

# Welchau-1 Discovery Well Resources and Testing Program Update

*“Guidance on Resources Potential and Summary of Planned Testing Program”*

ADX Energy Ltd (ASX Code: ADX) is pleased to provide the following update in relation to the resources potential and the planned well testing program for the Welchau-1 discovery in the ADX-AT-II exploration licence in Upper Austria. ADX is operator and holds a 75% economic interest in the Welchau Exploration Area.

## **Background**

The Welchau-1 well targeted the reservoirs encountered in the nearby, downdip Molln-1 discovery well that tested condensate rich gas at between 3 to 4 MMSCFPD in 1989. The Welchau-1 well intersected three primary carbonate reservoirs that are considered promising for testing and ongoing appraisal. The well was suspended on the 28<sup>th</sup> of March 2024 for future well testing after running and cementing 7-inch casing down to the well total depth (“TD”) at 1733 metres measured depth (refer to figure 1).

Operations were suspended to comply with the conditions of environmental permits limiting drilling and testing operations to the Austrian winter months from 1 October 2023 to 31 March 2024. At the conclusion of drilling, hydrocarbon shows were still being encountered at the bottom of the well. Further exploration potential may be accessible by deepening the Welchau-1 well after testing.

Data recovered from the well included hydrocarbon shows, wellbore inflows during drilling, formation cuttings, petrophysical borehole log data, formation fluid sampling and formation coring. Pressurised formation fluid sample chambers run in the well recovered small amounts of liquid hydrocarbons (gas condensate to very light oil with 43.6° API gravity).

Detailed analysis of data recovered from the Welchau-1 well, together with available data from the historic (1989) Molln-1 gas condensate well, have been used to assess the potential of the Welchau discovery and design a suitable test program (see *Conclusions from Work to Date*). The formations of interest and their thickness are Reifling (128 metres), Steinalm (118 metres) and Guttenstein (111 metres) of Triassic age (around 240 million years).

In preparation for testing, ADX has undertaken the necessary planning, permitting, procurement and contracting to execute an extended testing program on Welchau-1. The target date to commence operations is 15 October 2024. The Welchau-1 well test program is designed to confirm the hydrocarbon characteristics, determine well productivity, the potential connected volumes and ultimately an estimate of recoverable resource volumes from future potential development wells.

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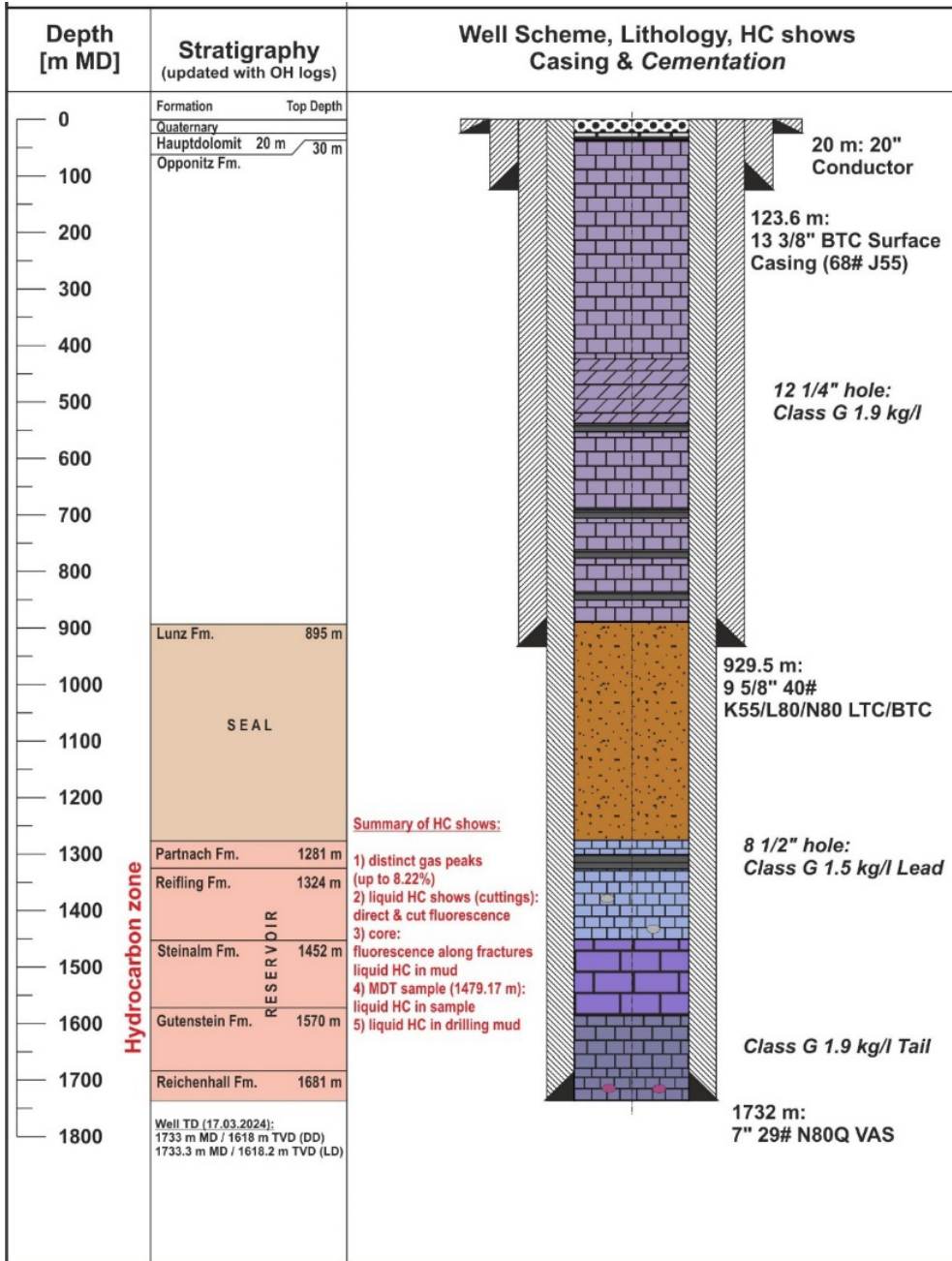


Figure 1: Welchau-1 casing schematic, stratigraphy and hydrocarbon shows encountered while drilling

**Conclusions from Work to Date**

Based on the data analysis to date, ADX believes it is most likely that Welchau is a high API hydrocarbon liquid (or light oil) and associated gas discovery rather than a liquids-rich gas discovery as was predicted prior to drilling.

Due to the uncertain nature of the Welchau reservoir performance prior to testing, ADX does not believe it is appropriate to provide a definitive resources range at this stage. However, ADX provides the following unrisks Prospective Resources range at 26 September 2024 as guidance to shareholders of the oil and associated gas potential of reservoirs intersected in the Welchau-1 well. The range of Prospective Resources estimated using

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probabilistic methodology is very large from a low case of 12 MMBOE to a high case of 217 MMBOE<sup>1</sup> (refer to figure 2 below). The resources estimate include associated gas determined from the analysis of oil recovered from Welchau-1 and converted to BOE using a 5.6 MCF/BOE conversion factor. The previous reporting date of the best technical Prospective Resources was 22 June 2023 (prior to the drilling of Welchau-1 in March 2024 and the subsequent data analysis work).

<b>Welchau Prospective Resource Estimates <sup>1</sup></b>				
<i>(100% Economic Interest)</i>				
	<b>Low</b>	<b>Best</b>	<b>Mean</b>	<b>High</b>
<b>Oil and Associated Gas (MMBOE)</b>	<b>12</b>	<b>46</b>	<b>85</b>	<b>217</b>

**Figure 2: Welchau Prospective Resources Estimates - where MMBOE means million of barrels of oil equivalent**

<sup>1</sup>Prospective Resources are those estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) related to undiscovered accumulations. These estimates have both an associated risk of both an associated risk of and a risk of development. Further explorations appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

ADX intends to revise Welchau resource estimates following the planned testing program, subsequent analysis of test results and further ongoing mapping work. ADX will also provide an update on the follow up exploration potential at the nearby Rossberg lead, as well as the deeper potential at Welchau in reservoirs below the 7" casing at the well's TD (1733 metres) that have yet to be drilled.

### ***Economic Significance of Oil versus Gas***

The predicted light oil (43.6° API) at Welchau could be very valuable in commercial quantities given shallow drill depth and onshore setting which is proximal to infrastructure. The development cycle for oil is much shorter than gas. Any commercial discovery can be developed incrementally as it is appraised, thereby minimising funding requirements as well as enhancing economics and payback time frames.

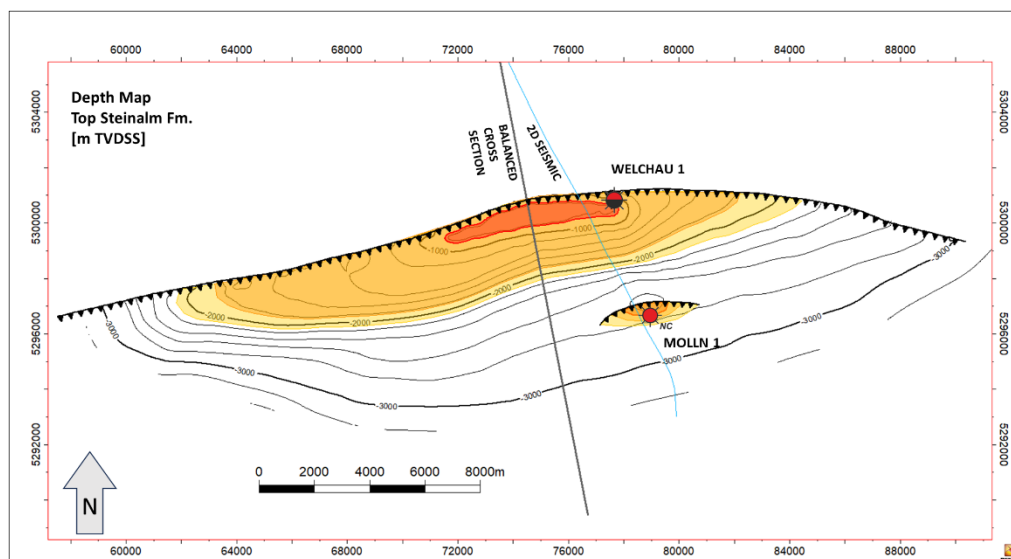
Austria has a state-of-the-art refinery located near Vienna where ADX currently sells its oil production from the Anshof field and the Vienna Basin Fields. A significant light oil discovery is likely to provide an important economic contribution to the Austrian state given that Austria imports approximately 92% of its crude oil requirements (approx. 130,000 bpd) and the refined product demand (approx. 170,000 bpd) exceeds refinery production capacity by approximately 20%. A light oil such as that recovered from sampling at Welchau-1 is likely to be highly valued in Europe where condensates are scarce due to the high proportion of imported dry gas either by pipeline or LNG.

### ***Data Analysis***

ADX has analysed data recovered from the Welchau-1 well to determine the likely reservoir hydrocarbons present and characterise the reservoir in terms of storage capacity and flow capacity for each of the potential reservoirs intersected in the well.

At this stage, the post-drill structure at Welchau remains largely unchanged. The Welchau-1 well is confirmed to be at or near the crest of an east-west trending, asymmetric anticline, in line with the pre-drill structural model. The slight change in the strike of the fold axis makes the structure less cylindrical than predicted (in the Eastern part of the Welchau anticline), Welchau-1 intersected four reservoirs including the main Steinalm formation. The reservoir intersection at Welchau-1 is significantly greater than in the Molln-1. Given that oil was recovered at Welchau-1 up dip of Molln-1 which tested gas and condensate, it is now interpreted that Molln-1 is in a separate accumulation to Welchau-1. Figure 6 below shows more details on the thrusting and faulting resulting in a potential boundary between Molln-1 and Welchau-1 wells.

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**Figure 3: Welchau-1 Top Steinalm Formation post drill map. The 1989 Molln-1 gas discovery is interpreted as a separate accumulation that is not connected to Welchau-1**

The Steinalm fluid sample recovered from a down hole sampling tool (Modular Dynamics Tester, MDT) was analysed at the OMV Petroleum Analysis Laboratories in Vienna. The analysis revealed a light oil was recovered with associated gas. The oil having an API gravity of 43.6° with an estimated gas-to-oil ratio of 1,080 scf/bbl.

The analysis of the downhole pressure data has highlighted the limitations in obtaining representative downhole pressures in permeable fractured carbonate reservoirs. This data was further compromised with mud loss invasion into the fracture system. The conclusions that can be made with certainty are the Steinalm reservoir is over-pressured and a light oil is present.

ADX has estimated a range in the potential depth of oil-water-contact for the Welchau structure. This range was utilised in the estimation of Welchau Prospective Resources. The confirmation of the reservoir fluid type, the productivity and connectivity can only be assessed with the planned well test.

Detailed fracture and fault analysis was conducted using the Welchau-1 image log data, the core calibrated open hole log data, core analysis and core measurements, together with the dynamic drilling data (i.e. mud losses to the formation and gas shows from the formation). The Welchau carbonates are characterised as a tight matrix, fracture enhanced reservoir<sup>2</sup>. In Welchau-1 the fracture porosity has been solution-enhanced providing both increased storage capacity and better fluid flow pathways that can be expected to deliver high productivity.

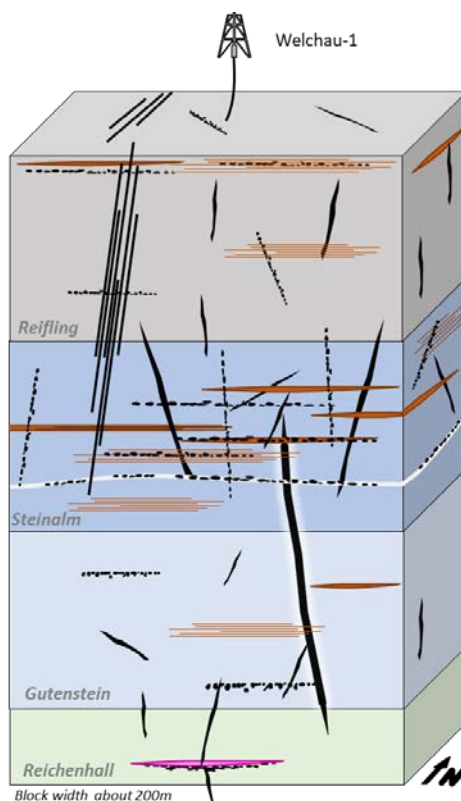
<sup>2</sup>Fractures and solution-enhanced fracture porosity provide both storage capacity and fluid-flow pathways. Karstification and hydrothermal dissolution are common diagenetic processes and serve to enlarge pre-existing fracture networks and create cavernous channel and breccia porosity. Fracture networks are generally extensive, consisting of both small-scale microfractures and larger scale intersections.

Other features identified with flow characteristics of permeable fractures are 'reactivated beddings' associated with folding of the rock which are also expected to contribute to well storage, flow and recovery.

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Whilst there may be some contribution from the matrix porosity into the higher permeability fractures, the fractures will provide the primary flow pathways through the reservoir to the well bore.

The frequency, extent and connectivity of the open fracture networks are most pervasive in the Steinalm formation (refer to figure 4 below). It can be expected that these networks can be better connected at the Welchau-1 wellbore through selective acidisation to maximise well productivity. It is also expected that the well test will provide an understanding of the potential recovery per well, which is an important factor for the commerciality of an onshore field.



**Figure 4: Welchau Carbonates Conceptual Model of an Open Permeable Fracture Network and other transmissibility events seen in the well such as reactivated beddings**

In addition to the above, the flow characteristics of the reservoir have been analysed using the data from the down hole sampling tool (MDT) to assess the likely flow performance from fractures in the well. The analysis has been used to design an appropriate testing program for Welchau-1.

### **Testing Operations Overview**

Testing operations at Welchau-1 are expected to commence in mid-October following the anticipated receipt of environmental clearance and the mobilisation of a workover rig. The workover rig will be used to run a test string, which includes tubing and a down hole packer system into the cased and suspended well.

The environmental clearance will allow for up to six months of continuous (24 hour) testing operations providing ADX with ample time to carry out an extensive testing program.

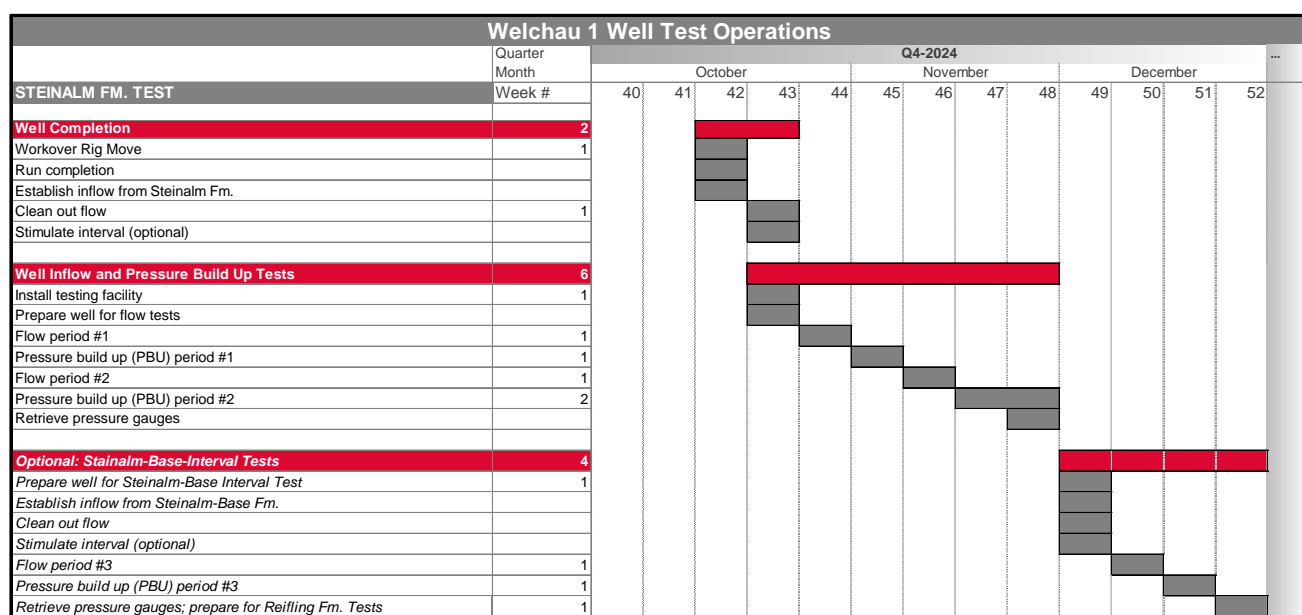
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A testing program has been developed focussing on the following objectives:

- Determine reservoir fluid type present in key reservoirs;
- Determine the flow capacity in key reservoirs; and
- Determine the reserves potential of the reservoirs.

It is currently planned to test the two major reservoirs, starting with the deeper Steinalm and then the shallower Reifling. For each test, a number of flow periods and shut in periods are planned to determine the pressure response with down hole gauges. Well performance will be monitored to determine reservoir damage from drilling and cementing of the well. In each test the well may be acidised, if necessary, to optimise well performance. Data collection during testing will include flow measurement, surface and down hole pressure measurement as well as both surface and down hole sampling.

The planned sequence of operations for testing for the Steinalm formation is shown in the following chart (refer to figure 5). The expected testing program duration for the Steinalm formation is between 6 to 10 weeks.



**Figure 5: Planned sequence of operations for testing the Steinalm formation**

ADX will ensure sufficient oil storage capacity is available on site in anticipation of oil flow. If good flow performance is achieved, the Steinalm test may be extended to obtain longer term flow data, noting that under Austrian legislation it is permitted to produce up to 30,000 barrels from a long-term testing operation. The use of the workover rig currently deployed at ADX' Vienna Basin Fields for the Welchau-1 test program, along with other synergies, gives ADX the operational flexibility to vary the program without significantly increasing costs.

ADX will provide more detail on well testing operations nearer to the test commencement date, followed by regular updates throughout the testing program .

**Follow-up Exploration Potential**

The Welchau-1 well has confirmed a highly prospective hydrocarbon play. The well has confirmed the existence of hydrocarbon liquids and associated gas across multiple extensive carbonate reservoir intervals, trapped by a large hydrocarbon charged seal in a structural setting capable of containing large volumes of hydrocarbons.

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ADX has already identified several follow up target structures in the same gross trend as Welchau. An example is the Rossberg lead which has a similar anticlinal structure and shallow drill depths to Welchau. Rossberg is located approximately 6 kilometres north-west of Welchau-1. The Rossberg structure has been identified from surface imaging, dynamic structural balancing techniques together with detailed mapping of the surface geology. As was the case with Welchau the existing 2D seismic may help to detail the closure. Additional field work is being undertaken to mature this prospect as a potential follow up exploration well.

Based on current structural modelling, there remains over 1,000 metres of exploration potential located below the current Welchau-1 well total depth. The opportunity to deepen the Welchau-1 well after testing the existing zones of interest is being assessed in conjunction with ongoing structural modelling of the Welchau discovery.

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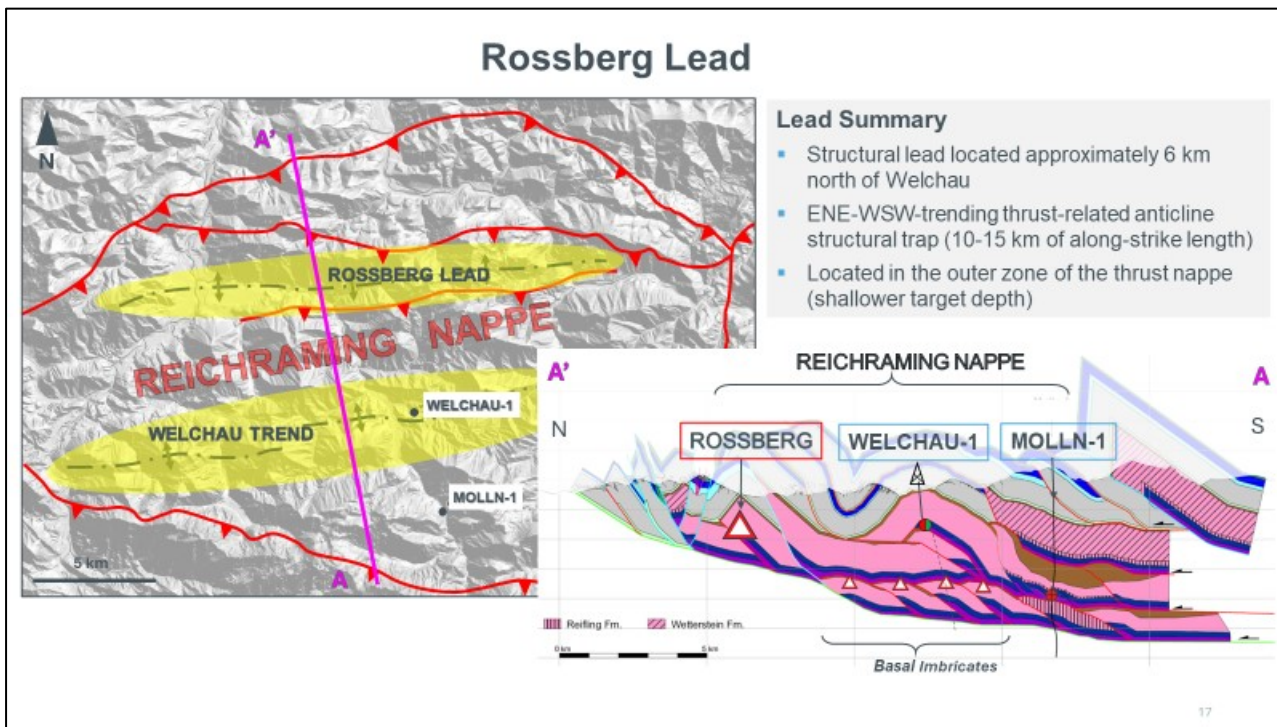


Figure 6: Rossberg lead follow-up exploration to Welchau

**Economic Participation in the Welchau Investment Area**

ADX has executed an Energy Investment Agreement (EIA) with MCF Energy Ltd. via its subsidiary MCF Energy GmbH (MCF) to fund 50% of Welchau-1 well costs up to a well cost cap of EUR 5.1 million to earn a 25% economic interest in the Welchau Investment Area which is part of ADX’s ADX-AT-II licence in Upper Austria. The Welchau Investment Area contains the Welchau discovery well and other emerging oil and gas prospects. MCF has met it’s earn in funding obligations in accordance with the EIA to earn a 25% economic interest. ADX holds a 75% economic interest in the Welchau Investment Area. MCF is obliged to pay 25% of ongoing well costs and exploration expenditures. ADX holds a 100% economic interest in the remainder of the ADX-AT-II licence other than the Anshof Discovery Area.

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**Authorised for lodgement by Ian Tchacos, Executive Chairman**

**Persons compiling information about Hydrocarbons:**

Pursuant to the requirements of the ASX Listing Rule 5.41 the technical and reserves information relating to Austria contained in this release has been reviewed by Paul Fink as part of the due diligence process on behalf of ADX. Mr Fink is Technical Director of ADX Energy Ltd is a qualified geophysicist with 30 years of technical, commercial and management experience in exploration for, appraisal and development of oil and gas resources. Mr Fink is a member of the EAGE (European Association of Geoscientists & Engineers) and FIDIC (Federation of Consulting Engineers).

**Reporting Standards for Resource Estimation**

Reserves and resources are reported in accordance with the definitions of reserves, contingent resources and prospective resources and guidelines set out in the Petroleum Resources Management System (PRMS) prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the American Association of Petroleum Geologists (AAPG), World Petroleum Council (WPC), Society of Petroleum Evaluation Engineers (SPEE), Society of Exploration Geophysicists (SEG), Society of Petrophysicists and Well Log Analysts (SPWLA) and European Association of Geoscientists and Engineers (EAGE), revised June 2018.

**Prospective Resource Classifications**

**Low Estimate** scenario of Prospective Resources - denotes a conservative estimate of the quantity that will actually be recovered from an accumulation by an oil and gas project. When probabilistic methods are used, there should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the low estimate.

**Best Estimate** scenario of Prospective Resources - denotes the best estimate of the quantity that will actually be recovered from an accumulation by an oil and gas project. It is the most realistic assessment of recoverable quantities if only a single result were reported. When probabilistic methods are used, there should be at least a 50% probability (P50) that the quantities actually recovered will equal or exceed the best estimate.

**High Estimate** scenario of Prospective Resources - denotes an optimistic scenario of the quantity that will actually be recovered from an accumulation by an oil and gas project. When probabilistic methods are used, there should be at least a 10% probability that the quantities actually recovered will be equal or exceed the high estimate.

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**Nomenclature and conversions used in this release**

*BBL* means US barrel

*MMBLS* means million US barrels

*MCF* means thousand cubic feet

*MMCF* means million cubic feet

*BCF* means billion cubic feet

*TCF* means trillion cubic feet

*BOE* means barrel of oil equivalent

*MMBOE* means million barrels of oil equivalent

*MMSCFPD* means million standard cubic feet per day

**End of this Release**

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