A roadmap for increased investment in natural gas exploration and production in Ukraine – Summary

EBRD and Baringa Partners LLP
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Introduction

EBRD has asked Baringa to undertake a study into Ukraine's upstream gas sector

- This report is the work product of Baringa's engagement by EBRD over approximately 10 weeks investigating, assessing and analysing the upstream natural gas sector in Ukraine
- This work was undertaken with the principle aim of identifying ways in which the Ukrainian upstream gas sector could be made a more attractive prospect for international investors to support Ukraine's stated strategic objective of being self-sufficient in gas production by 2020
- Baringa undertook a programme of work as described on the following page, including speaking with around 20 organisations and stakeholders, comprising Ukrainian producers, trade associations, NGOs and advisors. Baringa also spoke with around 10 international upstream companies, including majors, independents, oil service companies, regional players and national gas companies*
- Their participation was on the basis of non-attribution and as such we have kept their identities private
- Findings and conclusions derived from this work were shared with EBRD themselves but also the Energy and Fuels Committee at the Ukrainian Rada, other international donors and invited stakeholders and interested parties at a roundtable event at EBRD’s London offices

* We thank these organisations for providing us with their perspectives and insights. Whilst we have drawn from these stakeholder views, it is important to note that the consolidated output presented in this document is based on Baringa’s review and analysis, and is independent of any stakeholder

Gas produced in Ukraine vs imported: Economic Impact Assessment

Investments in gas exploration, development and production generate a significant positive impact on the economy of Ukraine

Scenario 1 : Local Gas production

Key findings

Base case:

Base case scenarios assumes **65% of the expenditure** (CAPEX+ OPEX) will be spent in Ukraine and **50% of the margin** will remain in Ukraine.

- Margin for each BOE is estimated to be **15.1 USD/BOE** out of which **7.6 USD/BOE** is expected to remain in Ukraine
- The value of the expenditure on the exploration, development and production was estimated at **16.2 USD/BOE**. From this total investment, **10.5 USD/BOE is** estimated to remain in Ukraine
- The direct impact that this investment would have on state revenues through tax contributions is **8.7 USD/BOE**
- We estimate that the economic impact would thus be equivalent to **26.8 USD/BOE**

Sensitivity Case:

45% of the expenditure (CAPEX+ OPEX) and only **30% of the margin** will remain or will be spent in Ukraine.

- Economic impact would still be equivalent to **20.5 USD/BOE**

Conclusions

- Importing natural gas has a limited economic impact on Ukraine as more than **90% of each USD/BOE** will leave the national economy
- The economic impact improvement of producing natural gas instead of importing it under the base case and sensitivity case are **22.8 USD/BOE** and **16.5 USD/BOE** respectively – demonstrating the tremendous case for increased domestic gas production, even under conditions that are relatively favourable to international investors
- If we consider that in 2017 Ukraine imported around 14.1 bcm of gas, this economic impact is equivalent to **$1.5 billion – $2.1 billion / year**

Summary comparison of international analogues with UKR opportunities

Baringa

International analogues provide examples of best practice, areas for enhancement for Ukraine

	Romania	Mexico	Australia
Background	– National producers part-privatised – EU membership driver for deregulation / market reform	– Legal and constitutional change to facilitate private participation in upstream sector – Pemex reformed to align it more closely with a private enterprise	– Mature, established hydrocarbon province
Legal and Regulatory Framework	– Unusually, upstream regulator is counterparty to concession agreements	– Multiple relevant laws and regulators	– **Clear expectations of national regulatory authorities** – Varying approaches reflects nature of devolution of power in Australia
Licencing	– Structure comparable with international norms	– There are a number of different agreements available for upstream development – **Pemex had preferential access to upstream acreage, transparent mechanism to bring in international partners ('Round Zero')**	– Various types of licences are available to maximise activity and encourage E&P players to invest
Availability of upstream data	– Somewhat open and transparent access to information and regulator	– CNH operates on a principle of transparency and data-availability – Data availability is reasonable	– **Leading example of how high quality geological data is transparently made available to the market** – **Facilitated by technology (e.g. databases, websites, visualisation tools)**
Mechanism for accessing acreage	– **JVs permitted (unincorporated), active with Romgaz** – **Licences awarded on technical merit** – **Divestments of stakes in licences allowed and controlled**	– Joint ventures permitted – Bidders in licencing round provide 'additional royalties' bids or share of operative profit in the case of PSAs – Bids judged on combination of upfront payment and commitment to work programme	– Licences made available transparently, predictably and regularly – Assessment of bids is not price-based but on basis of maximum exploitation – JVs the norm – allows participants to book reserves and market production and share risk / investment – Licence holders free to sell out or sell down

Emerging themes

- Quality and availability of data key to success
- Transparency and probity of regulator increases investor confidence
- Flexibility in licence / PSA type, commercial approach and licence liquidity key to effective development and monetisation
- Mexico – Round Zero – provides example of how to balance National and International Gas Company interests

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Government take	– Lower tax royalty regime implemented to attract investors – More sophisticated tax regime for offshore – Recent offshore regime change has had significantly negative impact on investment climate and prospects	– Mexico uses variable royalty offerings as a mechanism for assessing bids – **Beneficial depreciation rates in the oil and gas sector** – Royalty contribution to landowners	– **The tax and royalty regime (including levels) similar to that in Ukraine**
Regulatory stability	– **Example of risks of radical and unanticipated legal and regulatory change**	– Political change has created slow-down and uncertainty – International trade agreements (e.g. NAFTA)	– Some tax/royalty instability – Maturity, transparency, accountability track record mitigate risks
Route to market	– **Domestic supply obligation likely to reduce upstream investment**	– Exports require approvals	– Some domestic obligations – exports otherwise facilitated and encouraged
Establishing and managing a business in-country	– **EU-membership sets basis** – New Offshore Law requires minimum employment of Romanian employees, preference to be given to Romania providers of goods and services	– Administrative challenges for foreign companies to establish themselves – Can however bid on acreage without a local office – Requirements for local content, Mexican employees	– Organisations can operate via Australian subsidiaries or as foreign-registered entities – There is no requirement to ‘buy Australian’
HSE	– No explicit need for an EIA = risk		– **HSE considerations given high profile, enforced consistently**
Transparency	– Rank 59 on the Corruption Perceptions index (Transparency International)	– Mexico has formalised its approach to tackling corruption at a national level – Rank 135 on the Corruption Perceptions index	– Rank 13 on the Corruption Perceptions index

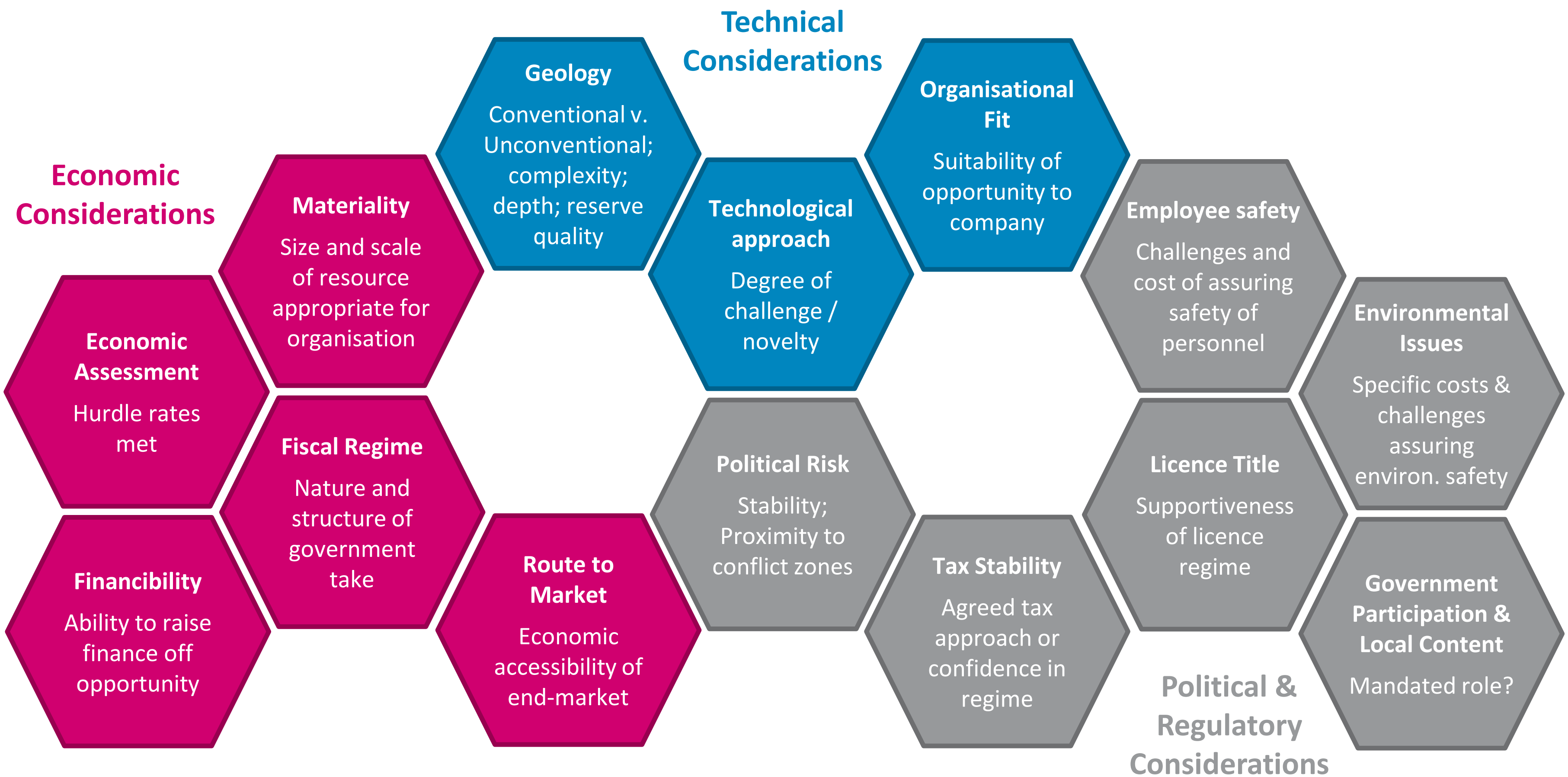
Emerging themes

- Ukraine Tax & Royalty regime credible
- Fiscal and Regulatory stability is key
- Ease, cost of compliant business supports rapid growth
- Transparency desirable and allows for more state-friendly conditions to be implemented (as in Aus) – EITI membership a key step

Context – key investment considerations: Overview

International Gas Companies utilise a number of critical dimensions when assessing upstream opportunities, these are reflected in Baringa's Upstream Investment Framework

Baringa Upstream Investment Framework



Three representative regional opportunities

In considering the specific dimensions of the upstream opportunity in Ukraine, we have developed three, regionally-based, 'virtual' opportunities in upstream gas

Lviv (Pre-Carpathian Basin)

- Onshore
- Historically very significant production
- Less developed / prolific area recently – 1.1 bcm in 2017 (5.5% of Ukrainian production)
- Reserves* estimated at 113 bcm
- Special Permits (licences) active
- PSAs negotiated but not operated
- Mixture of greenfield and brownfield opportunities
- Supportive local authority
- Synergies with neighbouring resources (e.g. Slovakia)
- Conventional and unconventional potential

Source: Extractive Industries Transparency Initiative

Poltava (Dniepr-Donets Basin)

- Onshore
- Mature, brownfield assets
- Highly developed, historically (and currently) very significant production – 18.9 bcm in 2017 (94.5% of Ukrainian production)
- Reserves* estimated at 724 bcm
- UGV dominant
- Many mature / shut-in production assets
- Focus area for UGV Production Enhancement Contracts (PECs)
- Special Permits (licences) active
- PSAs negotiated but not operated
- Challenging local authority
- Relatively close to conflict areas

Odessa (North Black Sea Basin)

- Offshore
- Relatively undeveloped, greenfield
- Reserves* estimated at 68 bcm
- No local authority approval needed
- Contiguous with Romanian offshore production areas
- Close to Crimea, security challenge
- Special Permits and PSAs under consideration
- Opportunity for UGV partnership

* Based on Ukrainian definition of 'booked reserves'

Summary of recommendations

Key changes likely to have greatest impact in the shortest timeframe

There are some actions that can be implemented quickly and have relatively rapid impact:

1. **Comprehensively implement the transparent, electronic Special Permit system**
   - Demonstrate that a transparent, equitable and credible process will be followed for the awarding of new Special Permits
   - Once demonstrated, make additional acreage available
2. **Accelerate and increase the scope of geological data to be made available**
   - Ensure that basin-wide geological data, from all repositories (state-owned companies, ministries and government agencies) is rapidly made available
   - The more the better – available at 'one shop stop'
   - Mature hydrocarbon provinces (e.g. Australia, Norway, UK) provide best practice models
   - Absence of access to quality data is currently causing organisations to turn away from Ukraine
3. **Power up government PSA capacity**
   - A number of international players are eager to bid for and negotiate PSAs – it is not clear that here is sufficient political support for this process or that there is committed and concerted resource to support the process from the state side
   - Ensure clarity on point of contact for PSA communications
4. **Allow for greater 'Licence Liquidity'**
   - Increase the ability for investors to transfer ownership of licences, including in forming Joint Ventures
   - Safeguard against abuse through proper regulations and controls
   - Provisions for unexplored or non-producing licences to be made available to the market
5. **Clarify and simplify the role and functions of the State Geological Survey (SGS)**
   - An effective and efficient SGS – built on principles of transparency, accountability and availability will provide a significant boost
6. **Increase productivity potential of existing acreage, new acreage for UGV**
   - Legal and regulatory reform may be needed, but by enabling UGV to effectively partner with IGCs to jointly develop resources, it could greatly increase its productivity. Service contracts may provide only limited returns and will not attract IGCs
   - Consider Mexican 'Round Zero' concept – allows UGV to hold the resource / licences whilst holding a competitive process to bring in investment to partner

Summary of recommendations

Key changes likely to have greatest impact in the shortest timeframe

Over a longer period of time, further changes / reforms will increase Ukraine's attractiveness for international investors:

7. **Wider gas market reform**
   - Developing a liberalised gas market, underpinned by a gas exchange, removal of the PSO, will have direct impact on the attractiveness of Ukraine to foreign investors

8. **Increase ease of doing business for a non-Ukrainian player (incremental changes)**
   - Removal of bureaucracy, increased transparency, administrative reform across multiple agencies and bodies will take time

9. **Revision of subsoil code**
   - The EU has initiated a programme to fund the revision of the subsoil code, likely to bring together a number of reforms – but this will take time and require primary legislative change

10. **Align upstream accounting practices with global standards**
    - Aligning to standard practices of upstream accounting will ease some of the administrative challenge of international players operating in Ukraine
    - Including building on EITI membership