# **ASX Release**



27 October 2017

Activities Report

Quarter Ended 30 September 2017

#### **HIGHLIGHTS**

#### **OPERATIONS**

# Offshore Italy - Nilde Oil Field Redevelopment

**ADX Energy Ltd** 

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- During the quarter, ADX satisfied all recommendations from a Nilde subsurface peer review and audit held last quarter with a substantial update to the subsurface integration and static and dynamic modelling. The selection of a reference case for appraisal and development planning is now also complete.
- The Nilde appraisal location has been selected with the well being planned as a twin of Nilde-2. The appraisal objectives and data acquisition program has also been prepared.
- ADX worked collaboratively with Calm Oceans Pte Ltd (COPL) to further refine the implementation and costs of the development concept utilizing the Mono Column Platform (MCP) and Relocatable Pivoting Storage Offloading (RPSO) to provide greater definition.
- ADX is now in a position to actively market Nilde with a very well defined technical and commercial proposition for investors or farminees. A formal farmout process has begun with a dataroom open to a number of interested parties during the December quarter.

## Offshore Tunisia - Dougga Appraisal and Development

- During the quarter, ADX finalized its in-house integration of the subsurface following the
  fracture network modelling and other interpretative work during the previous quarter. A full set
  of gas, LPG and condensate production profiles have been generated. Potential reservoir
  productivity "sweet spots" have been identified based on the above work to support appraisal
  planning and development concept work.
- ADX has commenced detailed well planning and logistics for the planned Dougga Sud well which ADX and its National Oil Company Partner ETAP plan to drill during 2018.
- ADX executed a drilling contract with Noble Drilling Services Inc for the drilling of Dougga Sud
  utilizing the GlobeTrotter II drill ship. The contract delivers an excellent technical and
  commercial option for the drilling and the productivity testing of the well.



- ADX has engaged in ongoing discussions with ETAP and the Directorate of Hydrocarbons (DGH)
  in relation to the renewal of the Kerkouane permit for a further 3 years. ETAP and the DGH
  have recommended the renewal of the permit which is expected to be considered by the
  Tunisian Hydrocarbon Committee by the end of October.
- ADX has requested Expressions of Interest ("EOIs") from suitably qualified contractors to obtain budget estimates who have the capability and experience to supply equipment and facilities for the development of Dougga.
- ADX has received unsolicited interest from a number of parties interested in Dougga. ADX is
  now in a position to provide technical definition for the Dougga gas condensate project and
  expects to be in a position to provide revised economics for the project upon the receipt of
  budget estimates from equipment suppliers in the coming weeks.

#### Onshore Romania – Parta license

- During the quarter, ADX has further progressed the maturing of the two gas appraisal prospects in the northern part of the license which are close to gas processing facilities. The two prospects offer a combination of appraisal and exploration targets within the same respective well. Due to the relatively low expected drilling costs of US\$2 to \$3million and shallow gas pool depths (around 1600 to 2400 meters), even a single pool discovery can be profitably commercialized.
- Economic modeling indicates that should several targets be successful, a significantly higher commercial value can be realized, as per the table below, which summarizes a few selected outcome scenarios.

Opportunity	Well Cost (US\$million)	P50 OGIP <sup>1</sup> (BCF)	Recoverable Gas <sup>1</sup> (BCF)	NPV <sub>10</sub> (A.T.) (US\$million)	ROI	Comment
CARP 55 Upper Zone	\$2.2	11	3.3 (Single Well)	\$7.0	2.5	Single shallow zone
CARP 55 Upper & Lower Zone	\$2.5	35	7.3 (Single Well) 25.4 (Total Field)	\$19.2 (Single Well) \$64.3 (Total Field)	4.8 5.3	Single well dual zone 5 well full development
IM 35 Upper Zone	\$2.5	8	3.2 (Single Well)	\$6.4 (Single Well)	2.3	Single shallow zone
IM 35 All Zones	\$3.2	18	8 (Single Well)	\$22.4 (Single Well)	4.9	Single well dual zone

Table 1: Parta Appraisal Economics.

Note 1: Refer to ASX announcement 8/8/2017 Contingent & Prospective Resources



- Drilling of the prospects in the northern part of the Parta license is expected for late 2018. RAG
  has notified ADX that it elects not to participate in the appraisal well drilling program and hence
  ADX will continue drilling preparations at 100% participating interest under the "Exclusive
  Operations" clause of the Joint Operating Agreement.
- ADX is in discussion with a number of parties to secure funding for the appraisal drilling program.
- ADX and its JV partner RAG (50%) are also continuing preparation for 3D acquisition.

#### **Share Investments**

• ADX sold its entire shareholding in Riedel Resources Limited (ASX: RIE) via an on market sale to receive gross proceeds of \$1.32 million.

#### **OPERATIONS**

Offshore Italy Pantelleria Permits & d363C.R-.AX permit (Operator, 100% equity interest)

## The Nilde Field Redevelopment Project

## Nilde Subsurface Planning Case

During the quarter, ADX closed out the actions and recommendations from the subsurface peer review and audit held during the June quarter where, most importantly, the most likely base case was identified to serve as a basis for appraisal and development planning (Figure 1 and Figure 2). The audit also made a number of technical recommendations all of which were incorporated into a new iteration of the static and dynamic modelling, volumetrics and production forecasts.

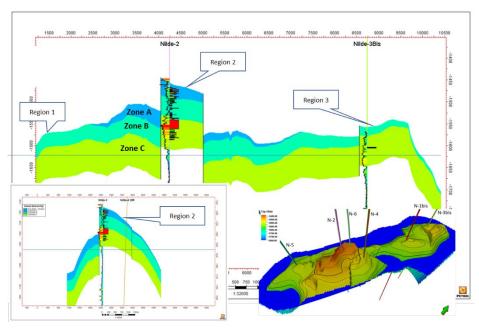


Figure 1: Base Case Nilde Cross-section and Historical Well Locations



This update has highlighted three reservoir characteristics which are key determinants for the commercialisation the redevelopment project:

- 1. **Highly Productive Wells.** Dual porosity carbonates with a well-connected fracture system, as supported by logs, core and DSTs, deliver highly productive wells. Nilde-2 produced around 9000BOPD for more than 5 years.
- 2. Majority of original oil in place bypassed by previous production. 99% of all previous production was from perforations in Zone A. Due to a mid-reservoir sealing layer, much of the Zone C oil in place is bypassed (Figure 2) with an historical recovery factor less than 10% from this zone despite the thicker and higher quality reservoir.
- 3. Favourable characteristics for fracture system recharge since shutin. The production history and experimental special core analysis (SCAL) data support matrix contribution to oil recovery during production time as well as fracture system recharge from the matrix since shut-in (over the last 30 years).

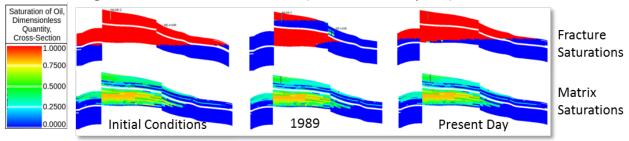


Figure 2: Bypassed Pay and Recharge by Imbibition in the Nilde Base Case

# Nilde Appraisal Planning

An appraisal well is planned in 2018 as a redrill of Nilde-2 to validate the subsurface understanding as well as support the development planning and a financial investment decision "FID" by:

- confirming the productivity of a thick, lower reservoir zone (Zone C) which is expected to have been bypassed by previous production and remains largely undrained;
- confirming recharge of the fracture system in the upper, previously produced Zone A; and
- demonstrating sufficient recoverable volumes to support a development decision.

It is intended that the well will be retained as a producer if it meets minimum reserves criteria.

The appraisal well is planned to be a "twin" of Nilde-2, located at the crest of the field with the largest known intersection of Zone C within the original oil column. The large amount of information from this key well, Nilde-2, including logs, core and production history provides a diagnostic outcome from a well that can test the current day oil water contact and reservoir saturations compared to the original well. It is also an optimal development well location in all viable geological scenarios.



An Extended Production Test (EPT) option which enables the planned appraisal well to be produced immediately after its evaluation and testing of the appraisal well is being considered. An EPT has the potential to de-risk and financially support the full-field development. Furthermore, an EPT is expected to provide valuable additional reservoir information, accelerate cashflow and facilitate accessibility to funding.

ADX and Calm Oceans Pte Ltd (COPL) have agreed to extend the Field Development Planning Memorandum of Understanding (MOU) whereby the parties will jointly prepare a field development plan for submission to the Italian Authorities. The MOU entered into in December 2016 has been extended to July 2018.

Work has also continued between the parties to optimize the schedule for development planning and integration of production facilities with the Mono Column Platform (MCP) and Relocatable Pivoting Storage Offloading (RPSO). The parties have also worked together to provide greater definition on capital costs, lease costs and operating costs for the full field development project concept utilising the MCP and RPSO .

#### Farmout Status

The project continues to attract a range of potential investment sources including vendor finance, oil traders, private equity and industry farminees due to the relatively low risk nature of the resource, the low predicted capital costs and excellent fiscal terms.

With the completion of technical studies, ADX is now in a position to present a final investment proposition to potential farminees and access to a coherent data room including the resource, development and economic data. ADX has increased engagement with a number of potential farminees and/or purchasers of a partial interest in the project that have been awaiting the conclusion of the Information Memorandum and access to a data room.

ADX will continue to advise shareholders of material progress on funding discussions now that farmout and financing discussions have become our primary focus.

#### Regulatory Approvals

ADX has commenced a process with the Italian Designated Authority to convert the exclusively awarded application to a ratified license enabling appraisal operations to commence. ADX has been advised that on July 4, 2017, the Constitutional Court - Judgement 198/2017 declared that an Implementing Decree of March 25, 2015 has been cancelled because the Regions were not adequately involved in the matter, and that without the presence of that Implementing Decree, Ministry-UNMIG (Ufficio Nazionale Minerario Per Gli Idrocarburi E Le Georisorse) is not in the position to award exploration licenses for the on and offshore areas. It is expected by Ministry-



UNMIG to have a new Directorial Circular during the 4th quarter of 2017 to cover the abovementioned regulatory limitation. ADX expects that ratification of the permit will occur after the Italian Designated Authorities are in a position to consider its application.

This delay is not expected to affect its current farmout efforts.

## Offshore Tunisia Kerkouane permit (Operator, 100% equity interest)

#### Dougga Subsurface Work

During the quarter, ADX finalized its in-house integration of the subsurface following the detailed interpretative fracture network and 3D geological modelling during the June quarter. The work has confirmed that the appraisal well, Dougga Sud, is expected to intersect approximately 600m gross gas column with better reservoir quality than that intersected at Dougga-1. Dougga Sud is also located in an area identified by the fracture network modelling as a "sweet spot", with the proposed location expected to benefit from improved fracture connectivity productivity.

A full set of gas, LPG and condensate production profiles and volumetric estimates have been generated and show potentially long-lived revenue streams from both gas and liquids assuming a successful appraisal campaign. The base case shown in Figure 3 below is for 6 development wells producing over almost 20 years which is expected to deliver 56MMCFD sales gas and 8500BBL/D liquids (C3/4 and condensate) during plateau. The subsurface results are being utilized in the ongoing detailed appraisal and development concept planning.

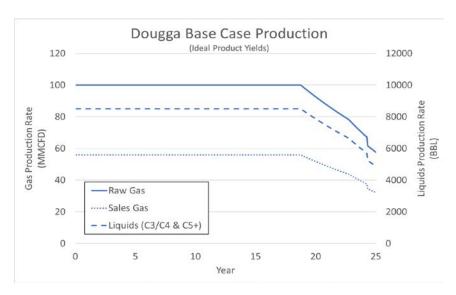


Figure 3: Dougga Base Case Production Profile Estimates



#### **Facilities Concept Studies and Costs**

As discussed at the 30 June 2017 half yearly report, ADX with the assistance of TechnipFMC has determined that a subsea development tied to an onshore gas plant via a 43 km subsea gas and liquids pipeline is expected to be the optimal development in terms of operability and full cycle costs. A concept schematic in shown below in figure 4.

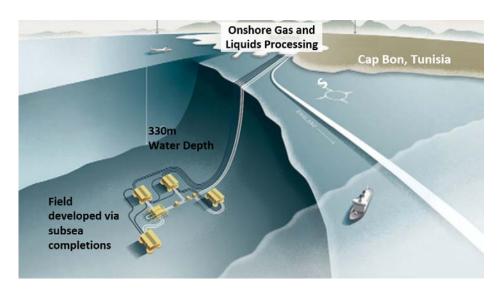


Figure 4: Dougga Base Case Development Concept Schematic

ADX has requested Expressions of Interest from suitably qualified contractors to obtain budget estimates from parties who have the capability and experience to supply equipment and facilities for the development of Dougga. These costs will be used to generate project economics for discussions with funding parties and farminees.

## **Dougga Product Marketing**

ADX has commenced discussions with Tunisian Authorities in relation to marketable products from Dougga.

- Sales Gas is in great demand in Tunisia which has significant shortfall for its domestic power generation requirements with more than half of the country's gas requirements currently sourced from Algeria. Under Tunisian energy legislation, the Tunisian Generation Authority will buy gas on an "oil equivalent" basis. At the current oil price, this equates to approximately US\$5.50 per mcf.
- Condensate and LPG approximately 50% of the energy equivalent production of Dougga is forecast to be LPG and Condensate. Tunisia is only 20% self-sufficient in both commodities with 80% being imported from overseas. Given the supply-demand imbalance, there is potential to obtain a premium to international pricing for both condensate and LPG.



It is ADX's goal to secure an MOU for the sale of Sales Gas from Dougga subject to a successful Dougga Sud appraisal well. This will assist ADX with discussions with Farminees, investors and potential equipment lessees.

## Dougga Sud Drilling Planning and Rig Procurement

ADX has commenced detailed well planning and logistics for the planned Dougga Sud well which ADX and its National Oil Company Partner ETAP plan to drill during 2018. The work is intended to provide a detailed well plan, a firm well cost and the basis for long lead item procurement upon confirmation of funding for the Dougga Sud well.

Following an extensive expression of interest process, ADX has negotiated and executed a drilling contract with Noble Drilling Services Inc for the drilling of Dougga Sud utilizing the GlobeTrotter II drill ship. The contract delivers an excellent technical and commercial option for the drilling and the productivity testing of the well. Importantly the GlobeTrotter II rig is expected to be available in the Mediterranean during the second half of 2018 after a work program in the Black Sea. The rig is a high specification, high efficiency, dynamically positioned drill rig which has been secured at very competitive rates.

#### License Renewal

During the last quarter ADX has been engaged in ongoing discussions with ETAP and the Directorate of Hydrocarbons (DGH) in relation to the renewal of the Kerkouane permit for a further 3 years. ADX has provided to ETAP a number of work program deliverables which are pre requisites for the recommendation of the renewal. As a result ETAP and the DGH have recommended the renewal of the permit which is expected to be considered by the Tunisian Hydrocarbon Committee by the end of October.

ADX has received unsolicited interest from a number of parties interested in Dougga. ADX now in a position to provide technical definition for the Dougga gas condensate project and expects to be in a position to provide revised economics for the project upon the receipt budget estimated from equipment suppliers in the coming weeks.



## Onshore Western Romania, Parta Concession (Operator, 50% equity interest)

During the quarter ADX has further progressed project development work on the approx. 20km2 modern 3D seismic which covers part of the recently relinquished<sup>1</sup> lecea Mare oil field area. Most of the useful 3D seismic data is, however, located within the ADX exploration licence.

Out of the several oil and gas appraisal or field infill opportunities identified, two gas appraisal prospects have been identified as drilling candidates for late 2018. They offer a balanced mix of several appraisal and relatively low-risk exploration targets which can be reached by two wells. Each of the wells will intersect at least two proven and/or prospective gas reservoirs, thereby significantly increasing the chances for at least one discovery and offering a low risk, fast track to early cash flow from gas production. Since a large part of each prospect is outside the now relinquished production licence, the previous Operator of this licence could not access them because ADX already had title to the Parta exploration license at the time.

Figure 4 below summarizes the prospectivity of the reservoir intervals which will be intersected by the two wells. The deeper well has a predicted TD of approximately 2400 meters vertical depth.

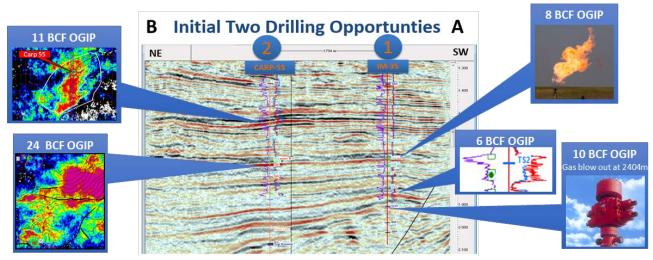


Figure 4: Prospectivity in Parta Appraisal Targets

Of special interest is the shallowest opportunity at the new CARP-55 location (Figure 5).

<sup>&</sup>lt;sup>1</sup> "Relinquished" in this case means that the former operator has made the application for relinquishment with the governing Romanian body ("NAMR") approximately over a year ago



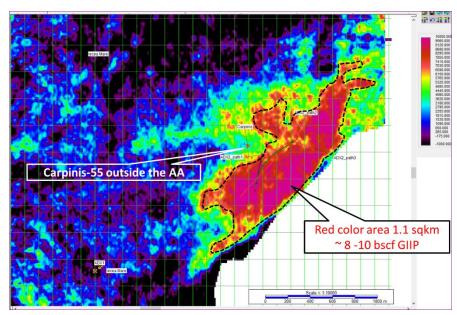


Figure 5: PsB4.3 amplitude anomaly at Carpinis-55

While it is a target with mainly exploration character, it offers excellent upside potential at a drill depth of approx. 1600 meters. ADX considers the shallow CARP-55 opportunity as low-to-medium risk since the 3D seismic shows a very strong, well-defined amplitude anomaly updip of the Carp-55 well which proved up excellent and thick reservoir development and can be interpreted as gas bearing based on the old Romanian style (1980s) wireline log data. The prospect's success chances are further enhanced because it is located on a structural nose and the top of the prospect features a (small) 4-way dip closure. With sediment input from the north, reservoir sands are pinching out against the structural high to the south, which sets up an ideal stratigraphic trapping position and allows for excellent resource upside potential. Figure 5 shows the 3D seismic amplitude anomaly map. Note that the old well Carpinis-55 has been drilled outside the main part of the anomaly, despite logs indicating the presence of gas at this location already.

ADX has completed initial development planning and economic analysis and the results are presented in Table 1 above. The excellent economic return on even small sized discoveries is due to a favourable combination of fiscal regime, low drilling costs and close by, existing infrastructure. For the economic analysis, it has been assumed that any discoveries will be tied back to the Petrom-owned Calacea gas plant 15 km to the northeast. By law, ADX is entitled to access these facilities based on open access arrangements.

During the quarter, ADX has also commenced technical drilling design work and started informal discussions with potential drilling contractors which will continue during the December quarter along with the permitting work (landowners, environmental permits etc.) and further subsurface work to mature the prospects. 3D seismic reprocessing and AVO work to further de-risk the prospects will start as soon as field tapes can be obtained.



## **Appraisal Project Funding**

ADX has received substantial interest from investors and farminees in relation to the appraisal project. The ability to secure 100% of the project provides increased capacity to attract investors and the potential for leverage via a farmout. ADX anticipates being in a position to provide an update on its funding strategy for the appraisal program in the coming weeks.

#### **NEW VENTURES**

There were no significant new ventures activity during the quarter.

#### **FINANCE AND ADMINISTRATION**

ADX's cash at the end of the September 2017 quarter was \$2.4 million.

#### **SHARE INVESTMENTS**

ADX sold its entire shareholding in Riedel Resources Limited (ASX: RIE). Settlement on the 29th of September 2017 of the on market sale of 35,686,279 shares resulted in gross proceeds of \$1.32 million. A recent announcement by Riedel that it has secured a Joint Venture and Earn In Agreement for a Cobalt and Copper project in Spain resulted in ADX benefiting from a substantial increase in Riedel's share price. The divestment its Riedel interest enables ADX to realise substantial additional financial resources to progress its appraisal, development and asset financing objectives at the Nilde Oil Redevelopment Project offshore Italy, the Dougga Gas Condensate Project offshore Tunisia and the Parta Appraisal opportunities onshore Romania.

#### **TENEMENT TABLE**

Tenements held at the end of the quarter, their location, ADX's percentage held at the end of the quarter and changes thereof:

Permit	Percentage held	Percentage held at	Percentage
	at the beginning	the end of the	acquired
	of the Quarter	Quarter	
Offshore Tunisia, Kerkouane	100%	100%	-
Offshore Italy, d363C.RAX*	100%	100%	-
Offshore Italy, Pantelleria	100%	100%	-
Offshore Italy, d364C.RAX	100%	100%	-
Onshore Romania, Parta	50%	50%	-

<sup>\*</sup> ADX has commenced a process with the Italian Designated Authority to convert the exclusively awarded application to a ratified licence. This process was commenced after the award by the Ministry of Industry.



Yours faithfully

**Paul Fink** 

**Ian Tchacos** 

**CEO/Technical Director** 

Park from

**Executive Chairman** 

PERSON COMPILING INFORMATION ABOUT HYDROCARBONS Pursuant to the requirements of the ASX Listing Rules 5.41 and 5.42, the technical and resource information contained in this presentation has been reviewed by Paul Fink, Technical Director of ADX Energy Ltd. Mr. Fink is a qualified geophysicist with 23 years of technical, commercial and management experience in exploration for, appraisal and development of oil and gas resources. Mr. Fink has reviewed the results, procedures and data contained in this presentation and considers the resource estimates to be fairly represented. Mr. Fink has consented to the inclusion of this information in the form and context in which it appears. Mr. Fink is a member of the EAGE (European Association of Geoscientists & Engineers) and FIDIC (Federation of Consulting Engineers).

DISCLAIMER: The estimated quantities of petroleum that may potentially be recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.