

Issues for Underground Gas Storage (UGS) in 'South Kavala' offshore gas field



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The 'South Kavala' UGS project in brief

- **'South Kavala' gas field** was discovered in Dec 1972 and came into production in May 1981; Initial GIP: 995 mil.m³
- Cumulative gas production to date \approx 847 mil.m³ (RF 85%) and estimated remaining gas volume \approx 148 mil.m³
- **'South Kavala' UGS**: Working Gas Volume: 360 mil.m³ with an Annual Cycling Capability of twice per year (in 90 days) (hence total gas storage capacity of approx. 720 mil.m³)
- Withdrawal Rate: 4 mil.m³ / day
- Injection Rate: 5 mil.m³ / day
- Estimated Investment: \approx 400 mil. Euros (€)
- Strategic Location (Thracian Sea) vs. ITGI, IBG, TAP, etc.

General regulatory framework

- Directive 2009/73 concerning common rules for the internal market in natural gas and repealing Directive 2003/55; Regulation no. 715/2009 on conditions for access to the natural gas networks (or 3rd Energy (Gas) Package); and Regulation no. 994/2010 concerning measures to safeguard security of gas supply
- Law 3428/2005 on the Liberalization of the Natural Gas Market of Greece; Chapters 'B' and 'Γ' concerning the National Natural Gas System (NNGS or ESFA) and Independent Natural Gas Systems (INGGS or ASFA) plus Chapters 'Z' and 'H' on tariffs regulation(s), accounting unbundling and natural gas licences regulation

General regulatory framework (continued)

- Natural Gas Licences Regulation of April 2010, excl. distribution and supply matters
- NNGS Users Regulation of April 2010, if relevant ...
- NNGS Operation Code of April 2010, but what about UGS?...
It depends on the final approach ...
- Model Natural Gas Transportation and LNG Facility Contracts of DESFA of April 2010, but what about UGS?...
It depends on the final approach ...
- Draft Energy Law of May 2011; Chapters 'Γ' and 'Δ' on NNGS operation and INGS in general, respectively

Special provisions of relevance

- Article 17 (4) of Law 3428/2005 on the “substitution” of a hydrocarbons exploitation licence by an UGS INGS one at the request of the above E&P licensee
- Article 83 (1) of draft Energy Law of May 2011 on the “rights of use” of UGS INGS granted by such a licence instead of “ownership” under typical INGS licences
- Article 104 of draft Energy Law of May 2011 on UGS “prior concession” of underground spaces, regardless of NNGS or INGS, following joint ministerial decision on the awarding process and the conditions for such an award for UGS purposes

Special provisions of relevance (continued)

- Article 16 of Law 3428/2005 on award of INGS Licences through public tender for reasons of:
 - (a) public interest such as security of natural gas supply, environmental protection and regional development; or
 - (b) multiple applications concerning same spot or area; or
 - (c) avoidance of impeding potential competition, especially if market dominance is promoted or similar competitive investments are hindered for a long term
- Article 84 of draft Energy Law of May 2011 on award of INGS Licences through public tender for the exact same reasons above

Special provisions of relevance (continued)

- Article Second of “special” Law 2779/1999 ratifying the Hydrocarbons Production Sharing Agreement (PSA) between the Hellenic State and Kavala Oil in Thracian Sea in deviation of “general” Law 2289/1995 on Hydrocarbons E&P (and Directive 94/22) “for reasons of public interest”
- Article 4 of Article Second of Law 2779/1999 excluding UGS in South Kavala gas field from the scope of the PSA
- Article 6 of Article Second of Law 2779/1999 defining the total term of South Kavala gas field Exploitation Licence as 5 + 5 + 5 years, subject to specific conditions (i.e. new commercially exploitable discoveries and PSA compliance)

Issues and challenges

- **NNGS or INGS ?... This is the question !...**
as a matter of national energy policy (!) ... because legally both are possible, subject to certain conditions;
The technical advantages of UGS are almost self-evident (see also the YPEKA Committee Report of 2010 on UGS)
- Is it economically feasible and commercially viable ?...
In other words, is it bankable ?...
Only the (financial and gas) markets can tell for sure ...
- “Privatization” of South Kavala gas field ?...
Isn’t it “privatized” since 1975 ?... and also in 1999 ?...
(see Law 98/1975 ratifying the first Hydrocarbons PSA between the Hellenic State and Oceanic et al, etc.)

Issues and challenges (continued)

- Does the current E&P licensee enjoy any “priority rights” over the South Kavala gas field for UGS ?... *Yes and No ...*

Typically, Article 17 (4) of Law 3428/2005 is still in force but about to be explicitly repealed whereas no similar provision exists in the draft Energy Law of May 2011

- Is the current E&P licensee entitled to another extension of South Kavala Exploitation Licence beyond 2014 ?...

Unlikely, either under Law 2779/1999 (i.e. the PSA) or Law 2289/1995 on Hydrocarbons E&P ...

Issues and challenges (continued)

- Is the current E&P licensee entitled to extract all the UGS “cushion gas” from South Kavala gas field from a ‘petroleum operations best practice’ perspective ?...

Yes, depending on economics (meaning economically recoverable gas) and timing (meaning the term of the Exploitation Licence and hence the term of the PSA)

- **Base (cushion) gas:** The volume of gas needed as a permanent inventory to maintain adequate reservoir pressures and deliverability rates throughout the withdrawal season. All native gas is included in the base (cushion) gas volume.
U.S. Energy Information Administration

Issues and challenges (continued)

- **Cushion Gas Volume (CGV) or Base Gas:**
Gas volume required in a storage field for reservoir management purpose and to maintain an adequate minimum storage pressure for meeting working gas volume delivery with a required withdrawal profile. In caverns, the cushion gas volume is also required for stability reasons. The cushion gas volume may consist of recoverable and non-recoverable in-situ gas volumes and/or injected gas volumes. *IGU Glossary of relevant UGS Terms*

EU precedents of relevance

- Priority rights of E&P licensees to convert depleted (or almost depleted) oil and gas fields into UGS facilities

France: No priority rights strictly speaking, but privileged status for operators of producing oil and gas fields to apply for UGS in their concession areas, the normal tender process being held aside in such case

Germany: No priority rights or privileged status for E&P licensees / operators of oil and gas fields for UGS; 'first-come first-served' principle

EU precedents of relevance (continued)

- Italy: No priority rights or privileged status for E&P concessionaires of oil and gas fields for UGS
- NL: Priority right to E&P concessionaires to convert oil and gas fields into UGS facilities as long as they hold an E&P licence for such fields
- UK: E&P licensees do have priority to convert offshore oil and gas fields into offshore UGS facilities, provided that the field is in operation and the application is filed at least 12 months before the expiration of the E&P licence

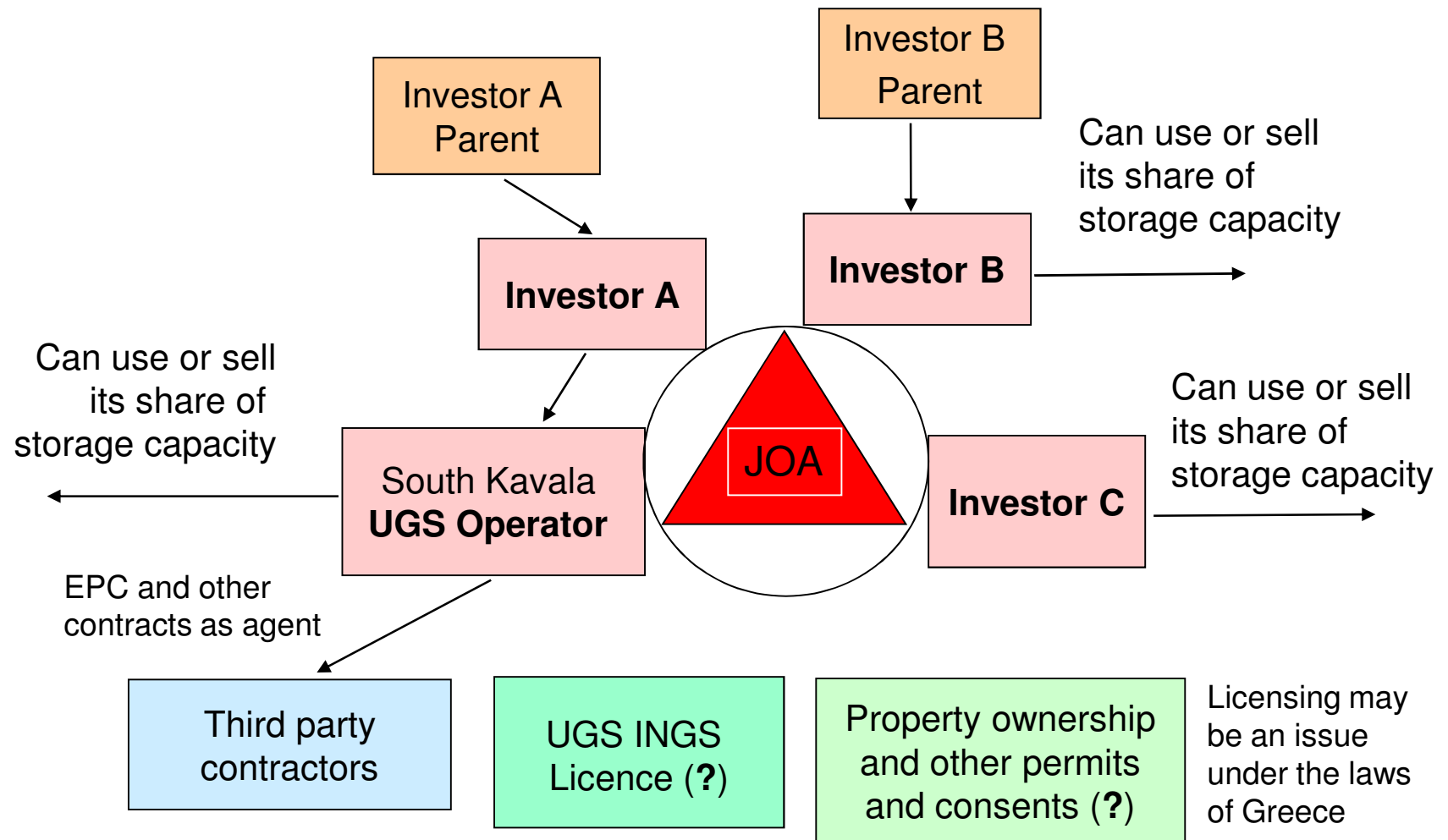
Possible (joint) investment structures

- Joint Operating Agreement (JOA)
 - Typically, JVs for UGS use JOA structures (based on AIPN or UKOOA standard forms) rather than SPVs for tax and accounting reasons
 - Under an English law JOA, all participants are named on the licence (joint licence holders) and jointly liable for:
 - (a) working obligations; and
 - (b) providing security for decommissioning liabilities
 - Operator is usually largest / most experienced party and its liability is limited to gross negligence and wilful misconduct

Possible investment structures (continued)

- Participants liable to pay cash calls and provide PCGs or other security, while operator contracts with third parties as agent or all participants jointly enter into such contacts
- Typically, under a JOA each party would have a right to storage capacity commensurate with its interest
- JOA itself is a cash neutral structure – no profit or loss

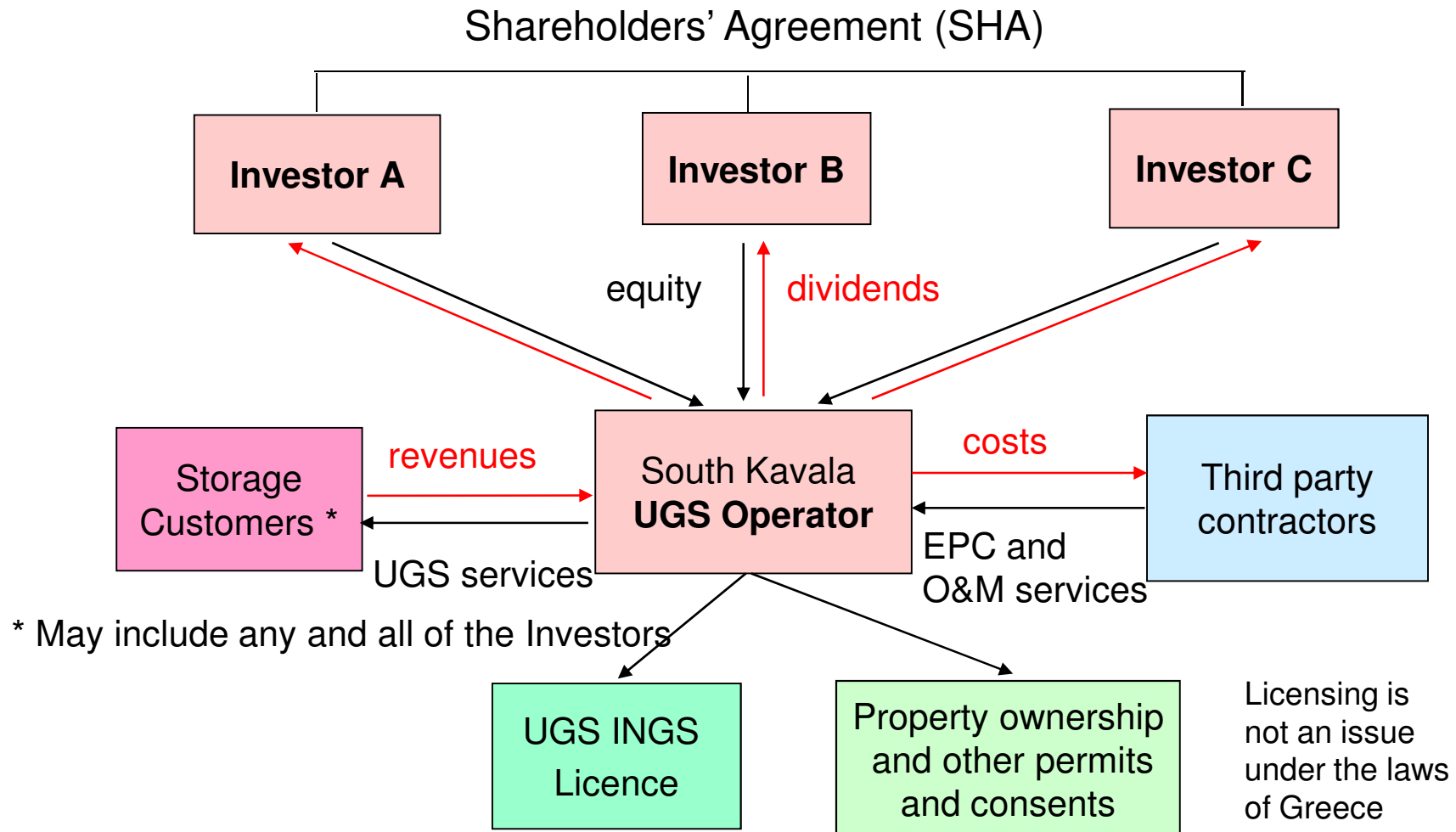
JOA structure diagram



Possible investment structures (continued)

- Special Purpose Vehicle (SPV)
 - Incorporated JVs (SPVs) are structured to make profit
 - Revenues earned through storage services contracts (SSCs) which can be long term or short term
 - Shareholders or third parties may enter into such SSCs
 - SSCs determined through open season process and need to be TPA compliant, if not TPA exempt

SPV structure diagram



Key issues in JOAs and SHAs

- Reserved matters / discretions and increased majority for decision making
- Budgets and programmes
 - for what periods?
 - flexibility for the Operator
 - change in circumstances
- Final Investment Decision (FID) process
- Pre-emption rights
- Fair market value tests and forfeiture of guarantees or payments on exit / termination

Third Party Access (TPA)

- Considering TPA exemption is common in new UGS
- If not exempt, regulated access would be the case for an INGS UGS under both Article 19 of Law 3428/2005 and Article 87 of draft Energy Law of May 2011
- Need to comply with ERGEG good practice guidelines (GGPSSO) of March 2005 / Feb 2011 (CAM – CMP)
- Storage capacity to be sold on a non-discriminatory and transparent basis
- Open-season process (or Open Subscription Periods) for both yearly and daily storage capacities
- May be harder to obtain finance due to insufficiently predictable revenue stream

TPA exemption conditions for UGS systems

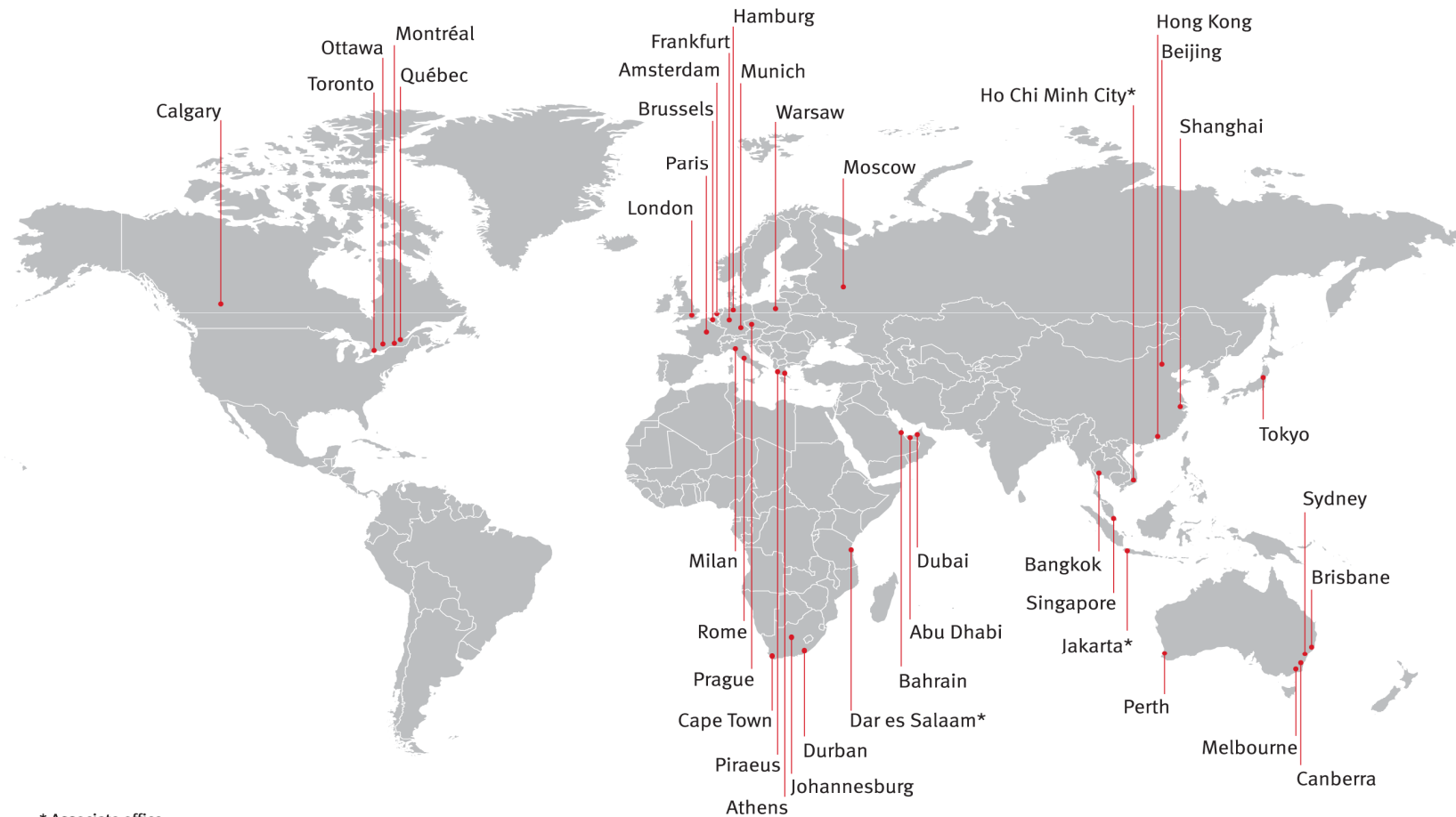
- Not technically and/or economically necessary for providing efficient access to the system for the supply of customers (Article 33 (1) of Directive 2009/73); or
- Article 36 (1) of Directive 2009/73 (new infrastructure):
 - Enhancement of competition in gas supply and security of supply
 - Level of risk of investing is such that the investment would not take place unless an exemption is granted
 - New UGS facility must be owned by a separate legal entity from the gas system operator
 - Charges must be levied on users of that infrastructure
 - Exemption must not be detrimental to competition or the effective functioning of the internal market in natural gas, or the efficient functioning of the regulated system to which the infrastructure is connected

Conclusions

- The Greek State must decide between NNGS or INGS with due regard to timing and delays (e.g. public tenders)
- Privatization of South Kavala gas field sounds bizarre
- Priority rights for current E&P licensee to convert the field into UGS are reasonable but not necessarily the case
- Extracting all cushion gas from South Kavala gas field is legitimate but depends on economics and timing
- The (missing) prior concession of underground spaces for UGS purposes is about to be resolved, hopefully ...
- JOA is more common for UGS abroad but SPV may be more suitable for Greece
- Regulated TPA applies to INGS UGS, if not TPA exempt

Thank you for your attention

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