defense of its EEZ, plans a new rearmament program for its National Guard. Conforming to EDA's guidelines and decisions, this programme of about €100m. aims to the acquisition of european weapons systems, as well as U.S. ones, should the arms sales embargo raises. In this context, a program of **bilateral Defense Cooperation** was signed between the MoDs of Cyprus and France, during the formers' Defense Minister mr. Savvas Angelides visit in Paris, where he met his French counterpart Mrs. Florence Parly.

#### The «Andreas Papandreou» Air Base

Under these conditions, however, the security is of major importance. Therefore, Cyprus can not expect its defense to come from abroad, unless it proceeds to take steps, such as the granting of facilities at the «Andreas Papandreou» Air Base to **Israel and other countries**, with which the Republic of Cyprus shall join, because of the natural gas, in **alliances**. With regard to the Cypriot EEZ, a number of european SAM systems, such as the new-generation Exocet, have the range to provide an A/A shield over the entire Cypriot EEZ. At the same time, the purchase of warships - frigates or destroyers- should be considered, as well as the **leasing** or even the purchase by Greece of **fighters** carrying Cypriot national insignia to be stationed at the «Andreas Papandreou» Air Base. These moves can only take place and effect within the context of an **enhanced strategic alliance** with Greece and Israel and the tolerance or blessing of the United States, as such an alliance would be integrated in the European and, generally, the Western security system.



Cooperation in multiple levels, such as Energy & defense, between Greece-Cyprus-Israel-Egypt-Jordan has formed an informal defense alliance in the region, which is being declared via the international exercise «Medussa 6» that started on June 23rd and is **now in progress** till June 29th. Greece's S class frigates «Lemnos» and «Nikiforos Fokas», Type 214 sub «Pipinos» -known as «**ghost sub**» to the british from its excellent stealth performance during recent NATO naval excercises- two S-70 Aegean Hawk helicopters, together with a Chinook, two Apache helicopters and several F-16s Block 50 and 52 plus, will be the Greek participation, stationed in Egypt's harbours and airfields. The **Greek contingent** also includes units of Hellenic

Navy's Underwater Demolitions Team as well as Marines, that are scheduled to operate from Egyptian Navy's class «Mistral» Helicopter Carrier «Anwar El Sadat», which will be the Command Post of the exercise.

«Medussa 6» sends an **eloquent and strong message** to whom it may concerned, that all the participant states are willing to maintain security and stability in the South East Mediterranean, **by all means**, in order to provide a safe business environment for the new energy routes. In this context, special meaning and multiple messages are transmitted by the inclusion of naval interdiction scenarios, high value intelligence exchange as well as many other possible challenges and threats in a high stakes region.

## EDA develops initiatives for military mobility and new MBT

The European Defence Agency's (EDA) ministerial Steering Board met on Saturday May 5th in Sofia, under the chairmanship of HR/VP Federica Mogherini in her capacity as Head of the Agency. Defence ministers among other things welcomed the Agency's progress on taking forward the new European defence initiatives and encouraged EDA to further develop initiatives in areas such as **military mobility** and the **Main Battle Tank** capability.

#### Military Mobility

Regarding Military Mobility, and in line with the scope and timelines mentioned in the European Union Action Plan, the Agency is currently preparing two ambitious programmes on the harmonisation of military requirements related to customs and on cross border movement permission.

Both programmes aim at facilitating military mobility activities. The Agency together with the participating Member States will look at harmonising the military requirements related to customs. The programme on cross border movement permission builds on the successful Diplomatic Clearances arrangement which foresees

annually issued clearance numbers for **air transport aircraft**. The arrangement has proven its value by reducing administrative burden and time. The new programme will build on this good practice by looking at surface movement to **enhance military mobility** for road, rail and inland waterways, also including air assets such as helicopters and air-to-air refuelling aircraft. The Agency's work in this area is coordinated with the PESCO project on military mobility and conducted in close cooperation with the EEAS, EUMS, the Commission and other stakeholders. It is also **coherent with respective** NATO initiatives.

#### Main Battle Tank

Defence Ministers invited the Agency to pursue the development of the Pooling and Sharing initiative on Main Battle Tanks (MBTs) based on identified MBT surplus capacities in a number of Member States (Providers) and a demand



for the acquisition of such assets in others (Receivers). The Agency together with national experts and industry investigated to what extent Providers could pool & share their surplus assets with interested Receivers and upgrade the MBTs to the latest configuration available. In addition, some Member States have voiced interest in upgrading their national fleets and keep them under full national control (Upgraders). The project will provide economies of scale throughout the entire life cycle while enhancing interoperability among Member States.





# OH-58D Kiowa Warrior

**A cost effective solution for the Greek Army in multiple roles**

Chris Burgess – President Skycore Aviation

Earlier this year, Greece finalized the acquisition of 70 Bell Helicopter OH-58D Kiowa Warrior armed scouts from the U.S. Army. These helicopters were acquired through the U.S. military's Excess Defense Articles (EDA) program, enabling Greece to receive the aircraft at no cost except transportation from the U.S. However, to utilize the aircraft Greece will have to **restore** the Kiowa's in Greece, **train** Greek pilots and maintenance technicians and purchase two years' worth of **spare parts** which the government has reportedly allocated €44 million. The helicopters are scheduled to arrive later this year.

## The Kiowa Warrior

The OH-58D Kiowa Warrior is classified as an armed reconnaissance helicopter. The Kiowa's unique features are its two external stores pylons, used to carry missiles, machine guns or rockets; and the distinctive **mast-mounted sight (MMS)**, situated above the rotor blades which looks like a globe. The MMS enables the Kiowa to operate and engage targets day and night while **minimizing helicopter exposure**. The sensors in the MMS include a high-resolution television camera for long-range target detection, a thermal imaging sensor and target designators.

## How can Greece best use these helicopters?

As a reconnaissance aircraft with **sophisticated observation capabilities**, the Kiowa can assist the Greek military with border patrol especially with disputed islands. If a reconnaissance patrol were to turn hostile, the aircraft is equipped to defend itself. The MMS is well suited for reconnaissance missions in the mountainous areas of the Greek islands. It allows the aircrews to remain **out of sight** using terrain masking while employing the MMS for observation. As an armed helicopter, the Kiowa Warrior weaponry enables Greece to **project power and react decisively**. The various weapons systems can be tailored to be used



against tanks, maritime vessels and infantry and will be very useful in targeted conflicts **in conjunction with the Apache helicopter**. While smaller than other helicopters in the Greek inventory, the Kiowa can be used for medevac, as the U.S. did in Afghanistan and Iraq, or in a utility role carrying 4-6 troops if equipment configurations are changed. As a smaller low signature helicopter, one can easily envision using the aircraft for the **insertion and extraction** of small unit Special Forces teams, much like the MH-6 Cayuse or MD-530 Defender. Lastly, ten helicopters will reportedly be used for training, a **key element** to the long term success of any helicopter fleet. In the end, the OH-58 offers Greece an operationally **cost effective solution** able to handle multiple roles.

## Skycore's Added Value

In order to accomplish the multiple roles envisioned for the Kiowa's, once the helicopters are delivered the Greek Army will first need to focus on the **three (3) key components** of all successful helicopter lift programs: aircraft, upgrades and support. Skycore Aviation, a global helicopter personnel service company ([www.SkycoreAviation.com](http://www.SkycoreAviation.com)) has successfully utilized these key elements with its current and previous customers as well as with its successful Blackhawk 360 solution ([www.BlackHawk360.com](http://www.BlackHawk360.com)); whereby Skycore resets former U.S. Army UH-60A Black Hawks to provide a medium lift helicopter for today.

- **Aircraft:** Upon delivery, each Kiowa helicopter should be inspected and maintenance records reviewed. If parts are "high-time" or "timed-out" they should be replaced based on U.S. Army standards. In addition, each aircraft will be restored to operational readiness. Skycore technicians have performed similar scheduled maintenance inspections during its twelve year history of maintaining helicopter programs for foreign governments. Their

**expertise** has allowed Skycore to similarly restore excess UH-60A Black Hawk helicopters, auctioned off by the U.S. Army, to flyable condition. The Skycore team ran its aircraft through Phase Maintenance Inspections (PMI-1 and PMI-2) following the Black Hawk helicopter U.S. Army maintenance program.

- **Upgrade:** Based on the proposed Kiowa fleet, some helicopters might require avionics, communication and navigation upgrades to maintain consistency among aircraft. The expected upgrades are comparable with other successful Skycore upgrades. Skycore has the **ability and experience** to upgrade avionics, install mission equipment and other technology to complete any Greek Army mission.
- **Support:** After the Kiowa's arrival in Greece, training of the Greek Army pilots and maintenance technicians will be critical to ensure the program's success. Skycore Aviation has **successfully transitioned** hundreds of pilots and technicians using classroom, simulator, in-flight, flight line and on-the-job training techniques. Pilots advance from transition and differences training to operational mission and mission equipment training upon successfully passing pre-determined tasks. **Pilot training** includes day, night, night-vision-devices and IFR conditions in mission environment (over-water and mountain). Technical and logistic personnel benefit from informal training utilizing standard operating procedures and "best practices".

Training is just another component of **Skycore's turn-key approach** to supporting helicopter programs. Skycore's program management, monitoring operational readiness, standardized procedures, safety policies and best practices have a **proven track record of success** that can be leveraged for the success of the new Kiowa fleet.



## Greek F-16C/D Block 30 fighters for sale!

The MoD must teach an old dog new tricks...

Phaidon Karaisofides – Managing Editor “Flight & Space”

Photo source: N. Chantzis

The recent decision of the Greek government to proceed with the **partial modernization** of the Hellenic Air Force 155-strong F-16 fleet, resurrected the possibility of some of the older F-16C/D Block 30 fighters to be offered for sale to the international market with some **potential buyers** in the Balkan area. The development raises some interesting aspects of cooperation.

Greek Air Force procured **40 F-16C/D Block 30** (powered by General Electric F110-GE-100 engines) that were delivered new from General Dynamics (now Lockheed Martin) under the Peace Xenia I Foreign Military Sales Program, between November 1988 and October 1989, forming two squadrons (346 Moira and 330 Moira). At a later date they were **modified** to carry AIM-120 AMRAAM missiles, but mostly remained at the technical status and the operational capabilities when they were introduced into service and didn't implement **any major upgrade and improvement** programs that Block 30/32 models received in other air forces.

Around 2005 the possibility of implementing a **mid-life modernization program** was put under consideration however at the time Hellenic Air Force was financing the **procurement of new F-16 Block 52+/Advanced** with little hope to find the necessary funds for a parallel MLU program. In the early 2010 the Hellenic Air Force General Staff decided against any MLU program of the early «third generation» fighters in service, i.e. F-16 Block 30 and Mirage 2000E/M/BGM procured also in the late '80s.

At the time of writing **32 Block 30** aircrafts (28 single-seat C models and 4 dual-seat D mod-

els) **“survive”** with the 330 Squadron (111 Fighter Wing) in very good general condition and about half their operational “life” of 8,000 flight hours still remaining. Greek F-16 Block 30 were **never considered surplus**, although new generations of Vipers (as well as Mirage 2000-5 Mk2) were procured in substantial numbers, mainly due to the high Greek defense needs against Turkish aggression. Nevertheless, **in 2014** some information appeared (never confirmed or denied officially) that Greece was considering a **request by Bulgaria** to transfer a small number (6-8) F-16s in order Sofia to fulfill an urgent requirement for “new” fighters related to NATO obligations of the Balkan state.

In late spring **2017** Greece made an official offer for 12 F-16 Block 30 responding to an international **request by Croatia** in order to replace older MiG-21 fighters. Although evaluated the Greek offer never made it into the Croatian short list. Zagreb finally opted for second hand Israeli F-16 Block 30 “Barak” models. Approximately at the same time that the Croatian tender was made, there was information that **United Arab Emirates** expressed an interest on the Greek Block 30 F-16s, as part of a plan to use the aircraft as the basis to form an OCU (Operational Conversion Unit) in a new UAE integrated training system to support advanced fighters in service, under order or considered for future procurement.

In **October 2017** the Hellenic Air Force General Staff, while presenting the plan of the program to modernize 85 F-16s into F-16Vs with AESA radar, outlined also plans for the remaining Fighting Falcons in Greek service: 37 remaining Block 50 F-16s to be modernized as Block 50+/Advanced using surplus parts from

the F-16V program, retain 20 Block 30 F-16 “as is” and releasing **12 Block 30s for sale** in the international market.

Early **May 2018**, another Balkan state, **Romania**, issued an international request for 8-12 fighters. Romanian Air Force, in order to replace older MiG-21 Lancer fighters procured in 2012 12 F-16 A/B Block 15 MLUs from the Portuguese Air Force. The new request is the second phase of the original plan for a total of 36 fighters on service by mid 2020s. Bucharest officially confirmed that was considering additional Portuguese F-16 MLU, Israeli “Baraks” or Greek Block 30 F-16s. Romania is expected to decide upon a new batch of aircraft **before the end of the year**. In the meantime, **Bulgaria** is also trying to implement a new plan to procure 16 fighters, in two batches of 8, in the short term future and 8 more until 2024. The participation of the Greek F-16s in a new Bulgarian tender is a **possibility**, depending on the conditions of the request, that remain unclear at the time.

A **major obstacle** in any attempt to sell the Greek Block 30 F-16s is that the fighters, although “low-time” –not having received any upgrades for 30 years in service- **are considered obsolete**, especially compared to Israeli “Baraks” offered at the same time. Greek Block 30s would have a **much higher market value** if they were put into a modernization program as part of any international sale offer. A very **viable possibility** could be to use surplus F-16 parts as Greek Air Force implements the F-16V and will become available after 2020. Using these parts and assemblies together with new ones can **upgrade** the Block 30 aircraft to Block 50+ status at a very **attractive price** and with high market demand.





## Despite U.S. Senate opposition, Turkey “received” its first F-35s

*Lockheed Martin held a rollout ceremony for Turkey*

**D**espite opposition from the U.S. Congress, Turkey received its first two F-35 Joint Strike Fighters on Thursday June 21st, during a **ceremony in Fort Worth, Texas**. Lockheed Martin held a rollout ceremony for Turkey, and the two jets will follow-on to Luke Air Force Base in Arizona at a later date, where Turkish F-35 pilots and maintainers **have already arrived** and are expected to begin flight academics soon.

Although Turkey has long been a participant in the development of the F-35 program, the US Senate had sought to **block Turkey** from receiving the stealth warplanes through language in the National Defense Authorization Act, amid a deterioration of the US-Turkey relationship. The Senate’s version of the defense bill **expressed concern** over Ankara’s planned purchase of the S-400 anti-aircraft system from Russia and what it labeled **Turkey’s unlawful and wrongful** detention of Andrew Brunson, a US citizen. Many US officials have **expressed concern** that a major Russian military system like the S-400 would be incompatible with the NATO systems used by Turkey’s alliance partners.

«Our concern is that Turkey is going through a very dramatic transition as a country,» said **Senator James Lankford**, a Republican from Oklahoma and one of the leading voices on Capitol Hill against the F-35 deal. «Turkey has gone a **long way from being a NATO ally and an important partner in working against terrorism, to the situation today, where it is holding an American citizen as a bargaining chip**» continues, referring to Andrew Brunson, a pastor under arrest in Turkey since last year. This incident, Lankford said, is **indicative of a broader change** taking place in Turkey, in which the country is becoming **less reliable as a U.S. ally**.

The Senate bill also calls on **Secretary of Defense James Mattis** to submit to Congress «...a plan to remove the Government of the Republic of Turkey from participation in the F-35 program» as well as list the «...**steps required to prohibit** the transfer of any F-35 aircraft currently owned and operated, by the

*Government of the Republic of Turkey, from the territory of the United States*». According to US defense officials, **Mattis is opposed** to congressional attempts to block Turkey’s receipt of the advanced warplanes. Mattis has been actively engaging with members of Congress in an attempt to ensure that the language in the Senate’s version of the defense bill **does not make it** into the final version to be signed by President Donald Trump.

The Senate overwhelmingly passed its version of the defense authorization bill however, it **still needs** to be reconciled with the House’s version and the final version would need to be signed by the President.

### Criticism from Turkey

Congressional efforts to block the sale to Turkey have drawn criticism from Turkish officials. «We have been in that program, including some joint production, production of the parts of F-35s in Turkey,» Turkish Foreign Minister Mevlüt Çavuşoğlu has said earlier this month. «...Turkey **has been paying the installments on time, on due time**. And Turkey have met all the requirements, but you cannot cancel this because of the S-400s that we are buying. It is a totally different issue» added, saying Turkey **should not be forced** to choose between the US and Russia.

## Israel is concerned about F-35 sale to Turkey

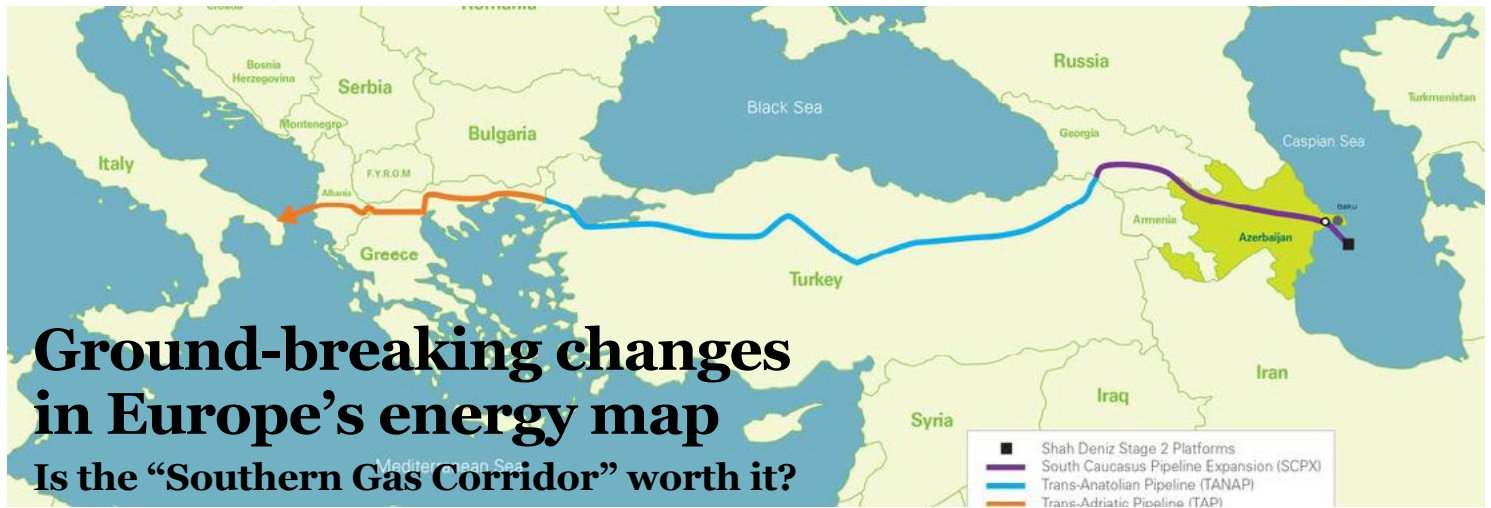
Expects U.S. to withhold «upgrade capabilities» so that Israel keeps its edge

**I**sraeli officials are concerned about the deal to provide F-35 stealth fighter jets to Turkey, and the issue is **currently being discussed** with the United States. A senior Israeli defense official said Israel would like to **remain the only country in the Middle East** with the F-35 in order to keep its military qualitative edge and **out of fear** that details about its capabilities would leak to neighboring countries. Talks between Israel and the United States are centered, among other things, **around software** developed by the Americans that allows the «upgrading» of F-35 capabilities. Sources in Washington confirmed that the issue is currently «part of the negotiations» relating to the F-35 deal,



although officially **Israel denies it**, and that it is only closely monitoring developments.

The Israeli Air Force is **scheduled to receive** the software that will improve the plane’s performance in July, and Israel is worried that Turkey will also receive it. One possibility being discussed is providing Turkey **the plane without the software**, thus keeping Israel’s edge. According to a foreign policy adviser to a US senator, involved in the discussions, is rumored to have said:«No one here **has any doubt** that Israel prefers to stay the only country in the region that has these attack capabilities. The Israelis know how to make that clear, **in their own ways**».



# Ground-breaking changes in Europe's energy map

## Is the "Southern Gas Corridor" worth it?

The "new energy map of Europe" is a fact, according to **Azerbaijan President Ilham Aliyev**, who made this statement at the inauguration in Baku of the first section of the famous "Southern Corridor", the network which, by releasing Europe from the Russian gas, will supply natural gas from Azerbaijan to European markets. With the symbolic move of the pipeline opening at the **Sangachal gas terminal**, Azerbaijan's President gave the "go ahead" of one of the **most ambitious** projects the EU has backed in the energy sector, marking at the same time the end of an era, as the Azerbaijani energy game that was in progress is now coming into action.

The Azeri natural gas from the second phase of the **Shah Deniz deposit** in the Black Sea until reaching Italy will cross the territo-

ries of Georgia, Turkey, Greece, Albania and will pass through the Adriatic Sea through the **South Caucasus Pipeline (SCP)**, **Trans-Anatolian Natural Gas Pipeline (TANAP)** and **Trans-Adriatic Pipeline (TAP)**. The cost of implementing the Southern Corridor is estimated at **\$40 billion**. About 10 billion c.m. of natural gas are expected to boost European industry by 2020, with 6 billion c.m. of it feeding Turkey.

### Big criticism...

There is nothing that will change **except from the supplier country**, since instead of Russia, Europe will **now depend** on Azerbaijan. The opposing voices continue by saying that Europe may end up, instead of increasing its energy security, investing in a **costly and useless infrastructure** that could act as a **tool of political power** in the hands of the

authoritarian regime of Azerbaijan's President, **Ilham Aliyev**. According to various reports, the demand for natural gas as recorded until now in Europe, does not seem as if it would increase in the years to come to a considerable extent that would **justify** the implementation of such grand projects.

At the same time, up to now, only Azerbaijan has secured the participation in the "South Corridor" and the access to its pipelines, **TANAP** and **TAP**. If in the future another country wants to join, such as **Turkmenistan, Iran or Iraq**, new agreements between each country and the EU will have to be drawn from scratch. As a result, the critics say **"...the only winner is Azerbaijan"**.

The "Southern Corridor", which consists of the capitalisation of the second phase of exploitation of the **Shah Deniz** deposit in the Caspian Sea, the **South Caucasus Pipeline**, from Azerbaijan to Georgia, the **Trans-Anatolian Pipeline (TANAP)** in Turkey and the **Trans-Adriatic Pipeline (TAP)** in Greece, Albania and Italy is a **priority** of the EU's external and energy policy and at the same time enjoys privileges such as financial support from EU public finances but also a **favorable** legal and tax regime.

Meanwhile, as indicated, the **European Investment Bank (EIB)** intends to release €1bn funds for the **TANAP** pipeline, €2bn for the **TAP** pipeline, while the **European Bank for Reconstruction and Development (EBRD)** is supporting the **TAP** pipeline with €1.5bn and with \$1.2bn the upgrading of the **Shah Deniz** deposit. The World Bank is considering to put \$1bn in the **TANAP** pipeline construction. The consortium managing the **TAP** pipeline, has in the meantime secured a **favorable tax treaty** of 25 years in Greece as a state aid measure, which has been approved by the European Commission.

The "Southern Corridor" is expected to transfer 10 billion c.m. of natural gas to Europe per year. This quantity however, can cover only 2-3% of the European market's needs.



# The "detour" of EU's "Southern Gas Corridor"

## The Russian Bear counterattacks...

Russia is expected to take steps to achieve its **own energy goals and geopolitical plans** to transport, under the Black Sea, about 31 billion c.m. of Russian natural gas into Europe. Moscow has reached an agreement with Ankara on the construction of the **Turkish Stream** natural gas pipeline. The co-operation protocol signed by **Russian Gazprom and Turkish Botas** finalises the implementation of

this project, as detailed terms and conditions for the construction of the **Turkish Stream** pipeline have been noted; the project is being undertaken by the newly formed **TurkAkim Gaz Tasima AS**. The **first leg** of the pipeline is expected to supply Turkey with Russian gas, while the natural gas that will pass through the **second leg** of the pipeline will end up in SEE countries.

Moscow plans to connect the Turkish



Stream pipeline with the Poseidon pipeline, a **planned gas pipeline** from Greece to Italy, designed by IGI Poseidon SA, a consortium of Greek DEPA and the Italian Edison S.p.A. On 2 June 2017, Gazprom, Edison and DEPA **signed a co-operation agreement** to implement this project, and on 25 May 2018, on the occasion of the St. Petersburg International Economic Forum 2018 (SPIEF '18), **Gazprom's** chief, Alexey Miller, and the French **EDF Group Gas** and Italian **Edison's** Marc Benayoun, confirmed their interest for the Poseidon pipeline.

On the occasion of the Greek Foreign minister Nikos Kotzias' recent visit to Moscow, **Russia's Foreign minister Sergey Lavrov** made an open invitation to anyone interested. "... *Plans entirely depend on agreements attached to the states concerned. If we are interested in further developing our energy co-operation, we will certainly **respond positively***", and added that "... *if there is **political interest**, economic parameters can also be agreed. Most importantly, there is no **artificial intervention** on the terms of a project, as was the case with the **South Stream pipeline***".

"We have repeatedly stated that we are **willing to co-operate** with regard to the Turkish Stream pipeline. If the EU countries are interested getting the natural gas of this pipeline, it is necessary to **ensure in advance** that this will be 100% guaranteed by the EU. We are always **ready to compete** with other producers and other routes, which are now under discussion on the **Southern Gas Corridor**," the Russian official said, "**as long as competition is as proper as in the case of countries that respect the market economy**". The message from the Russian side is clear...

### Bulgarian PM optimistic on gas link to Turkey

Recently, Sofia expressed interest, through statements to Moscow, for deliveries of Russian gas from the **Turkish Stream pipeline** to the planned Balkan gas hub near Varna, as Bulgaria wants to consolidate its presence in the energy sector in the SEE region, while upgrading its geostrategic position. On the other hand though, the Bulgarian Prime Minister **Boiko Borissov** said on June 12 that he was optimistic that the expanded gas link between **Bulgaria and Turkey** could become operational before the end of June. The project envisions expanding the capacity of the gas link from 14bn c.m./year to 15.7bn c.m./year and would allow reverse gas flows from Turkey to Bulgaria.

Bulgaria is making **every effort to make possible** the transit of Azeri gas to Europe and the expanded gas link was part of those plans. The Trans-Anatolian Pipeline (TANAP) and the construction of inter-connector pipelines to neighbouring countries, such as **I.G.B.**, would



ensure that Azeri gas reaches Bulgaria. **Bulgartansgaz** has agreed to buy 1bn c.m./year of Azeri gas from the Shah Deniz 2 development, enough to satisfy about a third of domestic demand, as it seeks to diversify gas sources.

Through Bulgaria however, **Hungary** also expects to import Russian natural gas. The Hungarian minister of Foreign Affairs, Peter Szijjarto recently announced that Budapest is considering importing Russian natural gas through Bulgaria and Serbia with the **«help»** of the Turkish Stream pipeline. This announcement came after a tripartite meeting that took place recently in Belgrade, between Szijjarto and the Energy ministers of **Serbia and Bulgaria**, Aleksandar Antic and Temenuzhka Petkova respectively. As the Hungarian FM said, *«The new route would be a **huge contribution** to the secure energy supply to our region and we hope that we will have the support of the European Union».*

### The rest stakeholders in the region

**Greece**, on the other hand, has **secured transit** of its **Trans-Adriatic Pipeline (TAP)** pipeline, which will transport **Azerbaijan's** natural gas to Europe. However, channels with Russia remain open; although the deal might still be unsigned, there is a thought to implement the Southeast European Pipeline that will transport Russian gas through the Black Sea and Greece



to Italy. Only a year earlier, **Greek DEPA, Italian Edison and Russian Gazprom** signed the agreement in St Petersburg. The three companies had indicated that they would co-ordinate the development and implementation of the **Turkish Stream** pipeline and the **Poseidon** pipeline from the Greek-Turkish border to Italy, in full compliance with the current relevant legislative framework.

In the meantime, **Serbia** is interested to "enrich" its own energy market through a pipeline, while **FYROM** has expressed a similar desire to be included in the energy map as it is shaped in the Balkans.

Finally, plans for the arrival of the **American LNG** to the Balkans, via **Croatia or Greece**, in order to "boost" the energy market in the Balkan countries are progressing.

The "game" is progressing and is becoming more and more interesting as time goes by...