



# Strategic Analysis of the Global Status of Carbon Capture and Storage

Report 3: Country Studies  
Indonesia

Final Report



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## 1. Executive summary

Indonesia has not introduced any policies or legislation dedicated to encouraging the development of CCS technologies or regulating the CCS project cycle.

Indonesia has introduced a number of climate change and energy conservation policies which could provide a framework for high-level policy support for CCS incentives. The Indonesian Government is cooperating with the governments of other countries including Norway and the United Kingdom to map potential CO<sub>2</sub> sequestration sites in Indonesia.

In addition, Indonesia has relatively well-developed pipeline and oil and gas exploration and extraction regulations which could be adapted to facilitate the deployment of CCS technologies

## 2. Glossary

AMDAL	Analysis of Environmental Impact Study
Bapedal	Environmental Impact Control Agency
BPMIGAS	Executive Agency for Downstream Oil and Gas Activity
BPMIGAS Regulation No. 02	BPMIGAS Regulation No. 02/P/BPMIGAS/XII/2004 on Guidelines for Granting a Special Right to Pipeline-Transport of Natural Gas within Certain Area of the Natural Gas Distribution Network
BPMIGAS	Executive Agency for Upstream Oil and Gas Activity
Environmental Law	Law No. 23 of 1997 on Environmental Management
EOR	Enhanced Oil Recovery
GR 35/2004	Government Regulation No. 35 of 2004 on Upstream Oil and Gas Activities (as amended by Government Regulation No. 34 of 2005)
GR 36/2004	Government Regulation No. 36 of 2004 on Downstream Oil and Gas Activities (as amended by Government Regulation No. 30 of 2009)
GR 41/1999	Government Regulation No. 41 of 1999 on Air Pollution Control
Law 5/1986	Law No. 5 of 1986 on Administrative Court (as amended by Law No. 9 of 2004)
Law 17/2008	Law No. 18 of 2008 on Shipping
Law 22/2001	Law No. 22 of 2001 on Oil and Gas
LEMIGAS	Research and Development Center for Oil and Gas Technology
Master Plan	the Master Plan of Natural Gas Transmission and Distribution Network
MEMR Regulation No. 300	Minister of Energy and Mineral Resources Regulation No. 300.K/38/M.PE/1997 on Work Safety of Oil and Gas Distribution Pipelines
Minister of Environment Regulation No. 13	Minister of Environment Regulation No. 13 of 2007 on Requirements and Procedures of Waste Water Management for Oil and Gas and Geothermal Business and/or Activities by way of Injection
PR 36/2005	Presidential Regulation No. 36 of 2005 on Land Procurement for the Development for Public Purposes
UKL/UPL	Environmental Monitoring/Management Assessment or <i>Upaya Pengelolaan Lingkungan/Upaya Pemantauan Lingkungan</i>

### **3. CO<sub>2</sub> pricing**

Although Indonesia does not have any policies and legislation which specifically impose a cost on GHG emissions, within the past few years, the Government of Indonesia has been focusing on climate change issues in more detail. The President of Indonesia has issued a National Energy Policy which aims to ensure energy security and support research and development. This National Energy Policy set out targets for 2025 in terms of composition of fuel consumption. Indonesia's government agencies have also discussed instituting a CO<sub>2</sub> tax.

Indonesia has a relatively well-developed regulatory regime for oil and gas exploration and extraction activities which could lend itself well to the regulation of CCS.

## 4. Existing CCS initiatives

### 4.1 Introduction

Within the past few years, the Government of Indonesia has increased its focus on climate change. It has instituted a national action plan to reduce GHG emissions; this plan includes the energy sector. According to the Government of Indonesia, fossil fuel burning is the second-largest producer of CO<sub>2</sub> in Indonesia after forest fires (Simamora, 2008). In 2006, the President of Indonesia issued a National Energy Policy through Presidential Regulation No. 5 of 2006. The National Energy Policy is broadly defined to be a mechanism that will ensure energy security and supply in the support of research and development.

Indonesia's dependence on fossil fuel resources provides opportunities to increase its CCS technology utilisation. Indonesia's growth of energy needs is the main reason to improve oil field development and the Government of Indonesia has encouraged key market participants to pursue this, particularly through Enhanced Oil Recovery (EOR). EOR has not been highly regulated in Indonesia but the 2008 Minister of Energy and Mineral Resources Regulation on the Development of Oil Mine in Old Well and the Government's policy in the Guidelines on the Development of the National Oil and Gas Industry 2005-2020 which provides incentives for the development of marginal fields and brown fields, has helped to provide incentives for the application of EOR in Indonesia.

There are approximately 13,824 old wells in Indonesia, especially in oil and gas production areas (Department of Energy and Mineral Resources, 2009). The Government of Indonesia plans to activate approximately 5,000 potential old wells. In this manner, it is expected that CCS technology will absorb a large quantity of CO<sub>2</sub> emission, and, at the same time, be utilised to re-exploit old wells. According to the head researcher at the Research and Development Center for Oil and Gas Technology, CCS technology has the potential to increase Indonesia's oil production by 60 percent (Simamora, 2008).

In a two-day workshop on CCS held in 2008, the Minister of Energy and Mineral Resources and the Minister of Environment said that CCS technology was the most practical method for containing large quantities of CO<sub>2</sub> emissions (Simamora, 2008). The Minister of Energy and Mineral Resources also mentioned that pilot projects are required to assess whether CCS is technologically and economically feasible, however none have been initiated yet.

### 4.2 Government or government-business research facilities

Indonesia's Research and Development Centre for Oil and Gas Technology (LEMIGAS), a government-owned research and development agency, has been the focal point in performing research and development of CCS in Indonesia.

LEMIGAS has entered into several Memoranda of Understanding, including with Japan, Norway, and several major oil companies (Total and Shell) to conduct preliminary studies to estimate CO<sub>2</sub> storage potential and incremental oil recovery in several locations in Indonesia. The Memoranda of Understanding are also intended to expand technical capacity building. Based on the preliminary studies, the Government of Indonesia has identified several potential locations which may be suitable for storage purposes. Based on information from LEMIGAS, Bontang (East Kalimantan) is one of the potential locations for storage.

In order to obtain a better understanding of Indonesia's CCS potential, in August 2009, LEMIGAS will launch a joint study with the United Kingdom, Indonesian government institutions (including the Department of Energy and Mineral Resources and the Ministry of Environment), and other stakeholders. This study will explore, amongst other things, the base components of CCS (i.e. potential storage location) and the technology used for the implementation of CCS. It is expected that the study will provide a baseline to establish a CCS regulatory framework in Indonesia.

### **4.3 Taxation incentives**

To date, Indonesia does not have specific taxation incentives for CCS. The Department of Finance is understood, however, to be considering this issue.

As a general incentive, the Law No. 10 of 1995 (as amended by Law No. 17 of 2006) on Customs provides that import duties exemption or relief can be granted for the importation of equipment or material used to prevent environment pollution.

### **4.4 Liability for failure to capture**

The current Indonesian regulatory framework does not impose any liability on persons who release CO<sub>2</sub> into the atmosphere.

## **5. Capture of CO<sub>2</sub>**

### **5.1 Introduction**

Indonesia does not have any specific policies and legislation governing capture of CO<sub>2</sub>. However, Government Regulation No. 41 of 1999 (GR 41/1999) provides a general framework for air pollution control.

### **5.2 General policy and legislation with applicability to CO<sub>2</sub> capture**

GR 41/1999 provides a general framework for air pollution control. Air pollution is defined as the entry or the act of entering a substance, energy and/or other components into the ambient air by human activities, so that the quality of ambient air declines to a certain level where the ambient air cannot fulfil its function. Carbon dioxide is not specifically listed in the national standard.

Air pollution control consists of prevention and eradication of pollution and improvements in air quality. Under this law, anyone conducting any business or activities which generate emissions or disturb ambient air quality is obliged to: comply with the quality standards for ambient air, the quality standard of emission and the standard of disturbance level stipulated for business or activities undertaken; undertake prevention and eradication of air pollution resulting from the business or activities; and provide correct and accurate information to the public in the framework of controlling air pollution.

Anyone who causes air pollution or disturbance must take action to eradicate and recover the pollution. The party causing the pollution shall be responsible for any cost incurred in eradicating and recovering the pollution. The polluter is also responsible for losses incurred by third parties. .

## **6. Transport of CO<sub>2</sub>**

### **6.1 Introduction**

Indonesia currently does not have policy or legislation specific to the transportation of CO<sub>2</sub>. Regulations exist for the transportation of various resources such as oil and gas, and general construction regulations and requirements for pipelines generally (e.g. gas and water pipelines).

The promulgation of Law 22/2001 was the beginning of a new era in downstream oil and gas industry for Indonesia, liberalising the previous monopoly on downstream business activities which was enjoyed by the State-owned oil and gas company, PT Pertamina (Persero). Law 22/2001 and GR 36/2004, regulates transportation activities including the transport of oil, gas, fuel oil, fuel gas, and its processed products by land, water, air, and transportation of gas by pipelines for commercial purposes.

Transportation of gas by pipelines is the most highly regulated sector. Gas transportation (if intended to be a profit centre) is considered a downstream oil and gas activity. As such, it must be carried out by an Indonesian legal entity (which may be domestically or foreign-owned). Foreign-incorporated companies may only conduct downstream activities if these form part of their upstream activities.

### **6.2 General policy and legislation with applicability to CO<sub>2</sub> capture**

#### **6.2.1 Licencing of transportation activities**

##### **PIPELINES**

In Indonesia, a gas transportation pipeline may fall either within upstream or downstream licencing regimes. Based on Law 22/2001, upstream activities include exploration and exploitation activities, meanwhile downstream activities include processing, transportation, storage and/or trading activities. A pipeline will be categorized as an upstream pipeline if the pipeline is dedicated to upstream facilities (the development is a part of the Work Program and Budget, and Authorised for Expenditures agreed by the Executive Agency for Upstream Oil and Gas Activity or BPMIGAS). The operation of the upstream pipeline may not generate income. Otherwise, it falls within the downstream regime.

Gas pipelines are further divided into transmission pipelines and distribution pipelines. Transmission and distribution pipelines are regulated under BPMIGAS Regulation No. 02. Under such regulation, a transmission pipeline is the pipeline transporting natural gas from a supply source or fields to one or more distribution centres and/or to one or more big consumers, or that connects natural gas supply sources. A distribution pipeline is the pipeline transporting natural gas from a transmission pipeline or distribution pipeline to customers or other distribution pipeline of a network structure. Transmission pipelines are classified into transmission segments and distribution pipelines are classified into distribution network areas. The segments and areas are set out in the Master Plan of Natural Gas Transmission and Distribution Network (Master Plan). Gas pipeline operations must comply with the Master Plan. The Master Plan is stipulated by the Minister of Energy and Mineral Resources by taking into consideration the input of the Executive Agency for Downstream Oil and Gas Activity. The Master Plan may be adjusted on a yearly basis and any party may propose to BPMIGAS, subject to the Minister's approval, that a new pipeline segment be included in the Master Plan.

The pipelines are owned by the project owner or Special Right holder, not the government. Under BPMIGAS Regulation No. 02 and GR 36/2004, a Special Right is defined as the right granted by BPMIGAS to a business entity to operate transportation of natural gas through pipelines in a transmission segment and/or distribution network region on tender basis.

## NEW PIPELINES

Gas transportation through a Section of transmission pipeline, or through a gas distribution network, requires an additional Special Right, issued by BPMIGAS. The Special Right is required to construct and operate a natural gas transportation pipeline. The Special Right is granted for the term of the transportation business licence or for a maximum of 20 years if no term is stated in that licence. In principle, a Special Right is issued through a tender process except for some categories, where BPMIGAS may award Special Right without tender process

The tender process which is conducted by BPMIGAS evaluates the bids submitted by the bidders based on their administrative, technical and financial qualifications. A single Special Right will be issued to a company for an area of a transmission segment or a distribution network. The Special Right is not transferable and change in control of the holder of Special Right must be notified to BPMIGAS. As a pre-requisite, a Special Right for a Transmission Pipeline can be granted to an oil and gas transport licence holder. A Special Right for a Distribution Pipeline can be granted to a holder of a Trading Business Licence provided that for open access, it has to secure a Transportation Business Licence. According to BPMIGAS Regulation No. 02, a Trading Business Licence is a licence granted by the Minister of Energy and Mineral Resources to a business entity to conduct natural gas trading business. A Transportation Business Licence is a licence granted by the Minister of Energy and Natural Resources to a business entity to conduct natural gas transportation through pipeline with the objective of gaining benefit and/or profit.

The Government of Indonesia has awarded Special Rights for three Transmission Line pipeline projects: from Cirebon to Semarang (Java); from Gresik to Semarang (Java); and from Bontang (East Kalimantan) to Semarang (Central Java). The transmission lines were estimated to be completed simultaneously in April 2009. BPH Migas is also tendering another transmission line, from Cirebon to Muara Bekasi.

## EXISTING PIPELINES

Pursuant to BPMIGAS Regulation No. 02, a pipeline business that has existed and was built prior to the introduction of the pipelines licencing regime, the deregulation will by law receive the Special Rights from BPMIGAS without having to follow the tender process. However, the business entity must submit an application and administration documents to BPMIGAS.

## ROAD AND RAIL TRANSPORT

In general, transportation activities are regulated under Law 22/2001 and GR 36/2004. Under Law 22/2001 and GR 36/2004, transportation activities include the transportation of oil, gas, fuel oil, fuel gas, and its processed products by land, water, air, and transportation of gas by pipelines for commercial purposes. Generally, in order to conduct all of the above transportation activities, a business entity needs to obtain a Transportation Business Licence from the Minister of Energy and Natural Resources.

## TRANSPORTATION BY SHIP

In addition to the above, ships for oil and gas transportation are categorised as a ship under Law 17/2008 and therefore falls under the jurisdiction of the Department of Transportation. Pursuant to Law 17/2008, all transportation activities in Indonesian waters must be conducted with appropriate business licences. In order to engage in maritime shipping business, Indonesian individuals or business entities must obtain a shipping business licence (SIUPAL) from the relevant authorities

### 6.2.2 Planning

## ZONING FOR TRANSPORT FACILITIES

Distribution Pipelines can be located onshore and offshore. The design, construction and location classification for the pipelines must follow the Oil and Gas Standards stipulated by the Minister of Energy and Mineral Resources. The standards are covered in Indonesian National Standard No. SNI 13-3473-2002 on Gas Transmission and Distribution System.

## PIPELINE LICENCING REGIMES – NEW PIPELINES

### ONSHORE PIPELINES

Under MEMR Regulation No. 300, legal entities conducting transportation activities must provide lands for distribution pipelines and spaces for rights of way. The regulation also provides the minimum distance requirement, i.e. the minimum distance of open space between distribution pipelines and buildings or houses.

### OFFSHORE PIPELINES

For offshore pipelines, the following requirements must be fulfilled:

- if the depth of the sea is less than 13 meters, the pipelines must be planted at least two meters under the seabed; and
- if the depth of the sea is 13 meters or more, the pipelines can be placed on the seabed (MEMR Regulation No. 300).

## PIPELINE LICENCING REGIMES – EXISTING PIPELINES

Pipelines that have been used and were built prior to the issue of MEMR Regulation No. 300 must be adjusted with the requirements under MEMR Regulation No. 300 with consideration made to the relevant location of the pipelines.

## ENVIRONMENTAL IMPACT ASSESSMENT

GR 36/2004 and MEMR Regulation No. 300 require the legal entity conducting transportation activities to preserve the environment, ensure work safety and develop the local community. It is unclear how the “preservation of the environment” is to be applied to CCS pipeline activities under the laws and the regulations. However in practice it would seem to involve the preparation of an Environmental Monitoring/Management Assessment or *Upaya Pengelolaan Lingkungan/Upaya Pemantauan Lingkungan* (UKL/UPL) and, under some specific conditions, an Analysis of Environmental Impact

(AMDAL) study, which must be approved by the relevant government agency, together with the submission of periodical reports on the adherence of a project to such a study.

An AMDAL study must be conducted by the proponent of any activity having a major or significant impact on the environment must undertake an analysis of the environmental impacts of the development. The preparation of an AMDAL consists of the preparation of an Environmental Impact Analysis; an Environmental Management Plan; and an Environmental Monitoring Plan. The State Minister for the Environment decides which development activities require a full AMDAL, based on the scope of the proposed work, the proximity of the development to protected areas and its potential impact on the environment. Those activities that do not require an AMDAL are required to undertake UKL and UPL..

## STAKEHOLDER ENGAGEMENT

This stakeholder engagement Section relates to both pipelines development and other CCS-related developments.

## PUBLIC CONSULTATION

The Environmental Law now requires that every business licence issued by an agency must state the obligations of the licence holder in maintaining the environment to support sustainable development. Any agency issuing a business licence must:

- consider the spatial plan for the area;
- hear and review public opinion; and
- hear and review the comments and recommendations of the government agencies with authority over the operation (for example, the Ministry of Energy and Mineral Resources, or the Ministry of Trade and Industry).

Further, the Environmental Law requires that the decision to issue a business licence must be published. That said, the law is not clear as to whether the obligation to publish is vested on the project proponent or the Government as the issuer of the licence, nor is the location or breadth of the publication specified. The public is given the right to comment on or object to the issuance of the licence, although it is not clear how long this comment period lasts before the decision becomes final.

In addition, the Environmental Law codifies the public's right to access environmental information and participate in management of the environment. Further implementation of the Law by Government Regulation 27/1999 requires that the public be involved in the preparation and evaluation of the frame of reference of the AMDAL, and the suggestions, opinions, and replies from stakeholders be considered by the agency. Further, the conclusion of the Evaluation Commission and decision of the Environmental Impact Control Agency (Bapedal) must be published. All AMDAL documents must be submitted to Bapedal's library, and the public is to be given free access to these documents.

## LEGAL CHALLENGE

The public is given the right to comment on or object to the issuance of the licence, although it is not clear how long this comment period lasts before the decision becomes final. Other than that, if an environmental issue arises, the Environmental Law provides the right of the public, including environmental non-governmental organizations, to make an environmental claim in court, or to report environmental problems to a law enforcement official.

In addition, based on Law 5/1986, any parties whose interest is harmed by a government institution's decision may file claims against the government institution as the defendant for the purpose of requesting the revocation and/or issuance of a decision as well as to seek compensation and/or rehabilitation. A decision is defined as a written decision issued by a government institution demonstrating a certain legal action carried out by the government institution based on the prevailing laws and regulations, where this written decision is concrete, individual, final in nature, and has a legal impact upon certain individuals or private legal entities.

The judgment may order the defendant government to revoke the decision, revoke the decision and issue a new decision, or issue a new decision. The Panel of Judges may also order the government institution to pay compensation to individuals or private legal entities as the plaintiff, the amount of which is limited to Rp. 5,000,000 (five million Rupiah).

### 6.2.3 Access / tenure

## RIGHTS OF INDIGENOUS PEOPLES AND OTHER CUSTOMARY RIGHTS

The existence of customary *ulayat* title founded in the *adat* rights regime (i.e. traditional title) will be a consideration for CCS projects in Indonesia. There are very few legal regulations relating to the formalization of *adat* land title systems, although the 1999 Forestry Law does clearly recognize the existence of *adat* forests.

## COMPULSORY ACQUISITION AND COMPENSATION REGIMES

Under the applicable regulation, legal entities conducting transportation activities must provide lands for the distribution pipelines and spaces for right of ways. The land can be provided by way of acquiring, leasing or obtaining approval from the governmental authorities, legal entities or individuals.

In addition, the President of the Republic of Indonesia has issued Presidential Regulation No. 36 of 2005 on Land Procurement for the Development for Public Purposes (PR 36/2005). Under PR 36/2005, land procurement for public purposes shall be done by way of release or transfer of land rights. Public purposes include, public roads, railway, drainpipe, power plant and power transmission.

The land settlement can be done by way of sale and purchase, replacement, or any other way agreed by the parties. Basically, PR 36/2005 provides that if the land will be used for public purposes, land owners must provide their land to the government. The way of land settlement will be done amicably by the land owners and the government institution. If an amicable settlement is not achieved, the government institution will determine the amount of compensation.

However, even though PR 36/2005 provides a framework for compulsory acquisition in Indonesia, in practice, the compulsory acquisition process is not easily applied, due to public protects and legal challenges such as in relation to a large number of infrastructure projects (such as toll roads and floodwater mitigation projects).

### 6.2.4 Environmental and other risks

## LEAKAGE OF TRANSPORTED CO<sub>2</sub>

There is no legal liability for releasing CO<sub>2</sub> into the atmosphere.

In respect of transportation of oil and gas, legal entities conducting transportation activities are required to ensure work safety. The Ministry of Energy and Mineral Resources has issued a specific regulation on Work Health on Oil and Gas Distribution Pipelines, namely MEMR Regulation No. 300. Under MEMR Regulation No. 300, a company that constructs, operates and maintains distribution pipelines must appoint a technical head that will be responsible for the construction, operation and maintenance of the distribution pipelines.

In principle, in performing its transport activities, companies must follow certain requirements stipulated under the regulation in order to prevent any damages to the pipelines. The operation and maintenance of the pipelines must follow the Oil and Gas Standard (*Standard Pertambangan Migas/SPM*), stipulated by the Minister of Energy and Mineral Resources.

In the event of leakage, the company must undertake any action necessary to protect the safety of people and goods. If the leakage results in the loss of lives or goods, the company must notify the leakage to the Head of the Mines Inspection<sup>1</sup> and the relevant Local Government within 24 hours after the condition is known. After receiving the notification, the Head of the Mines Inspection must take any action necessary to control the condition. The company is responsible for any losses suffered by other parties arise due to the leakage.

As a general rule, the Environmental Law provides that a party will be strictly liable for losses if the party's operation has a significant impact and the operation uses hazardous and toxic substances, or generates hazardous and toxic waste. The polluter can be released from strict liability if it can prove that the pollution and environmental damage was caused by natural disaster, war, force majeure, or a third party's action.

## **POLLUTION – NOISE, AIR AND WATER**

The Environmental Law prohibits an operation from violating quality standards set forth by a variety of implementing regulation and/or ministerial decrees. The Minister of Environment has issued ministerial decrees on the quality standard of waste water, quality standard of air emission and air ambient, quality standard of sea water, quality standard of nuisance (which includes noise, vibration and unpleasant odor) (Ministry of Environment, 2009).

## **WASTE**

It is not yet clear whether captured CO<sub>2</sub> would be treated as a waste under Indonesia's waste regulations or how such regulations would apply to leakage of transported CO<sub>2</sub>. As discussed above, as a general rule, the Environmental Law prohibits an operation from violating quality standards set forth by a variety of implementing regulations and/or ministerial decrees.

If waste is categorised as hazardous and toxic waste, the management of it is specifically regulated under Government Regulation No. 18/1999, as amended by Government Regulation No. 85/ 1999. Hazardous and toxic wastes are now governed from their creation to their ultimate storage and disposal, and licences are required for production, transportation, storage, processing and land filling of such materials.

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<sup>1</sup> A Head of Mines Inspection means a Directorate General of Oil and Gas official who is appointed by the Director General of Oil and Gas to lead mines inspection.

## **OCCUPATIONAL HEALTH AND SAFETY**

Legal entities conducting transportation activities in Indonesia are required to ensure work health and safety. To ensure work health and safety, the Ministry of Energy and Mineral Resources has issued MEMR Regulation No. 300. MEMR Regulation No. 300 specifies certain requirements, both administrative and technical, that need to be fulfilled by legal entities in order to ensure work health and safety. It is expected that this would apply to transport of captured CO<sub>2</sub> by pipelines.

## **7. Exploration of potential CO<sub>2</sub> storage sites**

### **7.1 General Policy and legislation**

Whilst the Indonesian regulatory regime provides a framework for exploration in the context of minerals, coal, oil, gas and geothermal resources, there is no framework for the licencing of exploration activities for potential sequestration sites.

What follows is an analysis of the policies and legislation which do exist and which would be relevant to CCS exploration activities with applicability to exploration of potential CO<sub>2</sub> sequestration sites

#### **7.1.1 Exploration licencing**

##### **APPLICATION CRITERIA**

In the oil and gas sectors, upstream activities, which include exploration and exploitation activities, are regulated under Law 22/2001 and GR 35/2004. Upstream activities are conducted by Indonesian legal entities or permanent establishments based on a cooperation contract with BPMIGAS, known as Production Sharing Contracts. The upstream activities are conducted based on work areas which are determined by the Minister of Energy and Mineral Resources. The Minister of Energy and Mineral Resources will announce and offer the work areas to Indonesian legal entities or permanent establishments.

In order to obtain a work area, Indonesian legal entities or permanent establishments must submit an application to the Minister of Energy and Mineral Resources. The issuance of the work areas shall be conducted through tender processes held by the Directorate General of Oil and Gas at the Department of Energy and Mineral Resources. The Minister of Energy and Mineral Resources shall determine the Indonesian legal entities or permanent establishments that will be authorised to conduct the upstream activities (known as contractors). The contractors will then enter into Production Sharing Contracts with BPMIGAS.

##### **RIGHTS CONFERRED BY EXPLORATION LICENCE**

As a general principle, all lands and natural resources (including oil and gas) contained therein are controlled by the state. By entering into Production Sharing Contracts with BPMIGAS, contractors are given authority to conduct exploration and exploitation activities within work areas. Contractors can also drill and inject substances, however these activities are not further regulated.

Based on the applicable regulations and under Production Sharing Contracts, contractors shall have the right to, amongst other things:

- sell, assign or transfer, all or any part of its share of the participating interest (i.e. undivided rights, interests and obligations of the contractor under the Production Sharing Contracts) to any affiliated or non-affiliated companies upon written consent of BPMIGAS;
- use and have access for all data and information of geological, geophysical, drilling, well, production in the work area through BPMIGAS; and

- recover costs expended from exploration and exploitation in accordance with the Work Plan and Budget and Authorisation Financial Expenditure approved by BPMIGAS upon the commencement of commercial production.

## **LICENCE TERM**

The term of a Production Sharing Contract is 30 years maximum, which consists of exploration and exploitation terms. The term can be extended indefinitely for 20 year extension periods (at the discretion of BPMIGAS).

## **CHALLENGING LICENCES**

Legal challenge provisions applicable to exploration licencing are the same as that discussed in Section 6.2.2 above.

### **7.1.2 Access / tenure**

## **ESTABLISHING PRIORITY BETWEEN EXPLORATION AND EXISTING USES AND RIGHTS**

### **PETROLEUM AND RESOURCE EXPLORATION AND EXTRACTION**

There cannot be overlapping oil and gas concessions granted (regardless of whether they are in exploration or production stages). There may be overlaps between oil and gas rights and other extractive rights, such as mining rights. In this case, however, there is no priority between the rights, and it is left to the two parties to reach agreement in relation to the scheduling of their activities.

## **SUBSEQUENT USES**

At the conclusion of licence periods contractors are obliged to return exploration areas to the Minister of Energy and Mineral Resources through BPMIGAS, in accordance with the term of the Production Sharing Contract.

## **RIGHTS OF INDIGENOUS PEOPLES AND OTHER CUSTOMARY RIGHTS**

In the event that the land that will be used and the work area is subject to a customary right land, GR 35/2004 requires that the land settlement must be done amicably, by taking into account the procedures of decision-making of the local customary peoples. Such customary right must be determined by local regulations. The land replacement or compensation must be granted in the form of public facility development or any other form useful for the local community. If the land is used for religious activities, the compensation must be granted in the form of land, building and the necessary equipment.

## **COMPULSORY ACQUISITION AND COMPENSATION REGIMES**

Under the applicable regulations, a contractor which intends to use lands in a work area must conduct a land use settlement with land owners. The settlement can be done by way of sale and purchase, compensation payment, exchange of lands or any other replacement. After the land settlement, the land title will be passed to the Government of Indonesia and the land will be managed by BPMIGAS (on behalf of the Government), except for leased lands.

## **8. Injection and pre-closure of CO<sub>2</sub> storage formations**

### **8.1 Introduction**

As in the previous Sections, injection and pre-closure of CO<sub>2</sub> sequestration formations is not yet regulated in Indonesia. As earlier discussed however, within the past few years, the Government of Indonesia has encouraged key players in the oil industry to improve oil field development.

The 2008 Minister of Energy and Mineral Resources Regulation on the Development of Oil Mine in Old Well provides a basic framework for oil extraction from old wells. That said, the injection method for oil extraction development is not specifically regulated. Under the regulation, contractors are obliged to produce oil from old wells that still have oil deposits.

Although injection in the oil field development is not specifically regulated, there is a specific regulation with regards to the injection of waste water. In 2007, the Minister of Environment issued Regulation No. 13 of 2007 on Requirements and Procedures of Waste Water Management for Upstream Oil and Gas Activities and Geothermal Activities by way of Injection.

### **8.2 General policy and legislation**

#### **8.2.1 Injection licencing**

##### **APPLICATION CRITERIA**

In general terms, anyone conducting upstream oil and gas and geothermal activities must manage the waste water incurred from such activities. Waste water management can be conducted by way of waste water injection. If the waste water injection method is chosen, a licence from the Minister of Environment is required. Waste water injection is regulated under Minister of Environment Regulation No. 13 of 2007 on Requirements and Procedures of Waste Water Management for Oil and Gas and Geothermal Business and/or Activities by way of Injection (Minister of Environment Regulation No. 13).

The applicant must submit the application for one or more injection wells located within the same production field. The applicant must also describe, amongst other things, a map of the wells, a method on choosing the well, geological data of the target injection zone, operational data, a formation testing program, injection procedures, construction procedures and a well closure plan.

In applying for the licence, the applicant must show that the injection wells fulfil a mechanical integrity test. The mechanical integrity test is performed to observe that there is no significant leakage in the pipelines and there is no significant transfer of water or gas to the underground drinking water resources.

The licence is issued by the Minister of Environment within 90 days following the application being completely submitted by considering the technical assessment of waste water injection.

##### **LICENCE TERM**

The waste water injection licence is valid for a period of five years. Licences can be renewed at least 60 days before the expiry of the licence.

### **8.2.2 Approval processes for sequestration facility closure**

With regard to waste water injection, the regulation does not provide much detail about the sequestration facility closure. Minister of Environment Regulation No. 13 provides, however, that the responsible party for the waste water injection and the upstream oil and gas and geothermal activities is obliged to close the injection well after the operational period ends.

The closure approval is part of the waste water injection licence. As mentioned above, in applying for a waste water injection licence, the applicant must also set out a well closure plan. The closure plan must describe the type and amount of the plugs used to cap injection sites; the type, quality and quantity of the cement that will be used; and the method of closure.

The responsible party must report the closure to the Minister of Environment, other related ministers and the local government. In addition, the applicant is also required to supply a monitoring plan to the Minister of Environment.

### **8.2.3 Planning and construction regulation applicable to CO<sub>2</sub> sequestration facilities**

#### **ZONING**

Minister of Environment Regulation No. 13 provides that waste water injection must be conducted in an Injection Target Zone. Injection Target Zones are geological formations which comprise formations or a group of formations that are able to absorb the injected waste water. The Injection Target Zone must not impact on underground water resources. In determining the Injection Target Zone, the applicant must first determine an injection research zone.

#### **ENVIRONMENTAL IMPACT ASSESSMENT**

One of the requirements to obtain a waste water injection licence is to provide the Minister of Environment with an environmental impact assessment, which involves the preparation of an environmental monitoring/management assessment (UKL/UPL), and if required, an AMDAL study, which must be approved by the relevant government agency, together with the submission of periodical reports on the implementation of such study.

#### **PIPELINE LICENCING REGIMES**

Pipeline licencing requirements are discussed above in Section 6.2.1.

### **8.2.4 Leakage liability**

Under Minister of Environment Regulation No. 13, waste water injection licence holders are obliged to perform any action necessary in order to prevent leakage. The applicable regulation also provides technical requirement for preventing leakage. However, if leakage occurs, the licence holder must stop all injection activities and must report the situation to the Minister of Environment, other related ministers and to the local government. The licence holder is also obliged to handle the situation by running the stipulated handling procedures, such that the situation will not endanger human health and safety and will not cause environmental pollution and damage.

As a general rule, the Environmental Law provides that a party will be strictly liable for losses if the party's operation has a significant impact and the operation uses hazardous and toxic substances, or

generates hazardous and toxic waste. The polluter can be released from strict liability if it can prove that the pollution and environmental damage was caused by natural disaster, war, force majeure, or a third party's action.

The Environmental Law also provides for the imposition of recovery costs and clean up costs, as well as the revocation of a business licence. Administrative penalties are imposed by the Governor of the affected province.

Criminal penalties may be imposed on a person who has caused environmental damage or pollution, in the form of imprisonment (up to ten years), a fine (up to Rp.750,000,000), and the award of civil penalties for damages suffered by third parties.

## **9. Post-closure and long-term storage of CO<sub>2</sub>**

Other than the well-closure obligation discussed above, Minister of Environment Regulation No. 13 does not provide provisions with regards to managing long-term liabilities for stored substances.

## 10. Summary

There is no CCS-specific regulation in Indonesia but Indonesia's existing oil and gas regulation would lend itself well to adaptation to CCS projects.

## 11. References

### 11.1 Legislation, Regulations, Case Law and International Material

BPMIGAS Regulation No. 02/P/BPMIGAS/XII/2004 on Guidelines for Granting a Special Right to Pipeline-Transport of Natural Gas within Certain Area of the Natural Gas Distribution Network.

Government Regulation No. 41 of 1999 on Air Pollution Control.

Government Regulation No. 36 of 2004 on Downstream Oil and Gas Activities (as amended by Government Regulation No. 30 of 2009).

Government Regulation No. 35 of 2004 on Upstream Oil and Gas Activities (as amended by Government Regulation No. 34 of 2005).

Law 22/2001 Law No. 22 of 2001 on Oil and Gas.

Law 17/2008 Law No. 18 of 2008 on Shipping.

Law No. 23 of 1997 on Environmental Management.

Law No. 5 of 1986 on Administrative Court (as amended by Law No. 9 of 2004).

Minister of Energy and Mineral Resources Regulation No. 300.K/38/M.PE/1997 on Work Safety of Oil and Gas Distribution Pipelines.

Minister of Environment Regulation No. 13 of 2007 on Requirements and Procedures of Waste Water Management for Oil and Gas and Geothermal Business and/or Activities by way of Injection.

Presidential Regulation No. 5 of 2006 on National Energy Policy.

Presidential Regulation No. 36 of 2005 on Land Procurement for the Development for Public Purposes.

### 11.2 Other sources

Department of Energy and Mineral Resources 2009, accessed 9 June 2009, available at: [www.esdm.go.id/.../2388-pertamina-ep-serahkan-pengelolaan-24-sumur-tua-kepada-kud-wargo-tani-makmur.html](http://www.esdm.go.id/.../2388-pertamina-ep-serahkan-pengelolaan-24-sumur-tua-kepada-kud-wargo-tani-makmur.html).

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