

# Renewable Energy Guideline on **Biomass and Biogas Power Project Development in Indonesia**



Implemented by:



**E-Guidebook English Version**  
*2<sup>nd</sup> Edition, February 2015*

# Imprint (2<sup>nd</sup> Edition)

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## Disclaimers

Highest effort has been given to ensure and maintain accuracy of the Guideline. Regulations and procedures for RE project development in Indonesia are complex, include numerous actors and are likely to be changed or updated over time. It is therefore not possible to cover all aspects and eventualities of RE project development with these Guideline. The Guideline are regularly updated in order to ensure correctness and completeness. However, GIZ and its implementing partners cannot be held responsible for any use of the Guideline. The Guideline shall not, in any case, replace or be used instead of existing laws, regulations and official Guideline issued by the relevant authorities in Indonesia.

Suggestions, feedbacks and updates are very welcome and can be addressed to [asean-resp@giz.de](mailto:asean-resp@giz.de)



## Ir. Rida Mulyana, M.Sc.

*Director General, Directorate General for New, Renewable Energy and Energy Conservation (EBTKE; Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi)*

Renewable Energy is an important element in a diversified and sustainable energy mix. It contributes to energy security and is a basic element of climate change mitigation efforts.

In the Government Regulation No. 79 issued in 2014 regarding National Energy Policy, the Government of Indonesia set a target to ensure 23% of its energy supply came from renewable energy sources by 2025 and 31% by 2050. Indonesia has vast potential for using waste from the agro industry for energy generation, which potentially reaches up to 32 GW. Unfortunately, today only 1.7 GW is being used.

The “**Guideline on Biomass and Biogas Power Project Development in Indonesia**”, which was developed with support from GIZ (*Gesellschaft für Internationale Zusammenarbeit*) under the project Least Cost Promotion of Renewables in Indonesia (LCORE), is a revision of the previous edition due to a change in regulation issued in 2014. As depicted in the Minister of Energy and Mineral Resources Regulation No. 27 Year 2014 regarding the Purchase of Electricity from Biomass and Biogas Power Plants by PT PLN, the Government of Indonesia provides increased feed-in tariff (FIT) for biomass/biogas generated electricity as well as ease and clarity for the permit process. The Government of Indonesia also provides incentives for the private sector to develop and invest in RE projects, particularly in the biomass/biogas sector.

...

# Foreword

*“...the Government of Indonesia set the target to produce **23%** of its energy supply from renewable energy sources by 2025 and **31%** by 2050...”*

Ir. Rida Mulyana, M.Sc.

*Director General, Directorate General for New, Renewable Energy and Energy Conservation (EBTKE; Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi)*

...

We are pleased to publish the Guideline as a reference for project development in the biomass/biogas sector as well as assist the project developers and related actors in navigating through necessary permitting procedures and administrative processes in Indonesia. The Guideline is therefore an important tool to further support the RE market in Indonesia and help build a green future for the country.



## Dr. Rudolf Rauch

*Director, Energy Programme Indonesia/ASEAN*

*Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)  
GmbH*

Over the last years, the Government of Indonesia has put considerable effort into developing the renewable energy (RE) sector and preparing the country for the energy challenges of the future. With ambitious targets and regulations on feed-in tariffs as well as other supporting policies, Indonesia set the tone for more private sector participation in the market.

The **“Guideline on Biomass and Biogas Power Project Development in Indonesia”** supports those efforts by shedding light on permitting procedures and administrative processes for the development of grid-connected power projects in the bioenergy sector. The tool covers the entire project development cycle and provides important information for developers, investors and policy makers. The Guideline is based on several stakeholder consultations and an extensive peer review within the public and private sector and combines regulatory provisions with hands-on experience.

Such a Guideline requires extensive research and development effort. To this end, the GIZ Energy Programme Indonesia/ASEAN combined the expertise from its various projects. While the Renewable Energy Support Programme for ASEAN (ASEAN-RESP) provided the research template and the structure of the Guideline, the Project Development Programme Indonesia (PDP) conducted stakeholder consultations, and the Least Cost Renewables Project (LCORE) carried out an exhaustive peer review.

# Foreword

*“...The tool covers the entire project development cycle and provides important information for developers, investors and policy makers....”*

## Dr. Rudolf Rauch

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*Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)  
GmbH*

I am convinced that the results of this joint effort will not only help to develop RE projects in Indonesia more efficiently, but also serve as a very good example for other countries in the region.

# Acknowledgements

This Guideline is based on the know-how and expertise of numerous stakeholders in the RE sector of Indonesia. Without their willingness to share insights gleaned from their own projects and experiences, it would not have been possible to compile the Guideline in its present form and completeness.

Apart from the participants in different stakeholder dialogues, we would like to thank the following experts for their contributions, comments and advice: Abinanto, Björn Heidrich, Dadan Kusdiana (EBTKE), Eriell Salim, Hari Yuwono, Jan-Benjamin Spitzley, Karel Pajung, Matthias Eichelbröner, Paul Butarbutar, Paul Heinemann, Puji Sugia Harjiman, Raymond Bona, Sadman, Sofyan (PLN), Syaiful Bahri Ibrahim, Thomas Wagner, Trio Chadys, and several experts from the Directorate General for Electricity.

A special thanks goes to Lisa Conrads and Ikke Prasetyaning from the GIZ LCORE project for their input and for conducting stakeholder interviews.

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# Biomass/Biogas Project Development in Indonesia

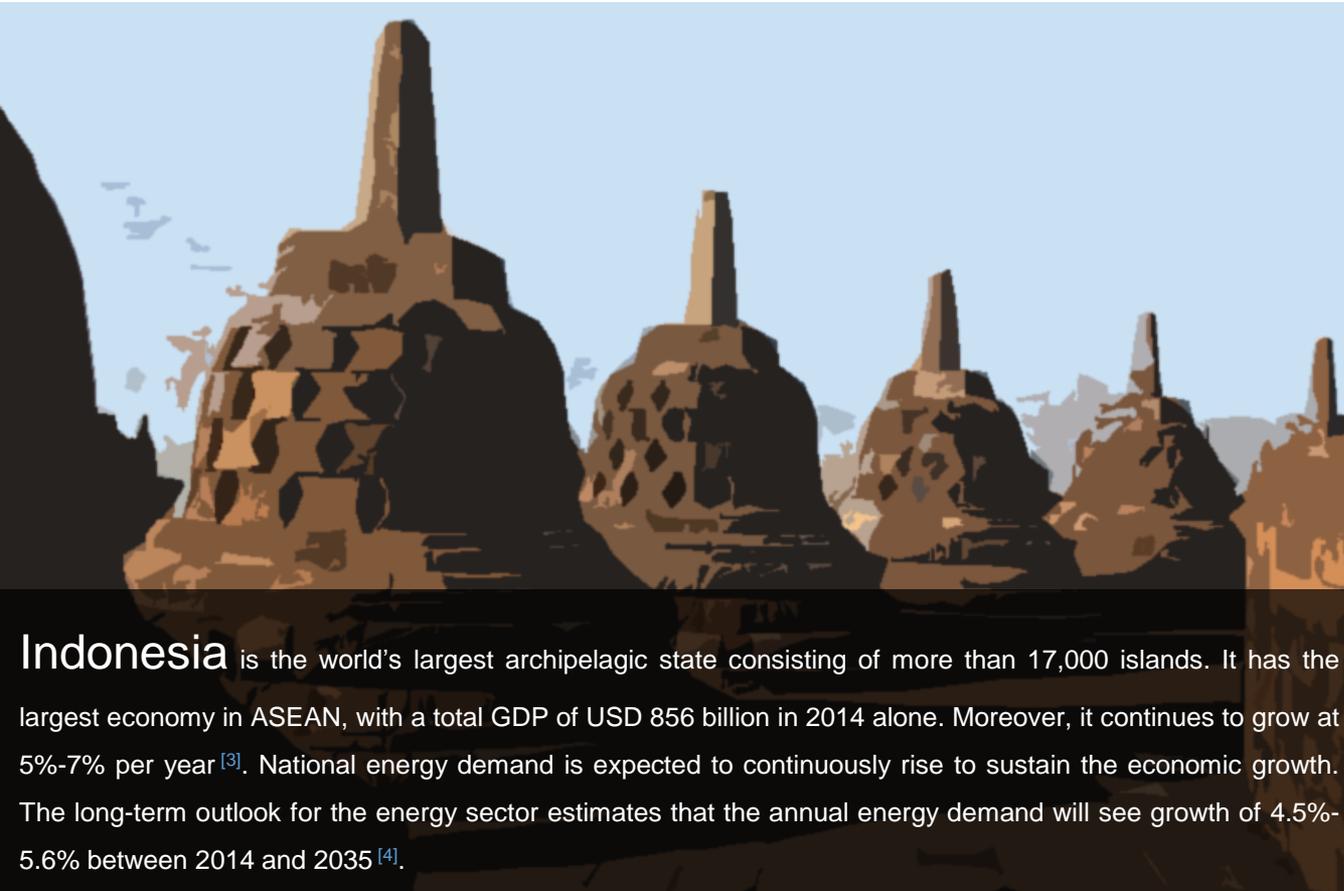
Background information

Indonesia

Power Sector

Biomass / Biogas

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**Population** (2014 estimation)

252 million <sup>[1]</sup>

**Nominal GDP** (2014 estimation)

USD 856 billion <sup>[2]</sup>

**Nominal GDP per capita** (2014 estimation)

USD 3,509 <sup>[2]</sup>

**Capital**

Jakarta

**Currency**

Indonesian Rupiah (IDR)

(exchange rate: USD 1 = IDR 12,600 - as of February 2015)

**Indonesia** is the world's largest archipelagic state consisting of more than 17,000 islands. It has the largest economy in ASEAN, with a total GDP of USD 856 billion in 2014 alone. Moreover, it continues to grow at 5%-7% per year <sup>[3]</sup>. National energy demand is expected to continuously rise to sustain the economic growth. The long-term outlook for the energy sector estimates that the annual energy demand will see growth of 4.5%-5.6% between 2014 and 2035 <sup>[4]</sup>.

<sup>[1]</sup>: Bank of Indonesia, 2014; <sup>[2]</sup> IMF, 2014; <sup>[3]</sup>: World Bank, 2014; <sup>[4]</sup>: BPPT, 2014

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# Biomass/Biogas Project Development in Indonesia

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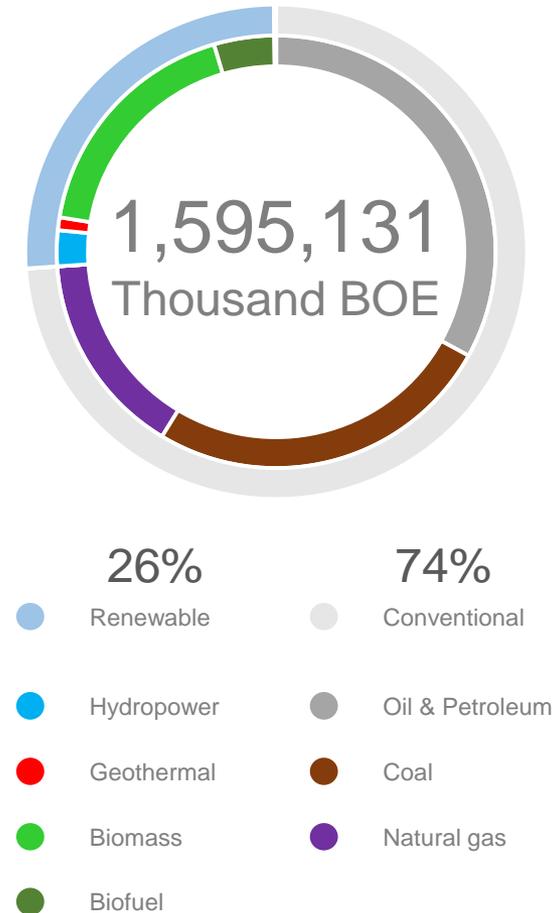
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Indonesia has abundant conventional energy resources. 489 Mt of coal was produced in 2013 along, making Indonesia the world's 4<sup>th</sup> largest coal producer. It is also the largest coal exporter<sup>[1]</sup>. Its oil reserves stood at 3.7 billion barrels in 2013, making it second in ASEAN after Vietnam<sup>[2]</sup>.

However, the use of conventional energy resources is not a long-term solution for Indonesia. Its oil production has annually declined due to lack of investment and infrastructure development. The domestic crude oil production reported in 2013 was only 58% of what was produced in 2000. In contrast, the import of crude oil increased over 50% during the same period. The burning of coal for power generation also emits a significant amount of greenhouse gases (GHG) into the atmosphere. Indonesia is taking the climate change issue seriously because of its threat to the nation. At the G-20 Summit in Pittsburgh (2009), Indonesia expressed its commitment to reduce GHG emissions by 26% in 2020 or an even higher target of 41% with international support.

To shift away from heavy reliance on conventional fuels, the use of renewable energy resources (RE) is a potential long-term alternative. Indonesia is undertaking the task of diversifying its primary energy-mix. The use of RE can help Indonesia meet its policy goals for secure, reliable and affordable energy to expand electricity access and promote sustainable development.

Primary energy mix (2013)<sup>[3]</sup>



[1]: World Coal Association 2013; [2]: BP 2014; [3]: MEMR 2014

# Biomass/Biogas Project Development in Indonesia

Background information

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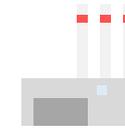
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By the end of 2014, the total installed capacity in Indonesia had reached around 53 GW. **Perusahaan Listrik Negara (PLN)**, a state-owned power utility company, owns generation facilities of 36 GW while non-PLN generators account for 15 GW <sup>[1]</sup>. PLN is a single buyer in the transmission and the distribution sector.

The power sector of Indonesia is governed by the electricity law. The first one was issued in 1985 (UU no. 15/1985), allowing the private sector to participate in the power market for the first time. An attempt was made to increase the role of the private sector in the power market through the issuance of a new electricity law in 2002 (UU no. 20/2002). However, the Constitutional Court ruled that it was against the Indonesian Constitution and revoked it in 2004.

The latest electricity law was issued in 2009 and is still in effect. A governmental regulation on power supply business (PP no. 14/2012) was issued as an implementing regulation for the electricity law.

The Indonesia power sector is regulated by the **Directorate General of Electricity** (DJK; *Direktorat Jenderal Ketenagalistrikan*) under the Ministry of Energy and Mineral Resources (ESDM; *Kementerian Energi dan Sumber daya Mineral*)



## Generation

53 GW

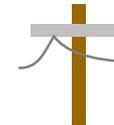
216,189 GWh



## Transmission

39,395 kmc

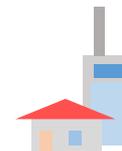
(extra high voltage, high voltage)



## Distribution

798,944 kmc

(Medium voltage, low voltage)



## Consumption

54 million customers

(grid-connected)

187,541 GWh

[1]: DJK 2014; kmc: kilometre circuit

Source: RUPTL 2015-2024

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In Indonesia, the term “**new and renewable energy**” is usually mentioned in high-level energy policy discussion. RE is treated together with other “new” energy (e.g. liquefied coal, gasified coal, coal bed methane, etc.) The latest national energy policy was announced in October 2014 (Government Regulation - PP no. 79/2014). The share of new and RE in the national energy mix is to be increased by at least 23% in 2025 and by at least 31% in 2050. To achieve these targets, private and foreign investment is expected to play a prominent role in the RE sector.

As an archipelago country that extends out horizontally with the equator running through it, Indonesia is a nation well-suited for growing a wide variety of plants, fruits, and vegetables due to its tropical climate. With such a strong agricultural sector, Indonesia therefore has significant potential to utilize agricultural waste as feedstock for power generation. Oil palm, rice paddies, and sugar cane have been identified as the top three crops in terms of production volume <sup>[1]</sup>. The technical potential of using biomass from these three crops for electricity production is estimated at around 43,211 GWh per year. With the current power demand of 187,541 GWh, realization of the biomass power potential can considerably change the national power mix.

The Indonesian feed-in tariff for biomass and biogas (known as “**guarantee price**”) was first issued in 2012 through Ministerial Regulation – PERMEN (ESDM) no. 4/2012. It was applicable for up to 10 MW biomass / biogas power plants (including municipal solid waste) <sup>note 1</sup>.

[1] BPS 2013; **Note 1**: PERMEN (ESDM) no. 4/2012 covers biomass, biogas, and municipal solid waste power plant. In 2013, a separated FIT for municipal solid waste was issued by PERMEN (ESDM) no. 19/2013.

## Oil palm



**100 million tons**

Annual supply

**34,815 GWh/year**

Technical potential

## Rice



**59 million tons**

Annual supply

**5,362 GWh/year**

Technical potential

## Sugar cane



**30 million tons**

Annual supply

**3,034 GWh/year**

Technical potential

*Source: Overview of the Waste-to-Energy Potential for Grid-connected Electricity Generation (Solid Biomass and Biogas) in Indonesia, LCORE 2013*

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The new Ministerial Regulation – PERMEN (ESDM) no. 27/2014 was issued specifically to incentivize biomass/biogas power plant project development. It introduced higher base tariffs and uplift factors than the ones stipulated in 2012 (PERMEN (ESDM) no. 4/2012). The base tariffs are now defined separately for biomass power plants (**PLTBm**; *Pembangkit Listrik Tenaga Biomassa*) and biogas power plants (**PLTBg**; *Pembangkit Listrik Tenaga Biogas*). In general, the tariff for a biomass power plant is higher. The regulation also outlines a more transparent procedure for project development.

## Location factor (“uplift factor”) (per kWh)



## Base tariff (per kWh)

### Old regulation PERMEN (ESDM) no. 4/2012

#### Biomass and biogas power plant

Connected to medium voltage (MV) network	IDR 975 (~cent 7.8 US)
Connected to low voltage (LV) network	IDR 1,325 (~cent 10.5 US)

### New regulation PERMEN (ESDM) no. 27/2014

#### Biomass power plant

Connected to MV network	IDR 1,150 (~cent 9.2 US)
Connected to LV network	IDR 1,500 (~cent 11.9 US)

#### Biogas power plant

Connected to MV network	IDR 1,050 (~cent 8.4 US)
Connected to LV network	IDR 1,400 (~cent 11.1 US)

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The new regulation also introduced special incentive for a power plant that is classified as a “**load follower**”. A load follower incentive (ILF; *Insentif Load Follower*) is added on top of the normal FIT.

In general, “load follower” refers to a power plant that can adjust its power output according to changing electricity demand. However, its exact definition and criteria in Indonesia have not been clearly defined yet. Therefore, a project developer has to mention in the feasibility study if the technology employed enables the power plant to adjust its output according to the fluctuating demand. The exact communication procedures and level of flexibility the plant must provide under the load follower scheme has to be discussed with PLN.

## Load Follower Incentive PERMEN (ESDM) no. 27/2014

### Biomass power plant (PLTBm)

Connected to MV network	IDR 80 (~cent 0.6 US)
Connected to LV network	IDR 100 (~cent 0.7 US)

### Biogas power plant (PLTBg)

Connected to MV network	IDR 70 (~cent 0.5 US)
Connected to LV network	IDR 90 (~cent 0.7 US)

# About the Guideline

ASEAN RE Guideline Initiative

ASEAN RE Guideline

About this Guideline

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In recent years, ASEAN member states (AMS) have made considerable effort to tap into the vast wealth of renewable energy (RE) resources in the region. Several countries introduced feed-in-tariffs (FIT) or regulations for RE as well as other supportive policies, e.g. tax and customs exemptions or tax holidays.

Despite those efforts and some promising developments, a large-scale market for RE applications has not yet been set in place in the region. In particular, complex administrative procedures, a lack of transparency in the project cycle and permitting procedures as well as insufficient access to financial resources can be identified as important obstacles to an effective market and industry development.

The **ASEAN RE Guideline** was developed to facilitate an increase in private sector activity and investment in the RE sector of the ASEAN region. Since the confidence of project developers and investors is needed in order to boost region-wide RE deployment, the provision of transparent project development and permit procedures is a necessity.

The **Renewable Energy Support Programme for ASEAN** (ASEAN-RESP), jointly implemented by the **ASEAN Centre for Energy** (ACE) and **Deutsche Gesellschaft für Internationale Zusammenarbeit** (GIZ), is developing a comprehensive, easy-to-access and regularly updated online tool which includes complete information on ideal RE project development cycles in the respective countries.

## The ASEAN RE Guideline....

- highlights administrative procedures, including requirements for project developers and/or investors
- lists legal and regulatory provisions as well as necessary permits
- identifies country-specific challenges for project development
- provides information on how to obtain financial closure.

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# About the Guideline

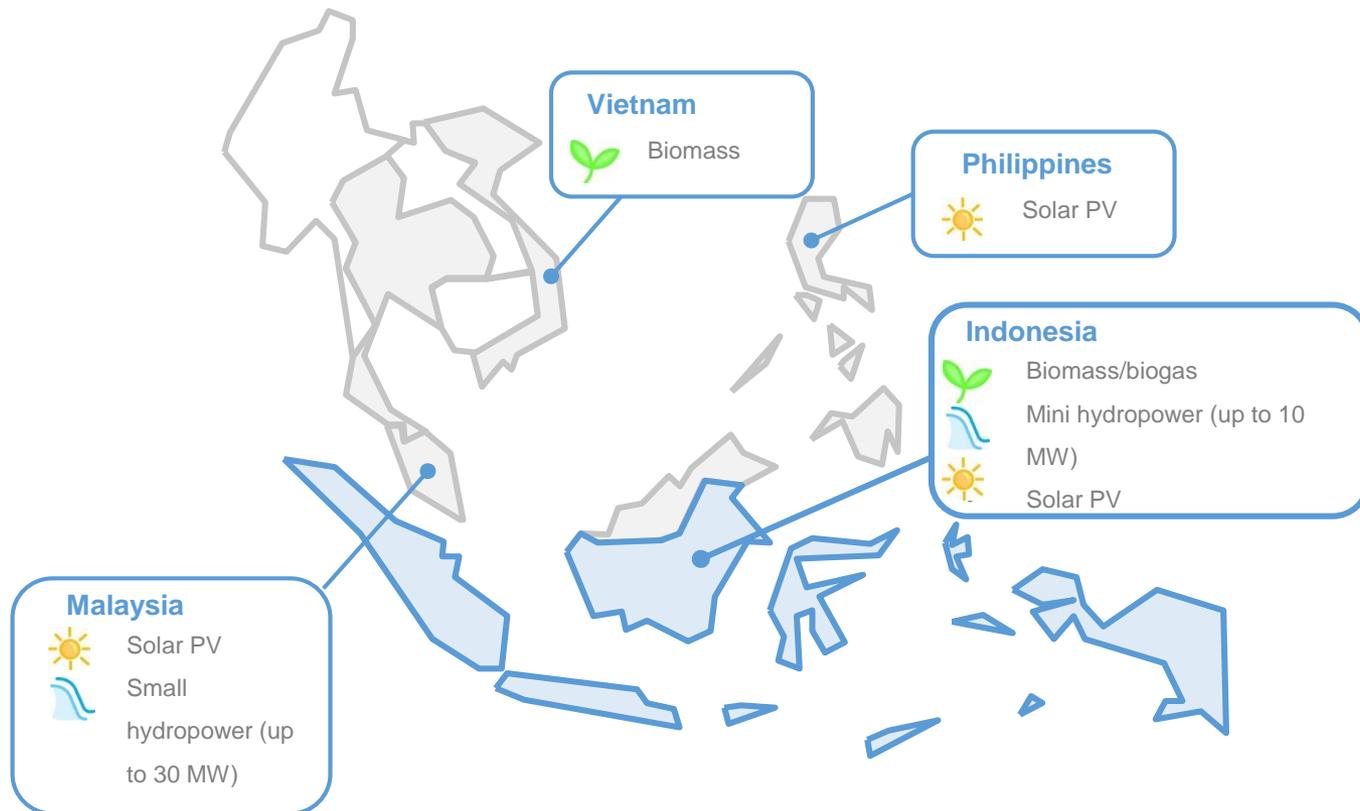
ASEAN RE Guideline Initiative

ASEAN RE Guideline

About this Guideline

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The ASEAN RE Guideline was designed to meet the needs of project developers and potential investors, as well as promote transparency and clarity in the RE projects' pathway. The Guideline explains the various procedures and helps identify the risks in each step, all so that proper mitigation measures can be designed and implemented.



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# About the Guideline

The Guideline details the procedures for developing a biomass/biogas power plant in Indonesia. The target groups are project developers, investors, financial/government institutions, and other actors who are involved in the development of RE power projects as independent power producers (IPP) in Indonesia. The Guideline does not cover procedures from the perspective of engineering, procurement, and construction (EPC) contractors or developers who develop a project under public-private partnership (PPP) with the government of Indonesia.

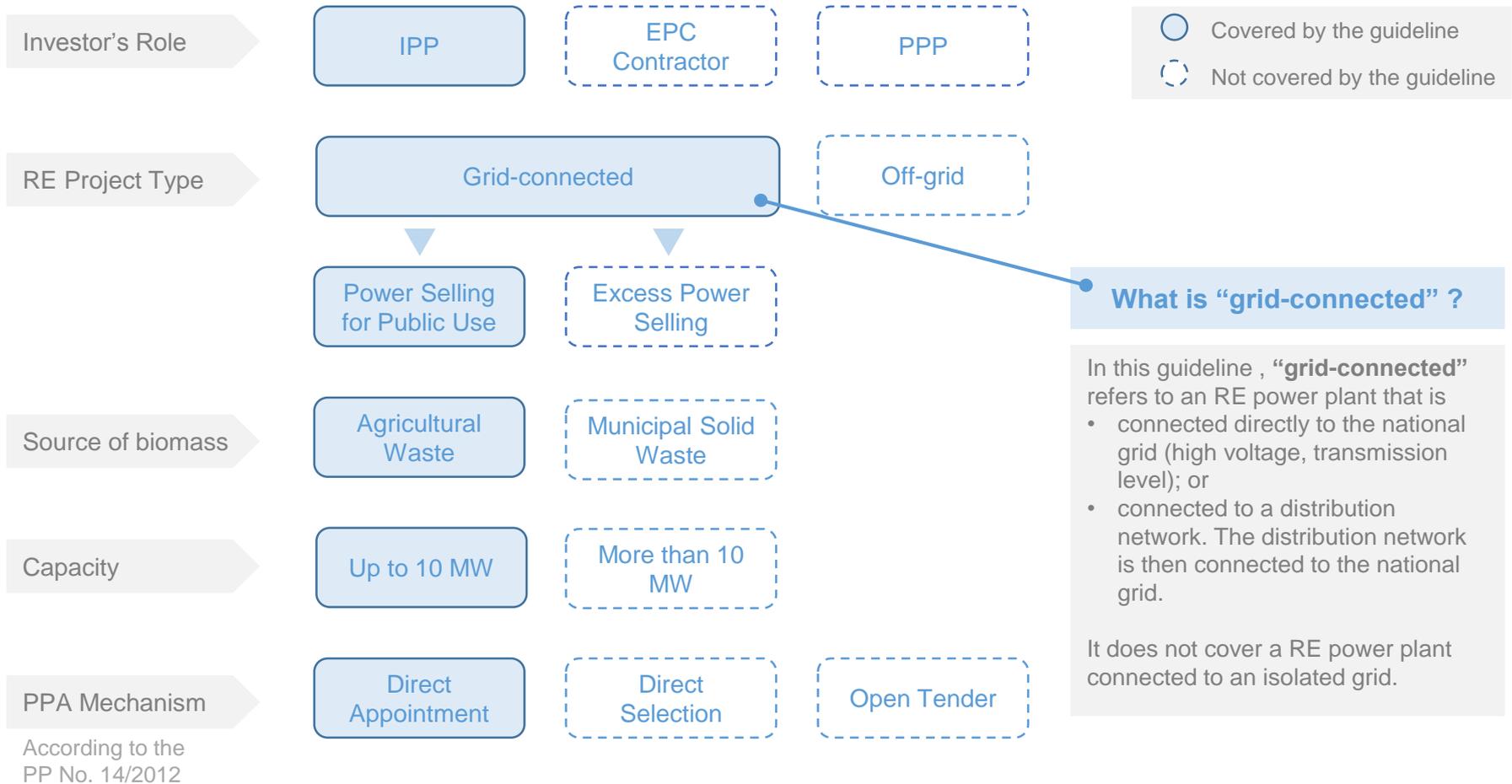
The Guideline covers only grid-connected biomass/biogas power plants. A grid-connected project can mean either (i) a plant that sells electricity to the grid for public use (most of electricity generated is sold and fed to the grid) or (ii) a plant that generates electricity mainly for its own consumption and sells only excess power to the grid (“excess power scheme”). Typically, a power purchase agreement (PPA) for excess power is valid for only a short period (e.g. one year). This Guideline does not cover the excess power scheme.

A variety of feedstock can be used for biomass/biogas power generation. In Indonesia, agro-industry waste, as well as municipal solid waste, can potentially be utilised as power plant feedstock. However, additional licenses/permits are required for collecting and handling municipal solid waste. These are not covered by the guideline.

In Indonesia, the private sector can participate in the power generation scheme using three approaches: (1) direct appointment, (2) direct selection, and (3) open tender. The Guideline was developed based on the new Ministerial Regulation – PERMEN (ESDM) no. 27/2014 which only regulates the direct appointment scheme. It covers the full cycle of project development of a biomass/biogas power plant of up to 10 MW (classified as **“small to medium-scale power plant”**). The direct selection and open tender mechanisms are not covered by the Guideline.

The diagram on the following page illustrates what is covered and what is excluded from the scope of the guideline.

# About the Guideline



IPP: Independent power producer, EPC: Engineering, procurement, and construction, PPP: Public-private partnership

# Procedure: Step-by-step

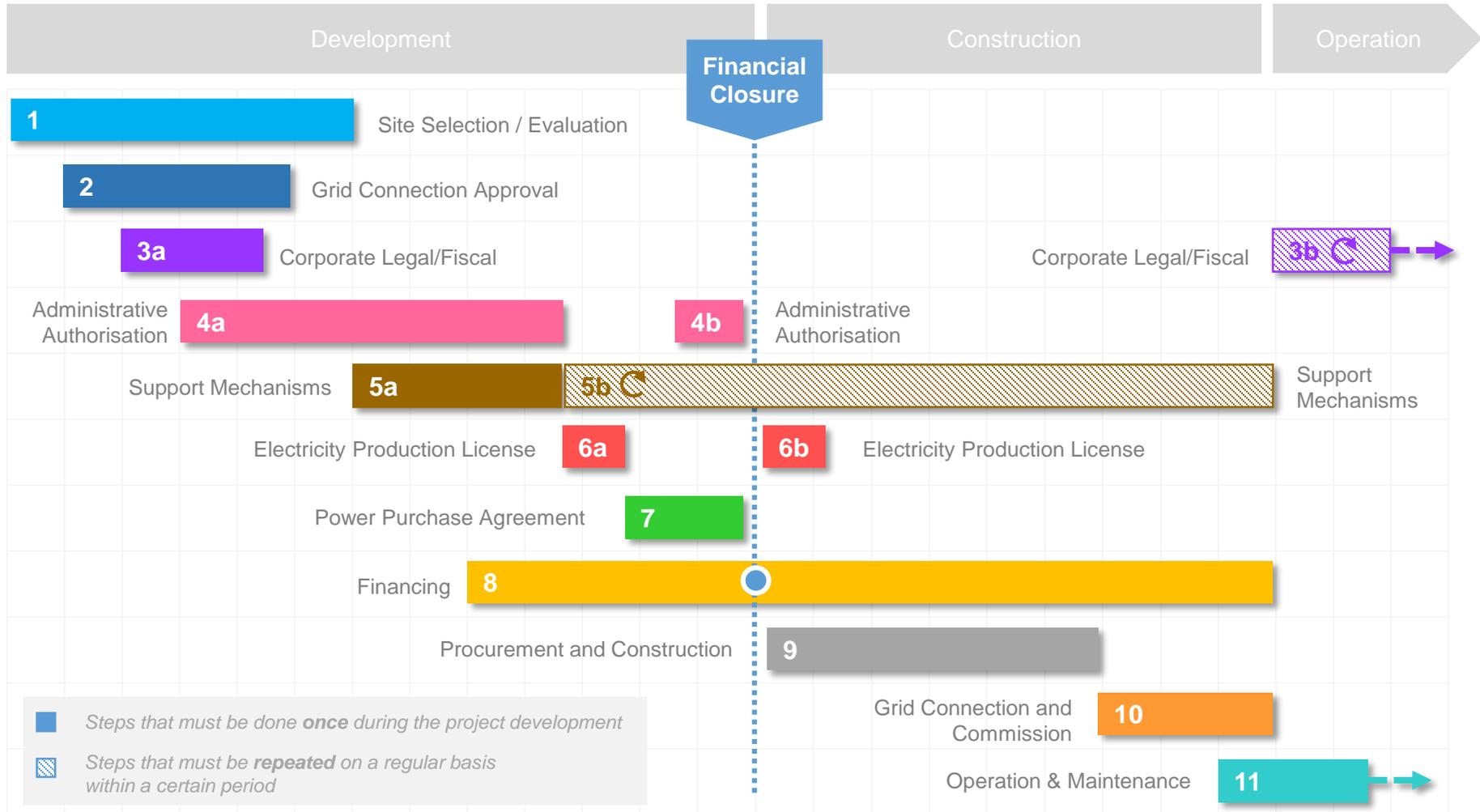
Biomass/biogas Power Plant Development in Indonesia

Gantt Chart

Flow Chart

Description

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Note: The bar length on the Gantt chart is not to scale. It should be used for qualitative comparison only.

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# Procedure: Step-by-step

Biomass/biogas Power Plant Development in Indonesia

Gantt Chart

Flow Chart

Description

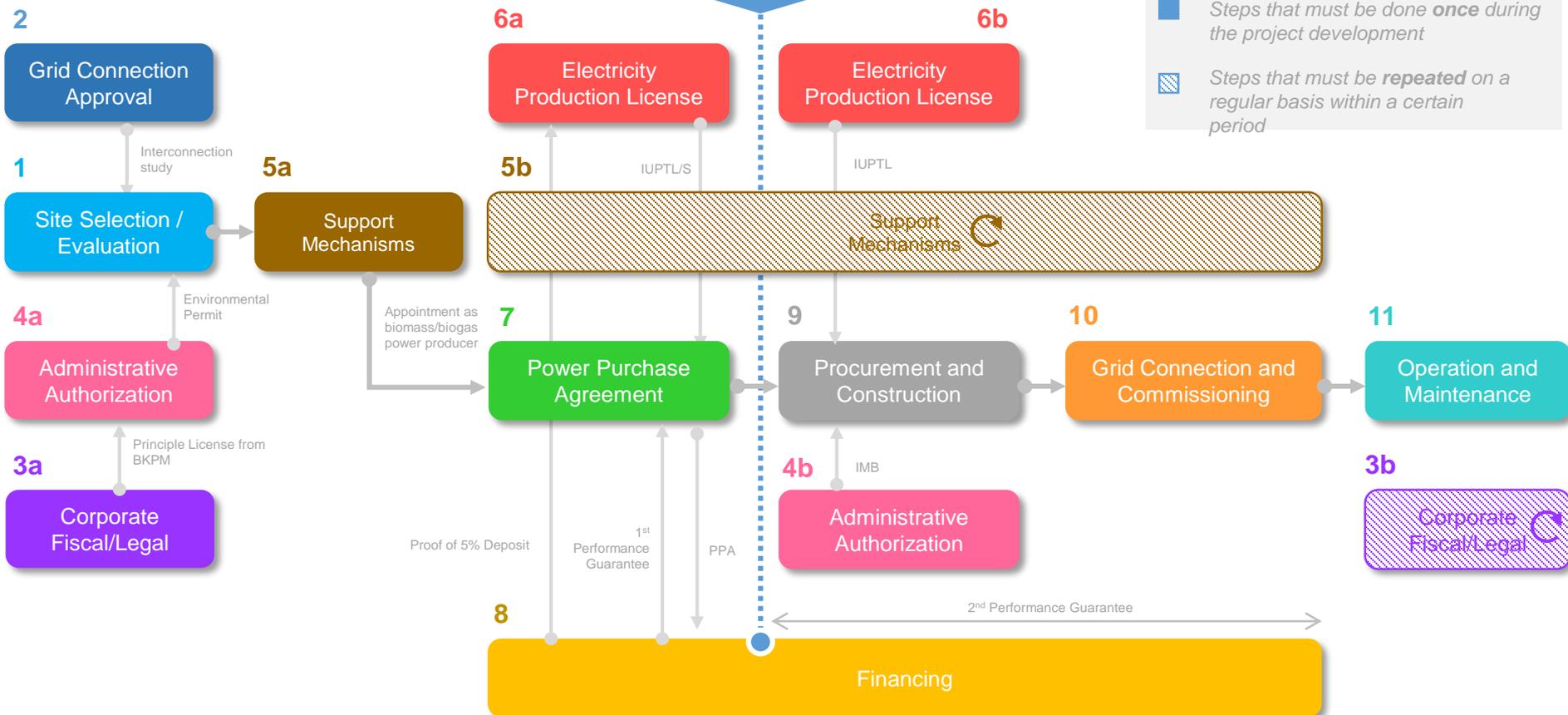
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Development

Construction

Operation

Financial Closure



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# Procedure: Step-by-step

Biomass/biogas Power Plant Development in Indonesia

Gantt Chart

Flow Chart

Description

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The cycle of biomass/biogas power project development can be divided into three phases: (1) development phase, (2) construction phase, and (2) operation phase. The details of each phase are outlined below:

## Development Phase

The first step is to identify a suitable site for project development (**Step 1**: Site Selection / Evaluation). Basic information and data must be collected and analysed during a desktop study. A site survey must then be conducted to verify the results. Important partners in the project implementation must be identified and a comprehensive feasibility study (FS) must be finalised.

The developer must negotiate with PLN, the state-owned power utility provider, regarding possible connection points for the biomass/biogas power plant (**Step 2**: Grid Connection Approval). According to the new Ministerial Regulation - PERMEN (ESDM) no. 27/2014, an interconnection study must be performed to ensure that the grid can absorb power generated from the plant.

Typically, project developers and their partners establish a special purpose company (SPC) to carry out development, construction, and operation of the biomass/biogas power plant. The SPC must be incorporated under Indonesian laws (**Step 3**: Corporate Fiscal / Legal) which is divided into two parts: **Step 3a** describes the SPC establishment, while **Step 3b** provides information regarding income tax reduction. The latter one is to be done at a later stage, in parallel with the operational phase of the power plant.

The Administrative Authorisation step (**Step 4**) is separated into two parts. Necessary licenses and permits that must be obtained from various governmental institutions are described in **Step 4a**. The building permit (IMB; *Izin Mendirikan Bangunan*), that must be applied at the later stage is explained in **Step 4b**.

ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral); PERMEN: Ministerial Regulation (Peraturan Pemerintah)

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# Procedure: Step-by-step

Biomass/biogas Power Plant Development in Indonesia

Gantt Chart

Flow Chart

Description

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Steps 1 thru 4 are closely interrelated with each other. They must be performed partly in parallel. The interconnection study (in Step 2) and the environmental permit along with an environmental management and monitoring report (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup* - in Step 3) are prerequisites for the FS (in Step 1). The principle license from the Indonesia Investment Coordinating Board (BKPM; *Badan Koordinasi Penanaman Modal*) must also be secured, and the SPC must be completely established (in Step 3) before a principle license from the local government can be obtained (in Step 4).

Based on the new Ministerial Regulation, project developers must then register with the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) to be appointed as "biomass/biogas power producer" to be eligible for the guarantee price (**Step 5: Support Mechanisms**). Following the appointment by EBTKE, the developer must then submit a progress report on a regular basis to EBTKE. This step is separated into two parts: **Step 5a** describes the registration procedure with EBTKE and the appointment of biomass/biogas power producer status, and **Step 5b** describes the required content and the submission procedures of the progress report (development phase) that must be done regularly until the commercial operation date (COD).

An electricity production license (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*), must be obtained from the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) in order to allow the developer to generate electricity in Indonesia (**Step 6**). There are two licenses that need to be obtained in stages. The first one is a temporary license (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) that must be secured before PPA signing (**Step 6a**). The second one is a permanent license (IUPTL) that must be obtained before the commencement of physical construction (**Step 6b**).

After a temporary license (IUPTL/S) is issued, project developer can sign a power purchase agreement (PPA or PJBL; *Perjanjian Jual Beli Tenaga Listrik*) with PLN (**Step 7: Power Purchase Agreement**)

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# Procedure: Step-by-step

Biomass/biogas Power Plant Development in Indonesia

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Flow Chart

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The Financing step (**Step 8**) describes the common procedure of obtaining necessary financing from financial institutions. According to the new Ministerial Regulation, the project developer must put up a deposit amounting to 5% of the total investment cost of the project available in their bank account at the onset of the project. In addition to that, a performance guarantee is still required by PLN. The certificate must be issued by a bank and then submitted to EBTKE, allowing an application for the IUPTL/S to be made (**step 6**). Necessary financing must be secured from a financial institution.

## Construction Phase

All necessary equipment must be procured from reliable suppliers. Some components may be imported from foreign countries. In that case, the project developer must register themselves as an importer and secure an importer identity number (API-P; *Angka Pengenal Importir-Produsen*) from the BKPM. Import duty exemption may be applicable for some components. The power plant is then constructed by an engineering, procurement, and construction (EPC) contractor (**Step 9: Procurement and Construction**).

After the power plant construction is completed and all equipment is installed, it must then be connected to the grid. Inspection and testing must be arranged beforehand to ensure that the power plant and all components can be safely operated according to the requirements and standards. The plant is then commissioned (**Step 10: Grid Connection and Commissioning**).

The commercial operation date (COD) marks the end of the Construction Phase and the beginning of the Operation Phase.

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# Procedure: Step-by-step

*Biomass/biogas Power Plant Development in Indonesia*

Gantt Chart

Flow Chart

Description

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## Operation Phase

After the COD, the biomass/biogas power plant is operated by a contracted plant operator (**Step 11: Operation and Maintenance**). During this phase, performance of the plant must be monitored. Continuous and reliable supply of biomass feedstock is an important aspect of a biomass/biogas project that must be ensured throughout the project's lifetime. According to the new Ministerial Regulation, project developer is requested to submit a progress report (during operation phase) on a regular basis to EBTKE.

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Interconnection  
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Environmental  
Permit

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# Step 1 | Site Selection / Evaluation

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Data collection and desktop study

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Perform a site survey

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Identifying local partners

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Feasibility study (FS)

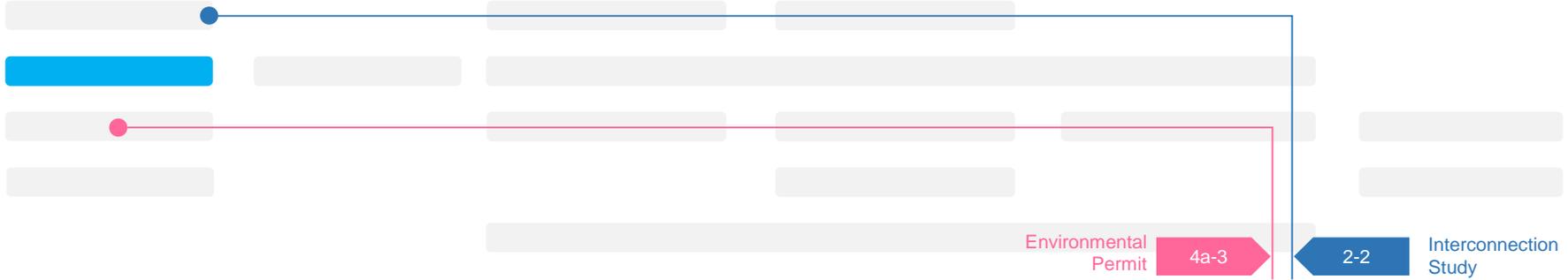
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# Step 1 | Site Selection / Evaluation



# Step 1 | Site Selection / Evaluation

## Step Description

Description

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The first step in the development of a biomass/biogas power project is to identify a suitable site for the power plant. The ideal site is one located near the feedstock and should be in an area close to a strong grid to ensure that the electricity produced can be absorbed. Although project developers are free to choose a project location by themselves, selecting a site that is in accordance with the development plan of the government and PLN can improve the chance of the project to be approved. In some areas, PLN strongly needs to diversify its power mix and provide electricity to remote areas, especially in the eastern part of Indonesia. In these locations, project developers have a great chance of success in negotiating a higher selling price than the feed-in tariff.

In the **Site Selection / Evaluation step**, project developers must collect necessary information and data in order to conduct a comprehensive desktop study ([Sub-step 1-1](#)) prior to a site visit. Site surveys in the potential areas must follow ([Sub-step 1-2](#)) to verify the result of the desktop study. At the same time, developers should, during the site survey, identify important partners for the project ([Sub-step 1-3](#)). This involves, for example, biomass/biogas feedstock suppliers, local government, local communities etc.

Among many identified potential sites, developers must make a decision for the most suitable location for the project. A feasibility study (FS) must be prepared and finalized on the selected location ([Sub-step 1-4](#)). The FS is an important document that must be submitted to become a biomass/biogas power producer in Indonesia ([Sub-step 5a-1](#)) and obtain financing from banks ([Sub-step 8-2](#)).

It is important that the **Grid Connection Approval step** ([Step 2](#)) be done in parallel. The interconnection study ([Sub-step 2-2](#)) is an important supporting document to be submitted together with the FS.

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The developer may contract a consultant to assist in the Site Selection / Evaluation step. The use of an experienced consultant in preparing feasibility study (FS) is recommended in order to ensure reliable results. As for foreign investors, it is also recommended to form a partnership with a local partner, such as local government institutions, businesses, or the community, to provide relevant information during this step.



### Who can help me preparing a feasibility study (FS)?

ASEAN RE Business Directory. Launched in 2014 as a part of ASEAN Renewables information portal (ARES), it provides easy access to your almost 300 RE enterprises in the ASEAN countries by today and gives detailed information on their target markets, offered services and provided technology.

Project developer can use the business directory as a starting point in searching for energy experts in Indonesia to perform FS. Any companies or businesses listed in the directory are neither endorsed or certified by EBTKE, Renewable Energy Support Programme for ASEAN (ASEAN-RESP), ASEAN Centre for Energy (ACE), or Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

<http://aseanrenewables.info/business-directory/>

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Regulation No.	Name
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) <i>(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))</i>
<b>Ministerial Decree (ESDM)</b> KEPMEN (ESDM) no. 0074 K/21/MEM/2015	Approval of PLN's National Electricity Supply Master Plan (RUPTL 2015-2024) <i>(Pengesahan Rencana Usaha Penyediaan Tenaga Listrik PT Perusahaan Listrik Negara (Persero) Tahun 2015 s.d. 2024)</i>
<b>PLN's Decree of Director</b> KEPUTUSAN DIREKSI PT PLN (PERSERO) no. 0982 K/DIR/2015	PLN's National Electricity Supply Master Plan (RUPTL 2015-2024) <i>(Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) PT PLN (Persero) Tahun 2015-2024)</i> The latest version of RUPTL can be downloaded directly from the PLN official website at <a href="http://www.pln.co.id/blog/ruptl/">www.pln.co.id/blog/ruptl/</a>

ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral)

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# Step 1 | Site Selection / Evaluation

## Identified Challenges

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Challenges	Details	Recommendations
<b>Site in remote area</b>	Biomass/biogas power projects are ideally located close to a feedstock source or areas with electricity demand. Unfortunately, these sites are often located in remote areas. Logistics and unreliable grid infrastructure can therefore complicate a project. This is especially the case for sites outside Java and on remote islands.	-
<b>Difficult access to relevant information</b>	Project developers may face difficulties in getting important information/data from relevant authorities. For example, basic cost of electricity production (BPP; <i>Biaya Pokok Produksi</i> ) data is only available at PLN's regional office. It is not published on their official website or other channels. Some information may be perceived by relevant authorities as sensitive or confidential, and they may not share this information with project developers.	Project developers must inform and involve PLN's regional office and the local government from the onset of the project in order to build up trust and a good relationship. A reliable local partner with a good network can help in opening doors and collecting necessary data or information.

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# Step 1 | Site Selection / Evaluation

## Identified Challenges

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Challenges	Details	Recommendations
<b>Inaccurate feasibility study</b>	A feasibility study prepared by a hired (local) consultant may not be reliable or accurate. This can cause major problems in the subsequent steps, (e.g. during construction and installation, etc.).	Project developers must carefully select (local) consultants to perform the feasibility study and closely monitor its conduct. Only a consultant with sufficient experience and a good track record should be considered. Project developers must ensure that the FS covers all key contents (see the <a href="#">recommended list of FS content</a> ).
<b>Uncertainty in long-term biomass feedstock supply</b>	For a biomass/biogas power project, reliable and sustainable feedstock supply is crucial. When the feedstock is supplied by external parties, a reliable and continuous supply cannot be guaranteed. PLN usually requires a long-term fuel supply agreement (FSA) to be concluded between a project developer and the feedstock supplier(s). However, in some cases, project developers cannot reach a long-term FSA with the feedstock supplier(s). Additionally, if the feedstock price fluctuates significantly, there is a risk that the feedstock supplier(s) may not honor the FSA signed.	Where possible, it is recommended to either involve the feedstock supplier as a shareholder in the project or for the project to utilise its own feedstock.

## Data Collection and Desktop Study

Description

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The first step for any biomass/biogas power project development is to identify potential sites. In order to do so, necessary information and data must first be collected. A comprehensive desktop study must then be performed. As the development of biomass/biogas power project can be complex, it is recommended that the project developer seek assistance from an experience consultant in this stage.

Typically, crucial aspects of biogas/biomass project development in Indonesia are as the following.

### Cost of electricity generation in the area

A suitable location for a biomass/biogas power plant is where the existing cost of electricity production of the power utility (PLN) is relatively high. Regional PLN in such areas usually try to diversify their source of power generation to reduce the cost of electricity generation. This is a good case where biomass/biogas power project can come in. To become aware of this, the project developer must obtain a basic cost of electricity production (BPP; *Biaya Pokok Produksi*) from the respective regional PLN office.

### Five components of BPP

BPP is cost of electricity production by PLN, state-owned power utility (in IDR per kWh). It varies from region-to-region, depending on the type of power generation in that area. The BPP is calculated by each PLN local office. It consists of five components. Regional PLN offices must report their BPP to PLN headquarter every quarter. However, BPP information is usually used internally and not published.

**Component A**  
Fixed investment cost

**Component B**  
Fixed operation and maintenance (O&M) cost

**Component C**  
Fuel cost

**Component D**  
Variable O&M cost

**Component E**  
Grid infrastructure cost

## Data Collection and Desktop Study

Description

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In Indonesia, the BPP is usually high in a remote power grid where power generation mainly comes from diesel generators. Regional PLN offices in such areas usually look for diversification of their fuel mix to reduce its BPP. This is a good business case in which biomass/biogas power plant can come in by offering lower power generation costs. A proposal to develop the project in these areas may gain considerable support from the regional PLN.

### Grid capacity in the area

Sufficient grid infrastructure is one of the crucial preconditions for a successful on-grid biomass/biogas power plant project. Project developers must check existing grid capacity in the area including its expansion plan in the future from the National Electricity Supply Master Plan (RUPTL; *Rencana Usaha Penyediaan Tenaga Listrik*) which is published annually by PLN.

It is vital that the project location be consistent with PLN's grid expansion and development plan as specified in the latest RUPTL). PLN is usually willing to be an off-taker as it is confident the local power grid has sufficient capacity to absorb electricity produced by the biomass/biogas power plant. If the developer proposes to build a power plant in an area that is not part of the current RUPTL's plan, the regional PLN office may have to request grid reinforcement to PLN headquarters outside the scope of the RUPTL. This process can be complex and time-consuming, and this usually leads to unwillingness of the regional PLN office to support the biomass/biogas project in such area.

Assessment of the local grid capacity is an important task the project developer must conduct before entering into negotiations with regional PLN office on the point of connection ([Sub-step 2-1](#)) for the project.

## Data Collection and Desktop Study

Description



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### Feedstock

A variety of organic waste can be used as feedstock for a biomass/biogas power plant. Continuous and reliable supply of biomass feedstock is a crucial component for biomass/biogas power projects. This must be ensured throughout the lifetime of the project. In case agriculture biomass is to be used, the developer must keep in mind the harvest season of that particular crop as supply volume may vary throughout the year. The type of biomass, its characteristics, and its supplied condition dictates the technology to be implemented and the procedure of feedstock handling (e.g. storage, pre-processing etc.)

Project developers must obtain reliable data to assess the potential of local biomass supply to their power plant. Information to be obtained include, for example, biomass type, supply capacity, and quality of feedstock etc. The logistical aspect of biomass feedstock supply must be considered as well (e.g. mode of transportation, duration, its frequency etc.)

Many factors have to be considered in order to assess the potential of biomass in the area. This task can be complex and requires considerable experience and expertise. It is recommended that the developer involve an experienced local consultant to conduct a study and evaluate the local biomass potential and its logistic aspect. Sometimes, local authorities or communities can provide useful information about local biomass sources.



# Site Survey

## Description

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During the desktop study, some data will likely be missing or deemed not up to par. It is important that a site survey be conducted to verify and supplement the results of the desktop study. This is to ensure that the actual site condition is suitable for project development as some aspects cannot be assessed solely by a desktop study. A site survey allows several aspects to be investigated, e.g. road access, actual site condition, possible grid connection, etc.

A good, comprehensive site survey involves considerable costs. Therefore, the developer should first shortlist and prioritise locations to be surveyed. Before conducting a survey, important points or information to be collected / checked must be listed. The activity plan must also be prepared in advance to ensure that all parties involved in the survey are aware of their roles. The project developer must notify the local community/government in advance and ask for their approval.

It is recommended that the project developer contract an experienced consultant to conduct the site survey. During the site visit, the developer may use this opportunity to identify and make initial contact with potential local partners, e.g. biomass suppliers, local operators, etc. ([Sub-step 1-3](#)).

At the end, a site survey report must be prepared.

## Related Authority

Central level	<ul style="list-style-type: none"><li>(none)</li></ul>
Provincial level	<ul style="list-style-type: none"><li>(none)</li></ul>
Local level	<ul style="list-style-type: none"><li>Head of Regency (<i>Bupati</i>) / Mayor (<i>Kota</i>) – Be informed about the survey, grants approval for the survey</li></ul>

# Identifying Local Partners

## Description

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A successful biomass/biogas power project comes from good cooperation between several parties. Two important partners in the local level are: (i) biomass feedstock supplier and/or (ii) local operator of the power plant. Project developer must identify both parties as soon as possible. A strong and well-established relationship between the developer and these partners can increase the credibility of the project when seeking approval from related authorities and mobilising financing from bank.

### Biomass feedstock suppliers

Supply of biomass feedstock is a lifeline for any biomass/biogas project. The role of a biomass feedstock supplier is, therefore, very important. Project developers must visit potential feedstock suppliers in the area. Following that, the developer and suppliers must enter into negotiations to agree on the type of biomass to be supplied, supplied quantity and quality, price, contract duration, etc.

At the end, the project developer must sign a fuel supply agreement (FSA) with the biomass supplier. To ensure reliability of biomass feedstock supply, the developer may conclude an FSA with more than one supplier. Besides purchasing feedstock via FSA, an energy plantation area owned by a local partner could be another source of feedstock that is more secure and reliable.

### Local operator

Although it is not always necessary that the biomass/biogas power plant must be operated only by the locals, it is usually more economical and sustainable to use local operators in the long-run. Project developer should conclude an operation and maintenance (O&M) agreement with a business entity who will operate the power plant.

There are also other indirect, but very crucial, partners. They are, for example, the local government, local communities, etc.

## Feasibility Study (FS)

Description

FS Content

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After the project developer has decided on the location for a biomass/biogas power plant, a feasibility study (FS) is to be prepared. This is an important document which will be subsequently required during applications for permits or licenses and in the loan application. The developer must contract an experienced RE consultant to perform this task.

In the report, important aspects which may directly affect the overall viability of the project must be assessed in the report. Relevant input from the site survey report ([Sub-step 1-2](#)) can be used during the FS report preparation. Previously, a pre-feasibility study is to be performed during this stage. However, with the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#), project developer must now prepare a feasibility study from the beginning.

The list of recommendations regarding the content of a FS report is provided (refer to [the list](#)).

## Feasibility Study (FS)

Description

FS Content



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### A | Project description

- **Project overview**

Description of location including a map of the project layout, site access, geography, related authorities, socio-economic conditions, overview of electricity condition, etc.

- **Site Topography**

Topography condition, geographic coordinates, overview of geology region, climatology/hydrology, overview of project environment including feedstock resources area

- **Local electricity data / information**

Condition of electrification, power supply, power balance, load and projected demand, plan of additional power capacity, grid condition including SLD, plan of grid connection point to PLN grid, levelized cost of energy, customer composition, etc.

### B | Feedstock Supply Study

- **Biomass laboratory test**

Proximate, ultimate analysis, heating value and ash composition analysis

- **Biomass demand**

Demand of biomass feedstock per year, including 5% of reserve from the annual needs

- **Biomass resources**

Indicating if the biomass feedstock is from external supplier or from own plantations, information of “energy forest” (include explanation of spacious and type of plant)

- **Fuel supply agreement (FSA) concluded with biomass supplier**

Refer to [Sub-step 1-3](#), contract duration and price information to be included

- **Biomass transportation**

- **Biomass storage and biomass pre-treatment process (if applicable)**

## Feasibility Study (FS)

Description

FS Content



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### C | Technology Study

- **Technology to be implemented**  
Study and selection of technology, e.g. combustion, gasifier etc.
- **Feedstock specification**  
i.e. heat rate, pre-processing requirement, etc.
- **General specification of the technology**  
Efficiency, heat rate, and temperature of combustion in furnace/ reactor
- **System description**  
How the system works? (from feeding in of biomass as input until when the electricity is generated)
- **Detailed calculation on energy conversion**  
From energy embedded in the biomass feedstock until expected electricity to be generated (capacity calculation and annual energy generation)
- **Operation and maintenance (O&M) study**  
Maintenance schedule, procedure in handling emission, liquid waste treatment, etc.
- **Technology risk study and assessment**  
When the risk is high, the details on the plant's performance and its operation must be explained as well as the risk mitigation approach
- **Water resources requirement**  
Required water quality, demand (rate), source of water supply, etc.

## Feasibility Study (FS)

Description

FS Content



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### D | Basic Design

- **Civil work**  
Civil foundation, biomass storage, other facilities and infrastructure, etc.
- **Electromechanical work**  
Turbine, generator, boiler, balance of the plant (BOP), governor, transformer, control system and distribution grid, other electromechanical components
- **Basic engineering design**  
Drawing, plant layout, and technical specifications

### E | Project Planning and Management

- Methodology, management approach
- Activities and tasks to be performed
- Schedule of the project implementation

### F | Project Cost and Financial Planning

- **Total cost of investment**  
Civil works, electromechanical components, etc.
- **Financial plan**  
loan / equity composition, term & condition, etc.
- **Annual expenses and disbursement schedule**

### G | Economic Analysis

- **Economic analysis of the project**  
Internal rate of return (IRR), return of equity (ROE), net present value (NPV), levelised base tariff

## Feasibility Study (FS)

Description

FS Content



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### H | Environmental Study

- Environmental management and monitoring report (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup*)

Refer to [Sub-step 4a-3](#)

### I | Grid Impact Study

- Interconnection Study

According to [PLN's Director Decree no. 0357.K/DIR/2014](#), refer to [Sub-step 2-2](#)

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## Step 2 | Grid Connection Approval

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# Step 2 | Grid Connection Approval

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For an on-grid RE project, it is important that permission for connecting the RE power plant to the grid is secured from a power utility. A study must be conducted to assess the effect of an RE power plant to the grid. This is to ensure the RE power plant does not compromise the entire operation of the power system and also to ensure that the grid can absorb the power generated from the plant.

The new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) requires that an interconnection study be conducted in the early phase of biomass/biogas power project development. The study must be done according to PLN's Guideline on connecting an RE power plant to the distribution network ([KEPUTUSAN DIREKSI PT PLN \(PERSERO\) – no. 0357.K/DIR/2014](#)).

The **Grid Connection Approval** step describes the procedure in getting permission to connect the biomass/biogas power plant to the PLN grid. After information and data have been collected and analysed ([Step 1](#)), project developers must identify potential connection points and negotiate the final one with PLN ([Sub-step 2-1](#)). A interconnection study must be conducted ([Sub-step 2-2](#)). The result of the interconnection study will be included as part of the feasibility study (FS) ([Sub-step 1-4](#)).

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# Step 2 | Grid Connection Approval

## Related Regulations

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Regulation No.	Name
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) <i>(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))</i>
<b>Ministerial Decree (ESDM)</b> KEPMEN (ESDM) no. 0074 K/21/MEM/2015	Approval of PLN's National Electricity Supply Master Plan (RUPTL 2015-2024) <i>(Pengesahan Rencana Usaha Penyediaan Tenaga Listrik PT Perusahaan Listrik Negara (Persero) Tahun 2013 s.d. 2022)</i>
<b>PLN's Decree of Director</b> KEPUTUSAN DIREKSI PT PLN (PERSERO) no. 0982 K/DIR/2015	PLN's National Electricity Supply Master Plan (RUPTL 2015-2024) <i>(Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) PT PLN (Persero) Tahun 2013-2022)</i> <sup>1</sup> The latest version of RUPTL can be downloaded directly from the PLN official website at <a href="http://www.pln.co.id/blog/ruptl/">www.pln.co.id/blog/ruptl/</a>
<b>PLN's Decree of Director</b> KEPUTUSAN DIREKSI PT PLN (PERSERO) no. 0357.K/DIR/2014	Guideline on connecting RE power plant to PLN distribution network <i>(Perdoman Penyambungan Pembangkit Listrik Energi Terbarukan ke Sistem Distribusi PLN)</i>

*ESDM: Ministry of Energy and Mineral Resources; (Kementerian Energi dan Sumber daya Mineral)*

*Note 1: At the time of the guideline publication (December 2014), the latest RUPTL is the RUPTL 2015-2024. Please always check the official PLN website for the latest version of RUPTL.*

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# Step 2 | Grid Connection Approval

## Identified Challenges

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### Challenges

### Details

### Recommendations

#### Limited local grid infrastructure

In some remote areas, a power grid may not have sufficient capacity to absorb all electricity generated by a biomass/biogas power plant. This is especially the case if the project developer situates the power plant in an area outside the development plan according to the National Electricity Supply Master Plan (RUPTL; *Rencana Usaha Penyediaan Tenaga Listrik*).

In such a case, regional PLN must request a grid expansion / reinforcement before the biomass/biogas power plant can be developed in that area. This process can be time-consuming and the result is uncertain (depending on PLN's planning).

The developer should always refer to the RUPTL when deciding on the project location and also in close discussion with the regional PLN office. The project should be located in an area where PLN indicates their plan to buy electricity from the private sector or in an area where grid expansion / reinforcement is planned. This can ensure that the local grid can (or will be able in the near future to) absorb all electricity generated from the power plant.

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# Step 2 | Grid Connection Approval

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### Challenges

### Details

### Recommendations

#### Location of the connection point

Due to limited grid infrastructure in some areas, possible points of connection to PLN's grid may be far away from the biomass/biogas power plant. In that case, the cost of constructing the transmission line from the power plant to the connection point can be high.

It is possible that the developer negotiates case-by-case with the regional PLN office on sharing the cost of interconnecting transmission line. However, the new Ministerial Regulations – PERMEN (ESDM) no. 27/2014 mentions clearly that the cost of interconnection transmission facility is expected to be under the developer's scope. Therefore, negotiation with the regional PLN office on this matter can be difficult unless there is a strong need (high electricity demand) from the regional PLN for the biomass/biogas power plant in the area.

To avoid this issue from the outset, the developer should always refer to the RUPTL and also be in close discussion with the regional PLN office in determining the project's location. The project should be located in an area that PLN plans to buy electricity from the private sector or in an area where grid expansion / reinforcement is planned in the near future.

This can ensure that the local grid can (or will be able to) absorb electricity generated from the biomass/biogas power plant and the point of connection can be located near to the plant.

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# Step 2 | Grid Connection Approval

## Identified Challenges

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### Challenges

### Details

### Recommendations

<b>Inaccurate Data and information for interconnection study</b>	<p>In some areas, the regional PLN office is not familiar with RE technology. The interconnection study conducted may be based on assumptions deemed too optimistic. When the power plant is completely built, it is found out later that the interconnection study is inaccurate. The grid cannot absorb electricity generated from the power plant at full capacity and output from the power plant must be curtailed.</p> <p>This will significantly impact the revenue earned by the project developer. In cases where the curtailment of output is considerable, it may even lead to a situation where the project is no longer considered economically viable.</p>	-
<b>Few experienced consultant for grid connection study</b>	<p>Only a small number of experienced local or national consultants could conduct the grid connection study as per PLN requirements.</p>	-

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## Negotiate the point of connection

Description

During the desktop study ([Sub-step 1-1](#)), an assessment on the local grid infrastructure is performed. This serves as input in determining the point of connection to the PLN grid. The decision on the point of connection must be mutually agreed on between the developer and the respective regional PLN office. Comprehensive negotiation must be conducted. It is important that the developer have important background information at hand before entering into negotiations. This is to make the fact more visible to ease and shorten the negotiation process.

Ideally, the point of connection should be as close as possible to the project site. However, this is not always possible due to limited grid infrastructure in some areas. When the point of connection is far from the power plant, a long interconnection transmission line must be built, which can run costs a bit higher. Although it is possible that the developer can negotiate with the regional PLN office about sharing this cost, the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) specifies that this cost is expected to be under the developer’s responsibility. Therefore, a regional PLN office may not accept the proposal of sharing the transmission cost unless they are very keen to have a biomass/biogas power plant in the area.

Based on experience, when the length of the interconnecting transmission line is more than 8 km, the developer should try to negotiate with the regional PLN office.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>PLN headquarter (Renewable Energy Division) – conduct technical review and provide approval</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>The respective regional PLN office - receive an application, negotiate the point of connection with the developer</li> </ul>
Local level	

## Interconnection Study

Description

Required Documents

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After the possible points of connection have been determined ([Sub-step 2-1](#)), an interconnection study must be performed.

The project developer must submit an application to the regional PLN office. A study is then performed to determine the feasibility of connecting the biomass/biogas power plant to the local grid. The basis of the interconnection study is described in PLN's Decree of Director - [KEPUTUSAN DIREKSI PT PLN \(PERSERO\) no. 0357.K/DIR/2014](#), Guideline for connecting an RE power plant to the PLN grid.

A interconnection study is necessary for the applicant to become a biomass/biogas power producer ([Sub-step 5a-1](#)).

### Related Authority

Central level	<ul style="list-style-type: none"><li>PLN headquarter (Renewable Energy Division) – perform technical review and provide approval</li></ul>
Provincial level	<ul style="list-style-type: none"><li>The respective regional PLN office - receive an application, perform an interconnection study</li></ul>
Local level	

## Interconnection Study

Description

Required Documents



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- Filled-out application form (Application for connection of RE power plant; *Aplikasi Penyambungan Pembangkit Listrik Energi Terbarukan*)

This form can be found in Appendix A of the PLN's Decree of Director - [KEPUTUSAN DIREKSI PT PLN \(PERSERO\) no. 0357.K/DIR/2014](#)

# Step 3 | Corporate Fiscal / Legal

**3a-1** Obtain a Principle License for Investment

3a

**3a-2**

Establish a special purpose company (SPC)

Income Tax Reduction Application

3b

**3b-3** 

Yearly  
(up to 6<sup>th</sup> year)

 Sub-Step that must be done only **once**

 Sub-step that must be **repeated** on regular basis

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# Step 3 | Corporate Fiscal / Legal

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3a-1

Obtain a Principle License for Investment



3a-2

Establish a special purpose company (SPC)

3b

3b-3C

Income Tax Reduction Application

Yearly  
(up to 6<sup>th</sup> year)

■ Sub-Step that must be done only **once**

▨ Sub-step that must be **repeated** on regular basis

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# Step 3 | Corporate Fiscal / Legal

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A special purpose company (SPC) is usually established in order to specifically carry out the development, construction, and operation of a biomass/biogas power plant. The SPC can limit risk and liability to investors' companies, shielding equity investors from the financial performance of the biomass/biogas project.

The Investment Coordinating Board of the Republic of Indonesia (BKPM; *Badan Koordinasi Penanaman Modal Republik Indonesia*) is a government institution that serves as a focal point for domestic and foreign investment. The investment in the power sector is open for foreign investors, however, only to certain installed capacity and with certain limitations placed on foreign capital ownership. This is regulated by the negative list of investment (Presidential Regulation - [PERPRES no. 39/2014](#))

Several incentives have been provided for the RE project. Income tax reduction is provided by the Ministerial Regulation – [PERMEN \(Finance\) no. 21/PMK.011/2010](#). Net income can be reduced for the purpose of income tax calculation. The reduction of 5% of investment is allowed each year for up to six years (equivalent to 30% net income reduction).

The **Corporate Fiscal/Legal step** describes establishment of a SPC, investment registration / licensing and application for an income tax reduction facility. First, the project developer (either foreigner or Indonesian) must secure a principle license for investment from BKPM ([Sub-step 3a-1](#)). Then, the developer must proceed with the establishment of SPC under Indonesian Laws ([Sub-step 3a-2](#))

In the second part of the Corporate Fiscal / Legal step (to be conducted in parallel with the operation of the power plant – see [Step 11](#)), the SPC can obtain an income tax reduction ([Sub-step 3b-3](#)).

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# Step 3 | Corporate Fiscal / Legal

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The BKPM implemented the **one stop service (OSS)** in 2013 to assist investors in getting necessary permits or licenses, easing the procedure for establishing a business in Indonesia. From the end of 2014 onward, all license and non-license services provided by the BKPM's one-stop-service will be done through an online system only (with the exception of an importer identification number – API; *Angka Pengenal Importir-Produsen*).

### What is One Stop Services (OSS)? / SPIPSE?



In 2013, the BKPM issued the BKPM Regulation – PERKA (BKPM) no. 7/2013, implementing the one-stop services (OSS) at the BKPM. Project developers can directly apply with the BKPM for license or non-license services that have already been delegated from the respective agencies / Ministries to the BKPM Chairman. However, for the ones that have not been delegated yet, they cannot be processed through the OSS. In that case, investors are still to contact the respective governmental institution by themselves.

The electronic investment licensing service system (**SPIPSE**; *Sistem Pelayanan Informasi dan Perizinan Investasi Secara elektronik*) or **National Single Window for Investment** or **NSWi**) was created to facilitate the OSS even further. It is an online platform that investors can apply for license on non-license services provided by BKPM. With SPIPSE, investors do not need to go, in-person, to the BKPM office during office hour. All applications and documents can be submitted online at any time.

The BKPM has step up an effort to ease the procedure by having its services to be done exclusively online. From December 2014 onward, it is required that the company documents must be uploaded into the online “company folder” in order to apply for any services from the BKPM. From 14 December 2014 onward, all the BKPM's one stop services (except importer identification number and foreign manpower work permit) must be done only through the online platform.

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# Step 3 | Corporate Fiscal / Legal

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Regulation No.	Name
<b>Law</b> UU no. 25/2007	Investment ( <i>Penanaman Modal</i> )
<b>Governmental Regulation</b> PP no. 62/2008	Amendment to the Governmental Regulation no. 1/2007 ( <i>Perubahan atas Peraturan Permerintah nomor 1 tahun 2007</i> )
<b>Governmental Regulation</b> PP no. 1/2007	Income tax for investment in certain business areas and/or in certain location ( <i>Fasilitas Pajak Penghasilan untuk Penanaman Modal di Bidang-bidang Usaha Tertentu dan/atau di Daerah-daerah Tertentu</i> ) Some articles of the PP no.1/2007 was amended by the PP no. 62/2008. The remaining articles still remain effective.
<b>Presidential Regulation</b> PERPRES no. 39/2014	List of business fields closed to investment and business fields open with conditions to investment – <b>“Negative List of Investment”</b> ( <i>Daftar Bidang Usaha Yang Tertutup Dan Bidang Usaha Yang Terbuka Dengan Persyaratan Di Bidang Penanaman Modal</i> )
<b>Ministerial Regulation (Finance)</b> PERMEN (Finance) no.21/PMK.011/2010	Regulation of tax and customs facility for renewable energy resources utilisation activities ( <i>Pemberian Fasilitas Perpajakan Dan Kepabeanan Untuk Kegiatan Pemanfaatan Sumber Energi Terbarukan</i> )

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# Step 3 | Corporate Fiscal / Legal

## Related Regulations

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Regulation No.	Name
<b>Ministerial Regulation (Finance)</b> PERMEN (Finance) no.130/PMK.011/2011	Provision of exemption facilities or reduction of income tax <i>(Pemberian Fasilitas Pembebasan Atau Pengurangan Pajak Penghasilan Badan)</i>
<b>BKPM's Regulation</b> PERKA (BKPM) no. 12/2013	Amendment of PERKA (BKPM) No. 5/2013 <i>(Perubahan Atas Peraturan Kepala Badan Koordinasi Penanaman Modal Nomor 5 Tahun 2013)</i>
<b>BKPM's Regulation</b> PERKA (BKPM) no. 7/2013	Implementation of One Stop Service in Investment Field at the Indonesia Investment Coordination Board <i>(Penyelenggaraan Fungsi Pelayanan Terpadu Satu Pintu Bidang Penanaman Modal di Badan Koordinasi Penanaman Modal)</i>
<b>BKPM's Regulation</b> PERKA (BKPM) no. 5/2013	Guideline and Procedures for Licensed and Non-licensed investment <i>(Pedoman Dan Tata Cara Perizinan Dan Nonperizinan Penanaman Modal)</i> Some articles of PERKA (BKPM) No. 5/2013 have been amended by PERKA (BKPM) No. 12/2013. Other articles remain in effect.

*BKPM: Indonesia Investment Coordinating Board (Badan Koordinasi Penanaman Modal Republik Indonesia)*

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# Step 3 | Corporate Fiscal / Legal

## Identified Challenges

Description

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Challenges



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Challenges	Details	Recommendations
<b>SPC establishment</b>	The establishment of a special purpose company (SPC) under Indonesian law can be very complicating and time-consuming.	Project developers should contract a legal consultant to assist in the SPC establishment.

# Obtain a Principle License for Investment

Description	Required Documents
-------------	--------------------

A principle license for investment is issued by the Indonesia Investment Coordinating Board (BKPM; *Badan Koordinasi Penanaman Modal Republik Indonesia*). The principle license serves as an initial approval from the government before investment activities. The process takes three working days.

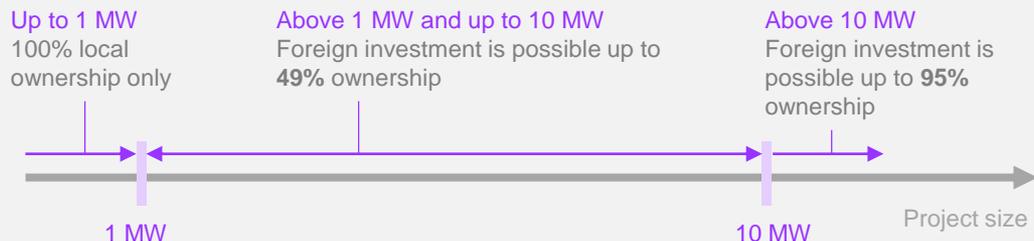
The investment in energy project is open for foreign investors but only for certain project sizes. Foreign investors must check the latest **negative list of investment** (see [box](#)) before deciding on the project development.

## Related Authority

Central level	<ul style="list-style-type: none"> <li>Indonesia Investment Coordinating Board (BKPM) – Evaluate the application, grant the license</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

## Negative List of Investment

The new negative list of investment was issued in 2014 through the Presidential Regulation – PERPRES no. 39/2014. It defines business areas that is “closed” (investment is not allowed) and “open” for investment under certain conditions. The requirement for energy project investment is specified as no. 6 of the list.



*Note:* Principle license for investment is granted by BKPM. It is different from principle license granted by local government ([Sub-step 4a-1](#))

## Obtain a Principle License for Investment

Description

Required Documents



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- Filled-out application form
- Letter of recommendation from the related country or letter issued by the embassy/representative office of the related country in Indonesia  
In case the application is filed by foreign government related institutions
- Passport  
In case the application is filed by individual foreigner
- Article of association of the company  
In case the application is filed by foreign company. This document must be in English or translated into Bahasa Indonesia by a sworn translator
- Identity card (KTP; *Kartu Tanda Penduduk*)  
In case the application is filed by individual Indonesian
- Article of establishment of the company  
In case the application is filed by Indonesian company. Any amendment(s) must be submitted along with approval from the Minister of Law and Human Rights

- Business description  
This documents should, at least, includes description on production process, list of raw materials, production flow diagram, and service activities etc.
- Recommendation letters from local government/local agencies  
BKPM can issue an introduction letter for approaching local government/local agencies.

# Establish a Special Purpose Company (SPC)

Description



The developer must establish a Special Purpose Company (SPC) to carry out the development of the biomass/biogas power plant. The legal form of the company established under a foreign investment must be a limited liability company (LLC) or so-called **“Limited Liability Foreign Investment Company”** (PMA; *Penanaman Modal Asing*).

Establishment of a legal Indonesian entity involves many authorities and complex procedure. The project developers must seek advices from a local legal consultant.

As this guideline focuses mainly on development of a biomass/biogas power plant, it does not provide a comprehensive and detailed procedure on business establishment in Indonesia. A good source of information can be found in the Investment Step-by-Step on the Indonesia Investment Coordinating Board (BKPM; *Badan Koordinasi Penanaman Modal Republik Indonesia*) website ([www.bkpm.co.id](http://www.bkpm.co.id))

In summary, project developers must perform the following tasks in order to establish a business in Indonesia.

- acquire the company’s name approval from the Ministry of Law and Human Rights;
- arrange the company documents to be notarized by Notary Public;

...

## Related Authority

Central level	<ul style="list-style-type: none"> <li>▪ Ministry of Laws and Human Rights – Approving the SPC’s name, approving the deed of establishment, ...</li> <li>▪ Ministry of Manpower – Business registration</li> <li>▪ Jamsostek – Approval of the Jamsostek application</li> <li>▪ etc.</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>▪ (none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>▪ Head of the village (“<i>Lurah</i>”) at the company location – issuing a certificate of company domicile</li> <li>▪ Local tax office – granting the tax registration number (NPWP)</li> <li>▪ Notary public – notarising the company document, ...</li> <li>▪ etc.</li> </ul>

# Establish a Special Purpose Company (SPC)

Description

Required Documents



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...

- obtain a certificate of company domicile issued by the village head (so-called “*Lurah*”);
- pay non-tax state revenue (PNBP; *Penerimaan Negara Bukan Pajak*) fee for legal services;
- obtain approval of the deed of establishment from Ministry of Law and Human Rights;
- register with the Ministry of Manpower;
- apply for the Workers Security Programme (so-called “*Jamsostek Programme*”);
- apply for a tax registration number (NPWP; *Nomor Pokok Wajib Pajak*) for the SPC
- etc.

# Income Tax Reduction Application

Description

Required Documents

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In general, corporate income tax in Indonesia is 25%<sup>1</sup>. For development of an RE project, this income tax rate can be reduced. Several facilities have been introduced by the government through the Ministerial Regulation - [PERMEN \(Finance\) No.21/PMK.011/2010](#), to promote investment in the RE sector. The eligible incentives are:

- Net income can be reduced for 30% of the total investment (for the purpose income tax calculation);
- accelerated depreciation;
- Imposition of income tax on dividend paid to foreign taxable at 10%;
- compensation for losses in certain circumstances.

The RE business is also classified as a **“pioneer business”** according to the [PERMEN \(Finance\) No.130/PMK.011/2011](#). Corporate income tax can be exempted for 5 - 10 tax years. After that, the income tax can be reduced to 50% for two tax years. The corporate income tax return must be filed annually by the end of the fourth month after the book year end.

## Related Authority

Central level	<ul style="list-style-type: none"> <li>▪ Indonesia Investment Coordinating Board (BKPM) – Evaluate the application and grant the license</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>▪ (none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>▪ Local tax office</li> </ul>

*Note 1: The 25% corporate income tax is applicable as of 2013. For the official latest tax rate, please refer to Directorate General of Taxes website ([www.pajak.go.id](http://www.pajak.go.id))*

## Income Tax Reduction Application

Description

Required Documents



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The developer must submit a request to the Head of the Investment Coordination Board (BKPM; *Badan Koordinasi Penanaman Modal*). BKPM, in consultation with the relevant ministries, will prepare a proposal and submit to the Ministry of Finance. The Ministry of Finance shall then establish a committee to evaluate the proposal on tax reduction. After consultation with the relevant agencies and the Coordinating Ministry of Economic Affairs, the Ministry of Finance will approve (or reject) the tax reduction proposal.



## Income Tax Reduction Application

Description

Required Documents



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### A | General Requirements

- Tax Registration Number Card (NPWP; *Nomor Pokok Wajib Pajak*)
- Principle License for Investment issued by BKPM  
Refer to [Sub-step 3a-1](#)
- Deposit certificate from bank  
The certificate must indicate that at least 10% of total capital investment have been placed in the account and it must not be withdrawn until the realization of the investment

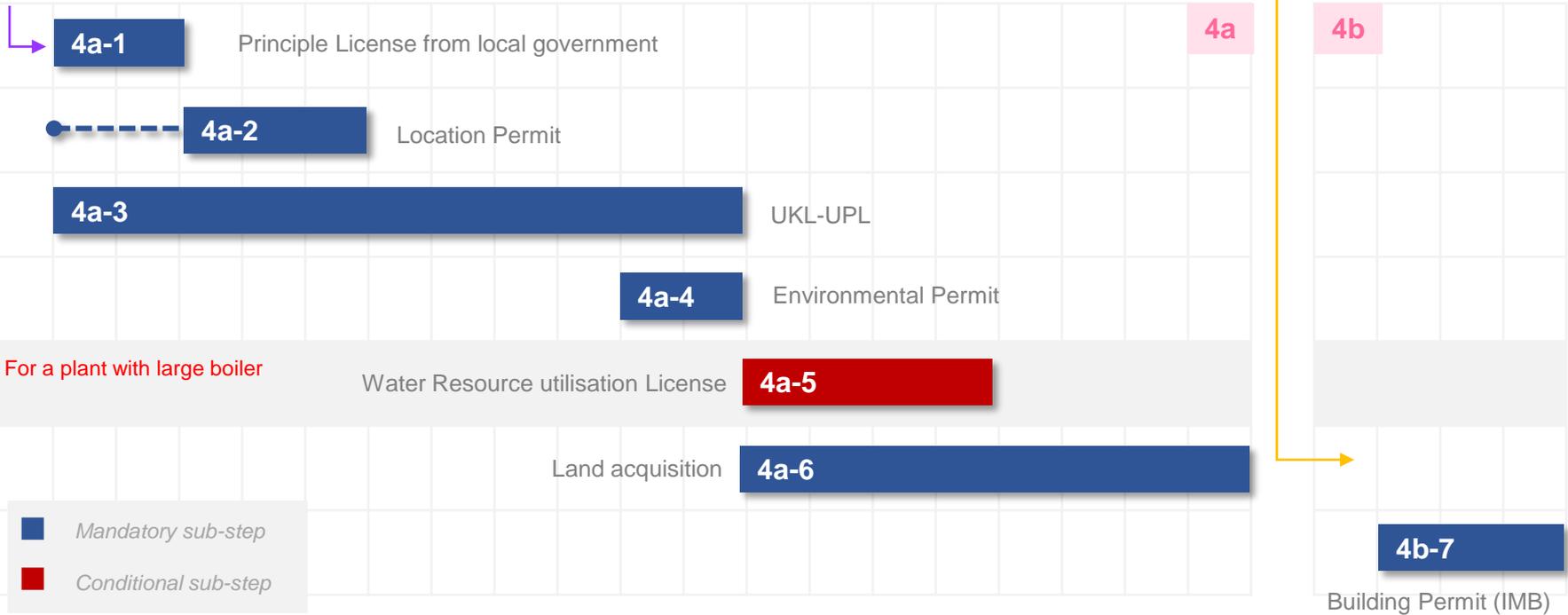
### B | Study Description

- Availability of infrastructure in the location of investment
- Domestic employment
- Assessment on the industry pioneer status
- Clear and concrete plan for technology transfer
- Provision of tax sparing in the country of residence  
Tax sparing is a recognition of tax exemption / reduction grating in Indonesia to calculate the tax in the country of domicile for the facilities provided. This is to avoid double taxation.

3a-2 SPC Establishment

Financial Closure 8-5

# Step 4 | Administrative Authorisation



*Note:* In some region, location permit (Sub-step 4a-2) can be obtained in parallel to the principle license from the local government

*IMB:* Building Permit (Izin Mendirikan Bangunan), *SPC:* Special Purpose Company; *UKL-UPL:* Environmental Management and Monitoring report (Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup)

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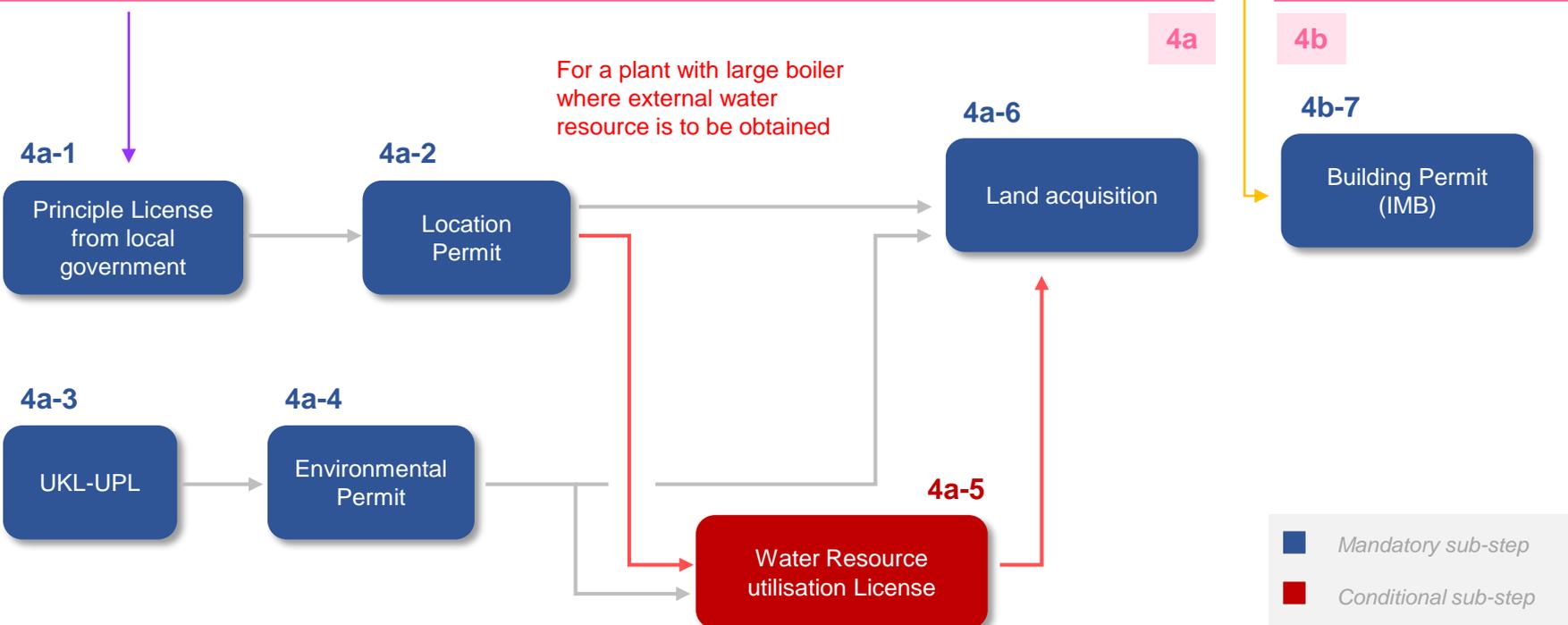
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3a-2 SPC Establishment

8-5 Financial Closure

# Step 4 | Administrative Authorisation



*Note:* In some region, location permit (Sub-step 4a-2) can be obtained in parallel to the principle license from the local government  
*IMB:* Building Permit (Izin Mendirikan Bangunan), *SPC:* Special Purpose Company; *UKL-UPL:* Environmental Management and Monitoring report (Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup)

# Step 4 | Administrative Authorisation

## Step Description

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As an archipelagic nation, Indonesia has a decentralised government structure in which the local government (regency; *Bupati* and city; *Kota*) play crucial role in issuing several licenses to biomass/biogas power projects. Exact procedures, required documents, and duration varies from region-to-region. Based on different local regulatory framework, additional licenses may be required in some regions. It is not practical for the guideline to try and list all the required permits in all regions in Indonesia. Rather, the guideline presents only the most important and typical licenses that must be secured. The developer must check with the local government if additional licenses or permits are needed.

The **Administrative Authorisation step** describes the procedures of obtaining all necessary licenses. Once the project location has been determined, the project developer should approach the relevant authorities to secure necessary licenses for the project. These licenses are required to be part of biomass/biogas power producer application ([Sub-step 5a-1](#)).

First, the project developer must obtain a principle license (*Izin Prinsip*) from the respective local government ([Sub-step 4a-1](#)). This can be done after a special purpose company (SPC) has been established ([Sub-step 3a-2](#)). A location permit (*Izin Lokasi*) must then be secured ([Sub-step 4a-2](#)), allowing the developer to buy or lease land for the purpose of biomass/biogas power project development. Depending on the project's location, different sequences may apply. In some regions, a location permit can be obtained at the same time with the principle license. In other regions, an application for a location permit can be done only after the principle license is obtained.

In parallel, the developer must secure an environmental permit ([Sub-step 4a-4](#)). An experienced consultant should be contracted to conduct a study, named "environmental management and monitoring report" (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup*). Once the study has been approved, the environmental permit will be granted to the developer.

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In case the power plant is to be equipped with a large boiler in which utilisation of an external water source is required, a water resource utilisation license must be obtained ([Sub-step 4a-5](#)). The developer can apply for a water resource utilisation license right after the environment permit is obtained.

Finally, the land must be acquired ([Sub-step 4a-6](#)). This can be through land leasing or buying. Land acquisition can be a very demanding task and can take a long time to complete. The developer should seek assistance or advice from a legal expert in this sub-step.

In the second part of the Administrative Authorisation step, a building permit (IMB; *Izin Mendirikan Bangunan*) must be obtained ([Sub-step 4b-7](#)), allowing physical construction of the power plant to commence.

Support from the local government and the local community is crucial. The duration for obtaining necessary licenses can be shortened if the local government agrees in general with the project idea and concept. However, the project developer should be aware that approval from the local government does not automatically imply that PLN will approve the biomass/biogas power plant development in the area.

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# Step 4 | Administrative Authorisation

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Regulation No.	Name
<b>Local Government and Its Authorities</b>	
<b>Law</b> UU no. 32/2004	Local Government ( <i>Pemerintahan Daerah</i> )
<b>Governmental Regulation</b> PP no. 38/2007	Distribution of authorities between central government, provincial government, and district/city government ( <i>Pembagian Urusan Pemerintahan Antara Pemerintah, Pemerintah Daerah Provisi, dan Pemerintahan Daerah Kabupaten/Kota</i> )
<b>Land Uses</b>	
<b>Law</b> UU no. 2/2012	Land Acquisition for Development on Public Interests (known as “ <b>Land Acquisition Act</b> ”) ( <i>Pengadaan Tanah Bagi Pembangunan untuk Kepentingan Umum</i> )
<b>Presidential Regulation</b> PERPRES no. 71/2012	Presidential Regulation: Land Acquisition for Development on Public Interests ( <i>Pengadaan Tanah Bagi Pembangunan untuk Kepentingan Umum</i> ) The PERPRES No. 71/2012 is the second amendment of PERPRES No. 36/2005 on similar topic. The first amendment, the PERPRES No. 65/2006, was revoked entirely except Article 123.

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Regulation No.

Name

### Land Uses (cont.)

**Presidential Regulation**  
PERPRES no. 65/2006

Land Acquisition for Development on Public Interests  
(*Pengadaan Tanah Bagi Pembangunan untuk Kepentingan Umum*)  
The PERPRES No. 65/2006 is the first amendment of the PERPRES No. 36/2005. It was entirely revoked by the PERPRES No. 71/2012 except Article 123 which is still effective.

**Presidential Regulation**  
PERPRES no. 36/2005

Land Acquisition for Development on Public Interests  
(*Pengadaan Tanah Bagi Pembangunan untuk Kepentingan Umum*)

**Presidential Decree**  
KEPRES no. 55/1993

Land Acquisition for Development on Public Interests  
(*Pengadaan Tanah Bagi Pelaksanaan Pembangunan untuk Kepentingan Umum*)

**Ministerial Regulation (Finance)**  
PERMEN (Finance) no.  
58/PMK.02/2008

Fee for Land Procurement Committee Development on Public Interests  
(*Biaya Panitia Pengadaan Tanah Bagi Pelaksanaan Pembangunan untuk Kepentingan Umum*)

**Joint Ministerial Regulation (State Agrarian) & National Defence Regulation**  
PERMEN (State Agrarian) / PERKA  
(National Defence) no. 2/1999

Location Permit  
(*Izin Lokasi*)

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# Step 4 | Administrative Authorisation

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Regulation No.	Name
<b>Land Uses (cont.)</b>	
<b>BPN's Regulation</b> PERKA (BPN) no. 3/2007	Implementation regulation of PERPRES No. 36/2005 <i>(Ketentuan Pelaksanaan Perpres No. 36/2005 Sebagaimana telah Diubah Dengan Perpres No. 65/2006)</i> The PERKA is the implementation regulation of PERPRES No. 36/2005 (amended by PERPRES No. 65/2006). It is still in effect even after the PERPRES No. 71/2012 was issued to amend both PERPRES No. 36/2005 and PERPRES 65/2006.
<b>BPN's Regulation</b> PERKA (BPN) no. 2/2011	Technical Guideline for issue a Location Permit, Location Determination, and Change of Land Use Permit <i>(Pedoman Pertimbangan Teknis Pertanahan Dalam Penerbitan Izin Lokasi, Penetapan Lokasi dan Izin Perubahan Penggunaan Tanah)</i>
<b>Water Resource Utilisation</b>	
<b>Law</b> UU no. 7/2004	Water Resources <i>(Sumber Daya Air)</i>
<b>Governmental Regulation</b> PP no. 38/2011	Rivers <i>(Sungai)</i>

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# Step 4 | Administrative Authorisation

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Regulation No.

Name

### Water Resource Utilisation (cont.)

<b>Governmental Regulation</b> PP no. 42/2008	Water Resources Management ( <i>Pengelolaan Sumber Daya Air</i> )
<b>Governmental Regulation</b> PP no. 82/2001	Water Quality Management and Water Pollution Control ( <i>Pengelolaan Kualitas Air dan Pengendalian Pencemaran Air</i> )
<b>Presidential Regulation</b> PERPRES no. 33/2011	National Policy on Water Resources Management ( <i>Kebijakan Nasional Pengelolaan Sumber Daya Air</i> )
<b>Ministerial Regulation (Public Works)</b> PERMEN (Public Works) no. 06/PRT/M/2011	Guideline for Water Resource Utilisation ( <i>Pedoman Penggunaan Sumber Daya Air</i> )
<b>Ministerial Regulation (Public Works)</b> PERMEN (Public Works) no. 22/PRT/M/2009	Technical Guideline on Water Resource Management Procedure ( <i>Pedoman Teknis dan Tatacara Penyusunan Pola Pengelolaan Sumber Daya Air</i> )

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# Step 4 | Administrative Authorisation

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Regulation No.	Name
<b>Environment</b>	
<b>Law</b> UU no. 32/2009	Environment Protection and Management ( <i>Perlindungan dan Pengelolaan Lingkungan Hidup</i> )
<b>Governmental Regulation</b> PP no. 27/2012	Environment License ( <i>Izin Lingkungan</i> )
<b>Governmental Regulation</b> PP no. 150/2000	Land Damage Control for Biomass Production ( <i>Pengendalian Kerusakan Tanah untuk Produksi Biomassa</i> )
<b>Governmental Regulation</b> PP no. 41/1999	Air Pollution Control ( <i>Pegendalian Pencemaran Udara</i> )
<b>Ministerial Regulation (Environment)</b> PERMEN (Environment) no. 16/2012	Guideline to Environmental Document ( <i>Pedoman Penyusunan Dokumen Lingkungan Hidup</i> )
<b>Ministerial Regulation (Environment)</b> PERMEN (Environment) no. 12/2012	Environmental Management and Monitoring (UKL-UPL) ( <i>Upaya Pengelolaan Lingkungan Hidup dan Upaya Pemantauan Lingkungan Hidup dan Surat Pernyataan Kesanggupan Pengelolaan dan Pemantauan Lingkungan Hidup</i> )

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# Step 4 | Administrative Authorisation

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Regulation No.

Name

### Environment (cont.)

#### Ministerial Regulation (Environment)

PERMEN (Environment)  
No. 7/2006

Standard Procedure and Criteria for Measurement of Land Damage from Biomass  
Production  
(*Tata Cara Pengukuran kriteria Baku Kerusakan Tanah Untuk Produksi Biomassa*)

### Building Permit

#### Ministerial Regulation (Home Affairs)

PERMEN (Home Affairs) no. 32/2010

Guideline for Granting a Building Permit  
(*Pedoman Pemberian Izin Mendirikan Bangunan*)

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# Step 4 | Administrative Authorisation

## Identified Challenges

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### Challenges

### Details

### Recommendations

#### Land acquisition

Land acquisition in Indonesia is considered an activity that may impact the public interest and thus is closely regulated. The entire process is complex and time-consuming due to the large number of stakeholders involved. For example, a land certificate can be granted only for up to 1 ha. In case more than 1 ha land is needed, several land certificates must be obtained.

The issuance of a land right certificate is under the responsibility of the independent National Land Agency (BPN; *Badan Pertanahan Nasional*) and the local government cannot support or speed up the process.

#### When biomass feedstock is supplied by the palm oil industry

In this case, the project site is usually located in the palm oil mill (POM) premise. The land right certificate is issued under the name of the POM. Thus, it may not be possible to obtain the land right certificate in the project developer's name.

The developer should contract an experienced legal expert to support in the land acquisition process. Sufficient time and resources should be allocated for land acquisition.

It is possible to make a contract with the POM so that the biomass/biogas plant is constructed by the POM. Then, the power plant is leased to the project developer. It is recommended to include the POM owner in the SPC and make a contract in a way that the POM owner will provide a portion of land to this SPC or land lease between POM owner and SPC.

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# Step 4 | Administrative Authorisation

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Challenges	Details	Recommendations
<b>Decentralised structure</b>	The structure of the Indonesian government is highly decentralised. Although laws and governmental regulations are applied uniformly throughout all regions, implementation procedures or local regulations differ from region to region. For example, the exact requirements, duration, and fees for a principle license ( <i>Izin Prinsip</i> ) and a location license ( <i>Izin Lokasi</i> ) are different, depending on the project location.	Close communication with the respective local government is necessary. The developer must consult with the local government regarding the procedures, list of relevant permits or licenses to be obtained, incurred fees, and processing time.
<b>Local administration unfamiliar with licensing procedure</b>	The introduction of <b>“One Stop Services (OSS)”</b> in many local government offices has already simplified many licensing and non-licensing procedures. However, officers in the local government must handle several types of licenses in which they are not used to handle before in the past. Therefore, the officers may not be experienced with the applied procedures and the exact requirements that the developer must follow.	-

# Step 4 | Administrative Authorisation

## Identified Challenges

Challenges	Details	Recommendations
<b>Unclear fees</b>	For some licensing procedures, information and regulations about associated fees are not widely announced or published.	The developer may have to directly approach the respective local government to get information regarding incurred fees.

# Principle License from Local Government

- Description
- Required Documents

A principle license (*Izin Prinsip*) is issued by the local government to an investor who plans to conduct his/her business activity in the area. Due to the decentralised structure of Indonesian government, exact procedures, incurred fees, eligible criteria, and list of required documents for a principle license application can be different from region-to-region. In some region, it is possible that a principle license and a location license ([Sub-step 4a-2](#)) can be granted at the same time.

Letters of recommendation from several local agencies (e.g. public works, agriculture, environment etc.) may be necessary for an application for a principle license. The developer should contact the local government first to check about relevant agencies, and list of documents to be issued from them. It may be easier in arranging a meeting with relevant local agencies in case the local government show its support to the biomass/biogas power project.

## Related Authority

Central level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Head of Regency (<i>Bupati</i>) / Mayor (<i>Walikota</i>) – Evaluates the application, grant the license</li> </ul>

## Principle License from Local Government

Description

Required Documents



Page 2/2

- **Filled-out application form**  
Application form is developed individually by each local government. They are different from region-to-region.
- **Applicant's identity card (KTP; *Kartu Tanda Penduduk*)**  
In case the application is filed by Indonesian
- **Passport**  
In case the application is filed by foreigner
- **Tax registration code number (NPWP; *Kartu Tanda Penduduk*)**
- **Project description**  
Estimated investment capital and business plan must be explained
- **Site layout**

*Note: Granting of a principle license is under the responsibility of local government. Therefore, the procedure, required documents, and timeframe can be different from region-to-region.*



## Location Permit

Description

Required Documents

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Location permit (*Izin Lokasi*) is a licensing instrument of the local government to control businesses in its areas regarding land procurement activities. In Indonesia, acquisition and utilisation of land are perceived as activities that can significantly affect the public interests. Therefore, it cannot be done freely, but must be closely regulated and controlled by the respective local government. A location permit allows project developer to purchase or lease land for specific purpose (in this case, for constructing biomass/biogas power plant) ([Sub-step 4a-6](#)). The developer must inform Agency for Land Affairs in the area every three month regarding the progress of land acquisition.

Similar to the principle license ([Sub-step 4a-1](#)), exact procedures, list of required documents, incurred fees, and processing time of a location permit can be different from region to region. In some areas, a principle license and a location permit can be granted by the local government at the same time.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Head of Regency (<i>Bupati</i>) / Mayor (<i>Walikota</i>) – Evaluates the application, grant the license</li> <li>Agency for Land Affairs in the area – Evaluates the application</li> </ul>

## Location Permit

Description

Required Documents



Page 2/2

- **Filled-out application form**  
Application form is developed individually by each local government. They are different from region-to-region.
- **Principle license from the local government**  
Refer to the [Sub-step 4a-1](#)
- **Applicant's identity card (KTP; *Kartu Tanda Penduduk*)**  
In case the application is filed by Indonesian
- **Passport**  
In case the application is filed by foreigner
- **Tax registration code number (NPWP; *Kartu Tanda Penduduk*)**
- **Sketch of the required land**
- **Project description**  
Estimated investment capital and business plan must be explained

*Note: Granting of a location permit is under the responsibility of local government. Therefore, the procedure, required documents, and timeframe can be different from region-to-region.*

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Overall

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## UKL-UPL

Description	Related Authority
-------------	-------------------

For development of a biomass/biogas power project with a capacity of up to 10 MW, the developer does not have to perform an environmental impact study (AMDAL; *Analisis Mengenai Dampak Lingkungan Hidup*). However, the developer still has to prepare an **environmental management and monitoring report** (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup*). UKL-UPL is a form of environmental impact assessment similar to the AMDAL, but for activities with fewer negative impacts on the environment. The procedure of UKL-UPL approval is simpler than that of AMDAL.

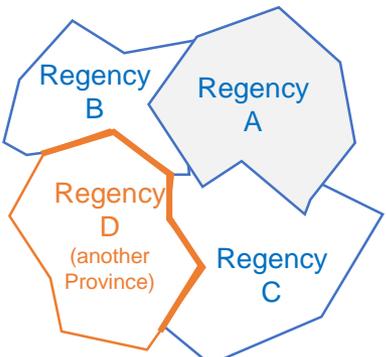
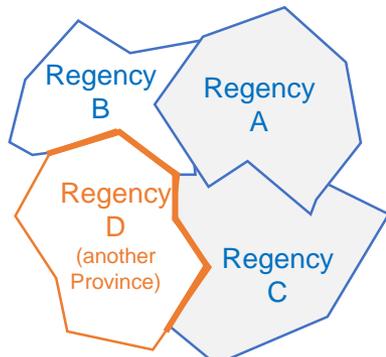
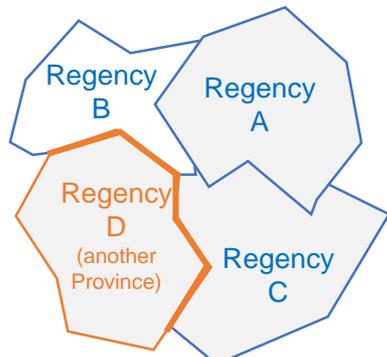
UKL-UPL is a prerequisite for issuing an environmental permit ([Sub-step 4a-4](#)). It must be performed by the developer according to the format defined in the Ministerial Regulation - [PERMEN \(Environment\) no. 12/2012](#). The UKL-UPL must then be submitted to the respective authority for examination. The UKL-UPL examining authority shall publish a UKL-UPL recommendation letter within 14 days after receiving the UKL-UPL from the developer. In case the relevant authority does not publish its UKL-UPL recommendation letter within the defined timeframe, it automatically implies that the UKL-UPL has been reviewed and approved.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Depending on the boundary of environmental impacts of the project, different authorities in different level are relevant to this Sub-step.</li> </ul>
Provincial level	
Local level	

**Related Authority**

## UKL-UPL

Description	Related Authority		
<p>Environment impact is limited within Regency A</p>		<p>Environment impact on Regency A and Regency C (both are still in the same province)</p>	<p>Environment impacts on Regency A, Regency C, and Regency D (in different province)</p>
			
<p>Examination of UKL-UPL and issuance of recommendation letter are under the jurisdiction of the <b>local level</b> (in this case, Regency A)</p>		<p>Examination of UKL-UPL and issuance of recommendation letter are under the jurisdiction of the <b>provincial level</b> (in this case, the province where Regency A and C are belong to)</p>	<p>Examination of UKL-UPL and issuance of recommendation letter are under the jurisdiction of the <b>national level</b></p>
<p><b>Related Authorities</b></p> <ul style="list-style-type: none"> <li>Chief of the Environmental Agency in the region – Examine the UKL-UPL and issue a recommendation letter</li> </ul>		<p><b>Related Authorities</b></p> <ul style="list-style-type: none"> <li>Chief of the Environmental Agency in the province - Examine the UKL-UPL and issue a recommendation letter</li> </ul>	<p><b>Related Authorities</b></p> <ul style="list-style-type: none"> <li>Deputy Minister of Environment - Examine the UKL-UPL and issue a recommendation letter</li> </ul>

*Legend*  area environmentally affected by the project development and operation

## Environmental Permit

Description	Required Documents	Related Authorities
-------------	--------------------	---------------------

An environmental permit (*Izin Lingkungan*) is granted to a business in which an environmental impact study (AMDAL; *Analisis dampak lingkungan*) or environmental management and monitoring report (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup*) is mandatory. For development of a biomass/biogas project in Indonesia, UKL-UPL must be performed; therefore, an environmental permit is also required. The environmental permit is issued at the same time as the decision on UKL-UPL recommendation has been issued ([Sub-step 4a-3](#)).

The application of the environmental permit must be done at the same time as the UKL-UPL examination. The authority announces the project that UKL-UPL is to be performed through a bulletin board or other media within two days after the UKL-UPL form submitted is declared complete. The public can give opinions or advice/feedback for three days following the announcement.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Relevant authorities for this Sub-step can be different depending on the situation.</li> <li>The authority who issues an environmental permit to the developer is the one in the same level of agency issued recommendations on UKL-UPL level that issue recommendation letter for the UKL-UPL</li> </ul>
Provincial level	
Local level	

[Related Authorities](#)

## Environmental Permit

Description

Required Documents

Related Authorities



Page 2/3



- Deed of establishment
- Business profile
- Environmental management and monitoring report form (UKL-UPL; *Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup*)  
Refer to [Sub-step 4a-3](#)

## Environmental Permit

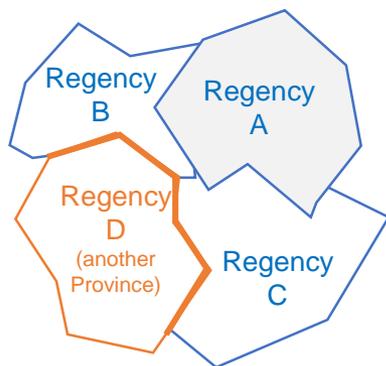
Description

Required Documents

Related Authorities

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Environment impact is limited within Regency A

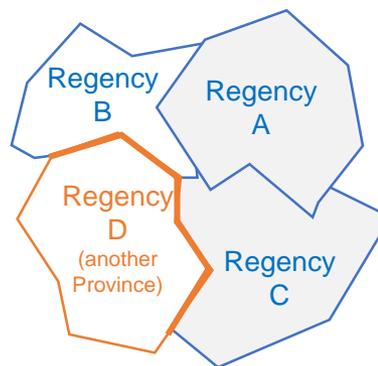


Issuance of the environmental permit is under the jurisdiction of the **local level** (in this case, Regency A)

### Related Authorities

- Head of Regency (*Bupati*) or Mayor (*Walikota*) of the respective regency or city – Issue the environmental permit

Environment impact on Regency A and Regency C (both are still in the same province)

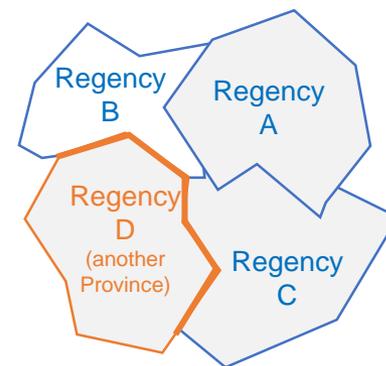


Issuance of the environmental permit is under the jurisdiction of the **provincial level** (in this case, the province where Regency A and C are belong to)

### Related Authorities

- Governor (*Gubernur*) of the respective province – Issue the environmental permit

Environment impacts on Regency A, Regency C, and Regency D (in different province)



Issuance of the environmental permit is under the jurisdiction of the **national level**

### Related Authorities

- Minister (Ministry of Environment) – Issue the environmental permit

Legend  area environmentally affected by the project development and operation

## Water Resource utilisation License

Description

Required Documents

Related Authorities

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This sub-step is to be done only in case the biomass/biogas project requires an external water supply from any natural water source (e.g. river, lake, etc.) for feeding its boiler. This is usually the case for power plants with an installed capacity of more than 3 MW.

The water source is considered a public resource. Any utilisation of a water source must be approved by the authority (i.e. any construction above river, utilisation of water sources for purposes of business, fisheries, etc.) Although water is not the main energy primer for a biomass/biogas power plant, some systems may require water input, i.e. boiler, etc.

In such cases, the developer must secure a water resource utilisation license (*Izin Penggunaan Sumber Air*) from the relevant authority. Depending on the boundary of the body of the water source, different authorities on different levels are responsible for issuing the license. The Ministerial Regulation – [PERMEN \(Public Works\) no. 49/PRT/1990](#) regulates the licensing procedure.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Depending on the boundary of body of water used by the project, different authorities in different level are relevant to this Sub-step.</li> </ul>
Provincial level	
Local level	

[Related Authorities](#)



## Water Resource utilisation License

Description

Required Documents

Related Authorities



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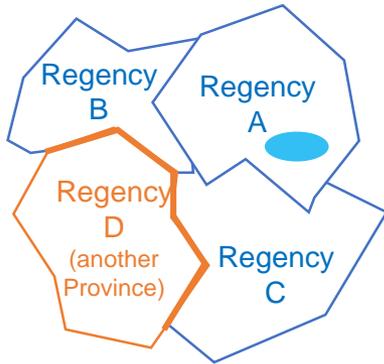


- Application letter
- Applicant's identity card (KTP; *Kartu Tanda Penduduk*)
- Tax registration code number (NPWP; *Nomor Pokok Wajib Pajak*)
- Principle License (*Izin Prinsip*)  
Refer to [Sub-step 4a-1](#)
- Location License (*Izin Lokasi*)  
Refer to [Sub-step 4a-2](#)
- Environment Permit  
Refer to [Sub-step 4a-4](#)
- Evidence of last tax payment
- Statement letter indicating that the respective water body can be utilised by public (from respective local agencies/local government)

- Location map  
In 1:10000 scale
- Detailed map  
In 1:1000 scale
- Purpose of water utilisation
- Location and technical description on the method of water removal/disposal
- Recommendations from following local agencies
  - Office of Spatial Planning and Human Settlement (*Dinas Tata Ruang dan Cipta Karya*)
  - Office of Public Works (*Dinas Pekerjaan Umum*)
  - Environmental Agency (*Badan Lingkungan Hidup*)
  - Natural Resource Section (*Bagian Adm. SDA Setda*)

# Water Resource utilisation License

Water resource used by the project is within Regency A

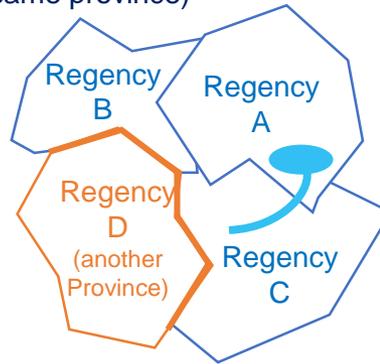


Approval of a water resource utilisation license is under the jurisdiction of the **local level authority** (in this case, Regency A)

## Related Authorities

- Office of public work in the respective regency or city – Issue the water resource utilisation license

Water resource used by the project is on Regency A and Regency C (both are still in the same province)

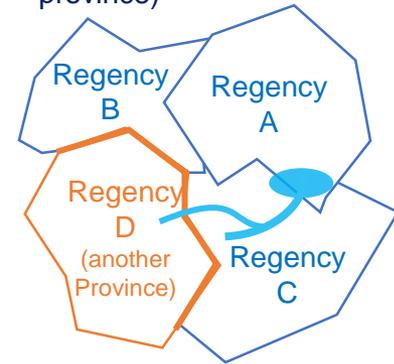


Approval of a water resource utilisation license is under the jurisdiction of the **provincial level authority** (in this case, the Province where Regency A and C are belong to)

## Related Authorities

- Office of public work in the respective province – Issue the water resource utilisation license

Water resource used by the project is on Regency A, Regency C, and Regency D (different province)



Approval of a water resource utilisation license is under the jurisdiction of the **national level authority**.

## Related Authorities

- Minister (Ministry of Public Works) – Issue the water resource utilisation license

Legend  body of water to be used by the project

## Land Acquisition

Description

Land Rights

Page 1/2



The land must be acquired, either through purchasing or leasing, of the purpose of project development. This can be done only after the location permit (*Izin Lokasi*) is granted by the local government ([Sub-step 4a-2](#))

Usually, the developer obtains either **Ownership Right** (HM; *Hak Milik*) or **Building Right** (HGB; *Hak Guna Bangunan*) on the land. Only Indonesian citizens can obtain a HM. Foreign investors must establish a company under Indonesian law together with a local partner in order to obtain a HGB. Both rights are granted by the Office for Land Affairs (BPN, *Badan Pertanahan Nasional*) in the respective region.

Similar to other parts of the world, land acquisition can be a complex and lengthy process. The developer should seek legal advice throughout the process from an experienced legal consultant. Acquiring a piece of land that encompass more than one Regency, city, or province can lengthen the procedure. Unless the developer is relatively experienced in land acquisition framework, this should be avoided at all costs.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Office of Land Affairs (BPN) in the respective area</li> </ul>



## Land Acquisition

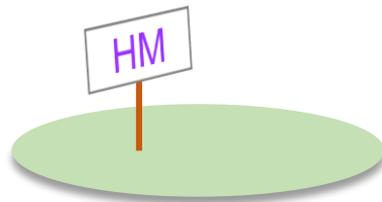
Description

Land Rights



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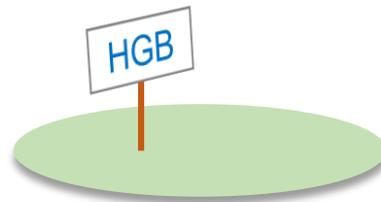
There are many types of land rights defined by the Law – [UU no. 5/1960](#), Basic Regulations on Agrarian Principles. The most important types of land rights are presented as the following:



### Right of ownership (*Hak milik; HM*)

HM is the strongest and fullest right on land.

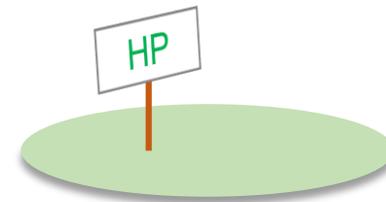
Only Indonesian citizens can possess this right.



### Right of building (*Hak guna bangunan; HGB*)

HGB is a right to build and own any assets built on the land for a period of up to 30 years. The land is owned by other.

Companies established under Indonesian law and domiciled in Indonesia can have this right.



### Right of use (*Hak pakai; HP*)

HP is a right on any product or income generated on the land. The land and assets on that land are owned by other.

Foreigners and companies established under Indonesian law can have this right.

## Building Permit (IMB)

Description

Required Documents

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Building Permit (IMB; *Izin Mendirikan Bangunan*) is a license granted by the local government allowing the project developer to proceed with physical construction of a power plant.

The Ministerial Regulation - [PERMEN \(Home Affairs\) no. 32/2010](#) provides a guideline for the building permit procedure. However, local governments retain their authority in determining the implementation procedure which might slightly differ from the PERMEN. As a result, different local regulations may be applicable in different regions.

In general, the project developer submits an application to Head of Regency (*Bupati*) or Mayor (*Walikota*). The authority then checks the completeness of the submitted documents.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Head of Regency (<i>Bupati</i>) or Mayor (<i>Walikota</i>) in the respective regency or city – Evaluate the application, issue the permit</li> </ul>



## Building Permit (IMB)

Description

Required Documents



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- Filled-out IMB application
- Land certificate indicating investor's right to manage the land  
Refer to [Sub-step 4a-6](#)
- Details of the land (location and topography)
- Statement letter from National Land Office proving that the land not in the dispute status
- Environmental license  
Refer to [Sub-step 4a-4](#)
- Building architecture plan
- System structure plan
- Utility system plan

- Structure calculation and/or building landscape completed with land examination report In case there any buildings with two floors or more
- Utility calculation for building
- Service plan data

*Note: Granting of a building permit is under a jurisdiction of local government. Therefore, the exact required documents can be different from region-to-region.*

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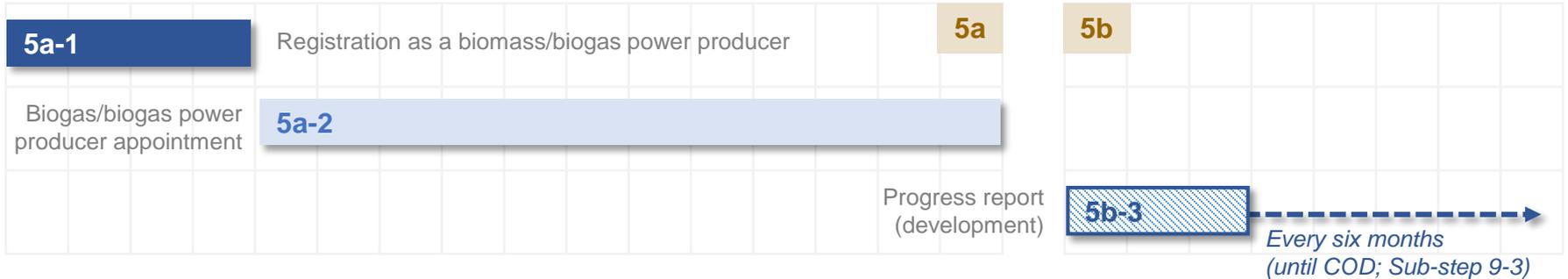
Step



Overall

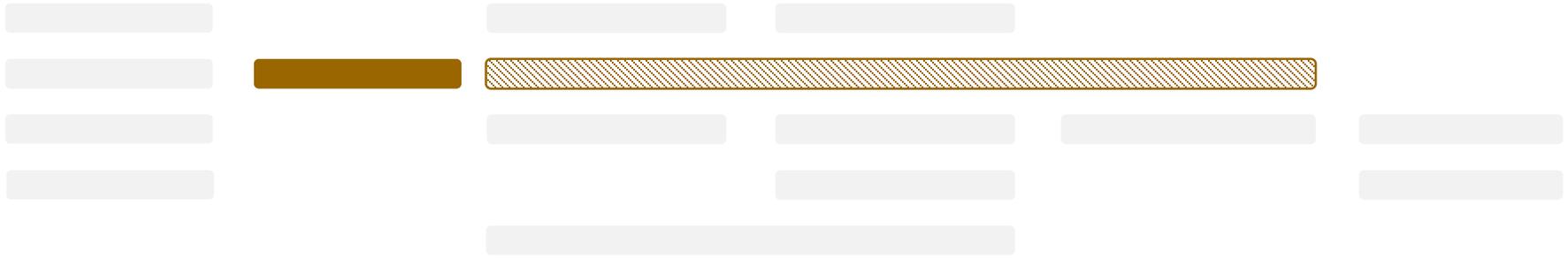
Step

# Step 5 | Support Mechanisms



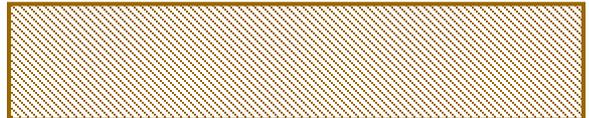
- Mandatory sub-step to be done once
- Passive sub-step (the developer does not play active roles here)
- Mandatory sub-step to be repeated on regular basis

**COD:** Commercial operation date; **EBTKE:** Directorate General of New and Renewable Energy and Energy Conservation (Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi)



# Step 5 | Support Mechanisms

5a



5b



- Mandatory sub-step to be done once
- Passive sub-step (the developer does not play active roles here)
- Mandatory sub-step to be repeated on regular basis

*COD: Commercial operation date; EBTKE: Directorate General of New and Renewable Energy and Energy Conservation (Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi)*

# Step 5 | Support Mechanisms

## Step Description

Description

Regulations

Challenges

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In October 2014, a new Ministerial Regulation - [PERMEN \(ESDM\) no. 27/2014](#), governing biomass/biogas power project development in Indonesia was issued. A higher feed-in tariff was introduced and different tariffs applied separately for biomass and biogas power plants. The new regulation has increased the role of the Directorate General of New and Renewable Energy and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*). EBTKE is now playing a crucial role in evaluating and granting approval (or rejection) to all biomass/biogas power projects in Indonesia. Project developers must now first register themselves with the EBTKE and to be appointed as **“Biomass/Biogas Power Producer”**. PLN is still involved in the process by reviewing and evaluating the feasibility study (FS) ([Sub-step 1-4](#)) and interconnection study ([Sub-step 2-2](#)) submitted by the developers.

### What is new in the new regulation?



#### PERMEN (ESDM) no. 27/2014

English

Bahasa

Ministerial Regulation – PERMEN (ESDM) no. 27/2014 was issued in October 2014, it introduced considerable changes to the procedure on biomass/biogas power project development. Important changes include the following:

- Higher feed-in tariffs (FiT) are introduced, FiT are defined separately for biomass power plant and biogas power plant
- More prominent role of EBTKE – EBTKE is now involved in the evaluation and approval of all biomass/biogas power projects in Indonesia and also becomes a focal point of the application process. It coordinates and facilitates communication between the project developer and relevant authorities in the process.
- More strict deadline and penalties – Specific time duration and deadlines for some milestones have been defined, and penalties have been introduced in the event deadlines are missed
- Progress report – Project developers must now regularly update the progress of the project implementation to EBTKE until the commercial operation date (COD) of the power plant.

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# Step 5 | Support Mechanisms

## Step Description

Description

Regulations

Challenges



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The **Support Mechanism step** describes the application of the project developer to be appointed as a biomass / biogas power producer in Indonesia. First, the project developer submits an application to EBTKE ([Sub-step 5a-1](#)). Then, the application and all supporting documents are reviewed by EBTKE. The FS and interconnection study are distributed to PLN for their review and evaluation. Based on the results of PLN's evaluation, EBTKE will determine whether biomass/biogas status is to be granted to the developer ([Sub-step 5a-2](#)). The new regulation simplifies the application procedure by appointing EBTKE as a single point of contact for project developers. PLN will still review and evaluate relevant project documents, however, all communications with project developers are done through EBTKE.

Upon successful appointment, the developer is allowed to further develop the biomass / biogas power project and become eligible for the feed-in tariff (FiT) as defined by the regulation eligible for the feed-in tariff. The developer is requested to submit a development progress report every six months to EBTKE ([Sub-step 5b-3](#)). This regular reporting must be done until the commercial operation date (COD) of the power plant ([Sub-step 10-3](#)).

It is crucially important to be aware of all penalties defined by the regulation. Several deadlines have been defined for some project milestones (e.g. PPA signing, financial closure, physical construction, etc.) Missing those deadlines will result in severe penalties, i.e. confiscation of the deposit, revocation of the biomass / biogas power producer appointment, banning of project developer for biomass / biogas power project development for two years, etc.

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# Step 5 | Support Mechanisms

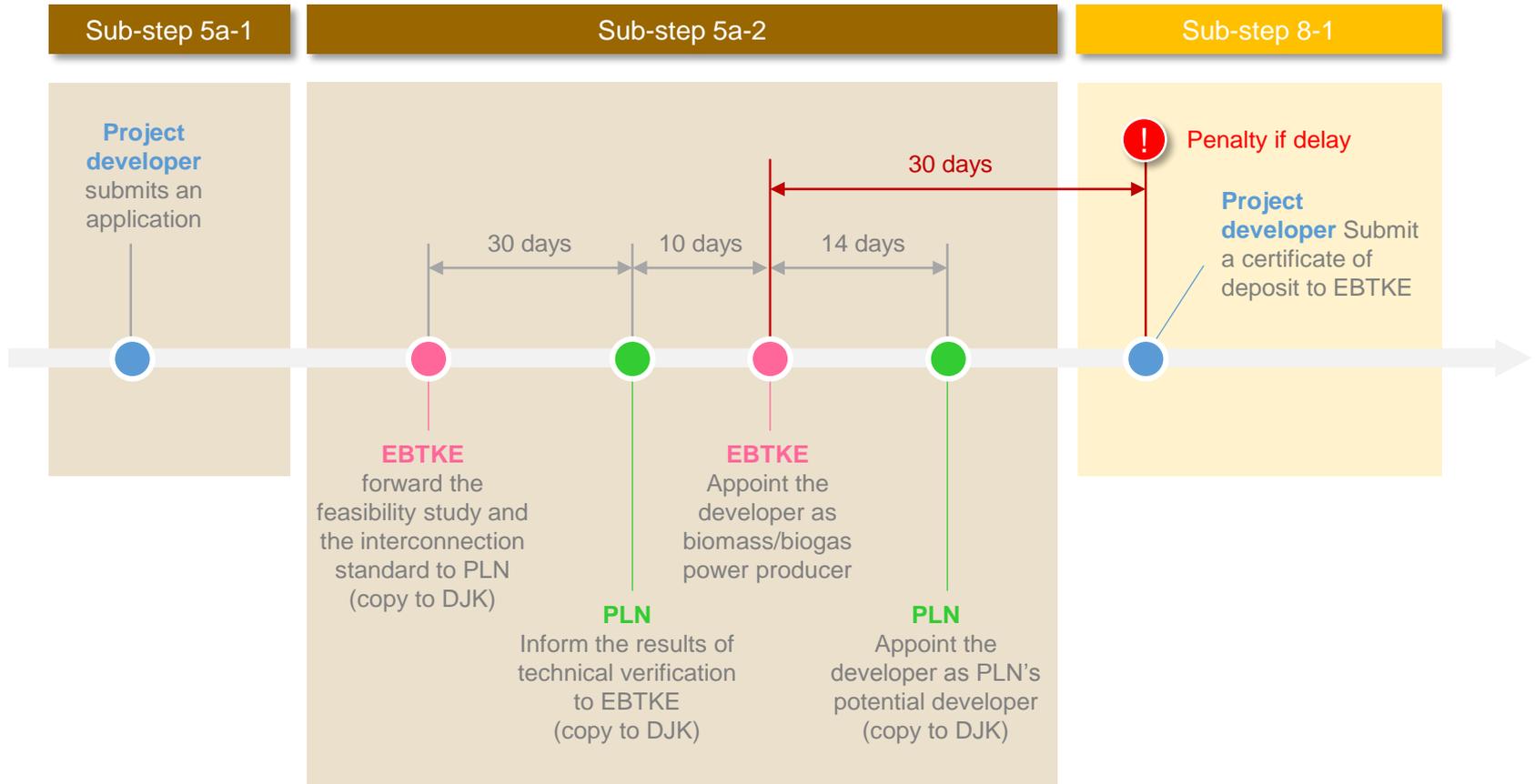
## Step Description

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Regulations

Challenges

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# Step 5 | Support Mechanisms

## Related Regulations

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Regulations

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>

Regulation No.	Name
<b>Governmental Regulation</b> PP no. 23/2014	Amendment to Governmental Regulation No. 14 Year 2012 on Electrical Power Business <i>(Perubahan atas Peraturan Pemerintah Nomor 14 Tahun 2012 tentang Kegiatan Usaha Penyediaan Tenaga Listrik)</i>
<b>Governmental Regulation</b> PP no. 14/2012	Electrical Power Business <i>(Kegiatan Usaha Penyediaan Tenaga Listrik)</i>
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) <i>(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))</i>

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# Step 5 | Support Mechanisms

## Identified Challenges

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Challenges



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Challenges

Details

Recommendations

-

-

-

At the time of the Guideline's publication (February 2015), there are no challenges identified yet in this step.

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## Registration as a biomass/biogas power producer

Description

Required Documents

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According to the Ministerial Regulation - [PERMEN \(ESDM\) no. 27/2014](#), project developers must first register themselves with the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) to be appointed as a **“biomass/biogas power producer”**. This appointment allows the developer to proceed with the biomass/biogas power project development in Indonesia. The developer will become eligible for the feed-in tariff as stipulated by the regulation only after the appointment.

Appointment as a biomass/biogas power producer is equivalent to being directly appointed according to one of the three mechanisms for power project development in Indonesia as stipulated by the Governmental Regulation – [PP no. 14/2012](#) (**“Direct appointment mechanism”**). Upon appointment, PLN must enter into a power purchase agreement (PPA) with the developer. It is also obliged to purchase electricity generated from the biomass/biogas power plant.

It is important that the developer must, in parallel with this sub-step, prepare or secure financing for the project development. 5% of the total project investment must be made available in a dedicated bank account. The certificate of deposit must be provided to the EBTKE immediately following the appointment ([Sub-step 8-1](#)).

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General of New and Renewable Energy and Energy Conservation (EBTKE) – Receive the application, review the completeness of submitted documents</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

## Registration as a biomass/biogas power producer

Description

Required Documents



Page 2/3



- Filled-out application form

The form is provided in the appendix of the [PERMEN \(ESDM\) no. 27/2014](#)

- Statement letter

The template is provided in the appendix of the [PERMEN \(ESDM\) no. 27/2014](#)

- Business entity profile

- All permits and licenses from the central / local government according to the regulations

For the list of important permits / licenses, refer to [Step 4](#)

- Feasibility study (FS)

Refer to [Sub-step 1-4](#)

- Interconnection study

Refer to [Sub-step 2-2](#)

- Construction schedule until the commercial operation date (COD) of the power plant

- Statement regarding the land availability for the project development

Refer to [Sub-step 4a-6](#)

- Statement guaranteeing the availability of biomass feedstock for the power plant

- Statement confirming that the developer will prioritise domestic services

This must be supplemented by supporting data according to the prevailing provision

- Statement confirming the developer's capability to submit a deposit certificate of 5% of the total investment in the biomass/biogas power plant

This actual certificate must be submitted within 30 days after the developer is appointed as a biomass/biogas power producer ([Sub-step 8-1](#)).

## Registration as a biomass/biogas power producer

Description

Required Documents



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- Statement confirming the developer's capability and ability to conclude and exercise the power purchase agreement for the power plant with a capacity of up to 10 MW
- Statement of willingness to consciously and accountably receive any sanction / penalties, including willingness to pay the fees to the State Treasury as regulated by the PERMEN (ESDM) no. 27/2014

## Biogas/Biogas Power Producer Appointment

Description

This sub-step is an evaluation of the application submitted by project developers to the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) (during [Sub-step 5a-1](#)).

After receiving the application from the project developer, EBTKE shall forward the feasibility study (FS) and the interconnection study (performed earlier in [Sub-step 1-4](#) and [Sub-step 2-2](#), respectively) to PLN, a state-owned power utility, and copy them to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) within 30 days.

PLN shall verify the FS and the interconnection study, conduct a Project Feasibility Assessment (KKP; *Kajian Kelayakan Proyek*) for internal assessment, and notify the EBTKE regarding the result and its evaluation. The EBTKE, based on the PLN's inputs, shall further evaluate the developer's application and make a decision to grant (or reject) the application within 10 working days after the PLN's feedback is received. The EBTKE shall then inform its decision the developer and copy to DJK. In case the application is rejected, the EBTKE must provide the reasons and its justification to the developer.

Within 14 working days after the appointment of biomass/biogas power producer by the EBTKE, PLN shall also appoint the developer as PLN's potential biomass or biogas power plant developer, enabling him/her to later enter into a power purchase agreement (PPA) with PLN.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General of New and Renewable Energy and Energy Conservation (EBTKE) – evaluate, approve (or reject) the application</li> <li>PLN – review FS and interconnection study</li> <li>Directorate General of Electricity (DJK) – be informed</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

## Biogas/Biogas Power Producer Appointment

Description

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Typically, a project developer does not play any active role during this sub-step; however, he/she should closely follow-up the evaluation done by the relevant authorities. Only after being appointed as biomass/biogas power producer, the developer must submit a certificate of deposit, proving that 5% of the total investment cost has already been made available in his/her account ([Sub-step 8-1](#)). This must be done within 30 working days after the successful appointment.

## Progress Report (Development)

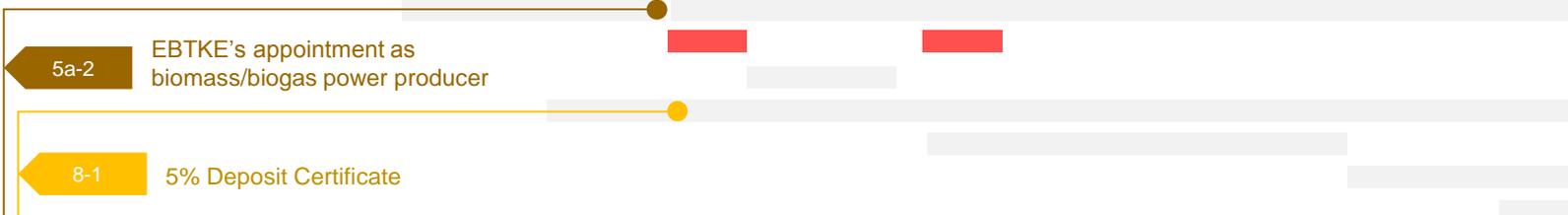
### Description

The new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) obliges project developers to regularly submit a development progress report to the Directorate General of New and Renewable Energy and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*). The submission must be done every six months after the biomass/biogas power producer appointment ([Sub-step 5a-2](#)) until the commercial operation date (COD) of the power plant ([Sub-step 10-3](#)). The reports must always be copied to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) and PLN as well.

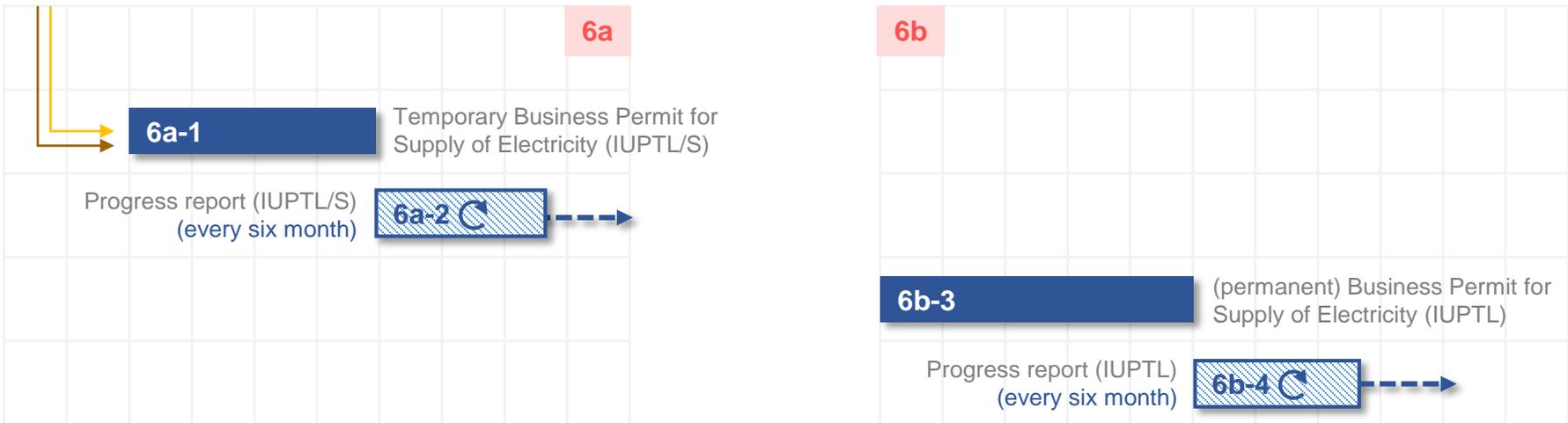
At the time of the Guideline’s publication (February 2015), the template and format of the progress report have not yet been defined.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General of New and Renewable Energy and Energy Conservation (EBTKE) – receive the report, monitor the implementation</li> <li>PLN – be informed</li> <li>Directorate General of Electricity (DJK) – be informed</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>



# Step 6 | Electricity Production License



- Sub-Step that must be done only *once*
- ▨ Sub-step that must be *repeated* on regular basis

*IUPTL*: Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik); *IUPTL/S*: Temporary Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik Sementara)

5a-2

EBTKE's appointment as biomass/biogas power producer

8-1

5% Deposit Certificate

## Step 6 | Electricity Production License

6a

6a-1

Temporary Business Permit for Supply of Electricity (IUPTL/S)

6a-2 ↻

Progress report (IUPTL/S)

every six month

6b

6b-3

(permanent) Business Permit for Supply of Electricity (IUPTL)

6b-4 ↻

Progress report (IUPTL/S)

every six month

■ Sub-Step that must be done only *once*

▨ Sub-step that must be *repeated* on regular basis

*IUPTL*: Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik); *IUPTL/S*: Temporary Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik Sementara)

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# Step 6 | Electricity Production License

## Step Description

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For development of a power project in Indonesia for public interest (see [Information Box](#)), a business permit for supply of electricity (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*) must be obtained from the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*). The term IUPTL<sup>1</sup> is firstly used by the Governmental Regulation - [PP no. 14/2012](#). In 2013, the implementation regulation, the Ministerial Regulation - [PERMEN \(ESDM\) no. 35/2013](#), was subsequently issued. It defines the detailed procedures and the list of required documents in more detailed.

### “For Public Interest” vs “For Private Interest”

According to the Governmental Regulation – PP no. 14/2013, there are two categories of power supply business in Indonesia: (1) “for public interest” and (2) “for private interest”. In Indonesia context, the **“for public interest”** means that the generated electricity is transmitted / distributed / sold to other entities (e.g. electricity generated by the power plant is transmitted to the PLN’s grid).

This is different from the **“for private interest”** project, meaning that generated electricity is transmitted internally only for own consumption. The power plant is not connected to PLN’s grid or, if connected, no power is exported to PLN’s grid. A different permit and operation license (IO; *Izin Operasi*) are required in this case. As this guideline covers only grid-connected biomass/biogas power project, the procedure in obtaining IO is not provided.

Based on existing regulatory framework, two permits can be issued for the purpose of electricity supply. The temporary business permit for supply of electricity (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) can be issued in the early phase of project development, allowing project developer to conclude and sign a power purchase agreement (PPA) with PLN. The (permanent) business license (IUPTL) can then be secured later on.

*Note 1: Previously, the term IUKU (Izin Usaha untuk Kepentingan Umum) is used to describe an electricity generation license in Indonesia for public interest.*

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# Step 6 | Electricity Production License

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The Electricity Production License step describes the procedures and requirements in obtaining the IUPTL/S and IUTPL. This step consists of two parts. First, the project developer must obtain a temporary permit (IUPTL/S) ([Sub-step 6a-1](#)). This can be done only after the 5% deposit certificate has been issued by the bank and submitted to EBTKE ([Sub-step 8-1](#)). Once the IUPTL/S is issued, it remains valid for two years and can be extended only once. Also, after the IUPTL/S is granted, the developer must report every six months to DJK ([Sub-step 6a-2](#)).

In the second part, the developer must obtain a (permanent) license (IUPTL) ([Sub-step 6b-3](#)). As the application procedure and required documents are more complex, this is usually done in later stage when more data / documents are available. The IUPTL is required before the commercial operation date (COD) of the power plant ([Sub-step 10-3](#)). The validity period of the IUPTL is longer than the IUPTL/S. It must be decided case-by-case by DJK, with a maximum validity period of 30 years (and can be extended later). Again, after the IUPTL is granted, the developer must report every six months to DJK ([Sub-step 6b-4](#)).

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# Step 6 | Electricity Production License

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Regulation No.	Name
<b>Law</b> UU no. 30/2009	Electricity ( <i>Ketenagalistrikan</i> )
<b>Governmental Regulation</b> PP no. 23/2014	Amendment to Governmental Regulation No. 14 Year 2012 on Electrical Power Business ( <i>Perubahan atas Peraturan Pemerintah Nomor 14 Tahun 2012 tentang Kegiatan Usaha Penyediaan Tenaga Listrik</i> )
<b>Governmental Regulation</b> PP no. 14/2012	Electrical Power Business ( <i>Kegiatan Usaha Penyediaan Tenaga Listrik</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 35/2013	Licensing Procedure for Electrical Power Business ( <i>Tata Cara Perizinan Usaha Ketenagalistrikan</i> )

*ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral)*

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# Step 6 | Electricity Production License

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At the time of the Guideline's publication (February 2015), there have been no challenges identified as of yet in this step.

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## Temporary Electricity Production License (IUPTL/S)

Description

Required Documents

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A temporary electricity production license (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) must be obtained before the joint signing of the power purchase agreement (PPA) ([Sub-step 7-3](#)) for the biomass/biogas power project.

Once issued, the IUPTL/S is valid only for two years and can be extended only once. It must be converted later into a (permanent) electricity production license (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*) ([Sub-step 6b-3](#)).

Project developers must submit an application to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*). Based on the Ministerial Regulation – [PERMEN \(ESDM\) no. 35/2013](#), the processing time is 20 working days after the complete submission of the application and all supporting documents. After the IUPTL/S is issued, the developer must submit a report on implementation of the IUPTL/S to the DJK on regular basis ([Sub-step 6a-2](#)).

Before an IUPTL/S application can be made, “biomass/biogas power producer” status must have been granted by the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) to the developer ([Sub-step 5a-2](#)). A certificate from respective bank confirming availability of 5% of the total investment cost must also be presented to EBTKE as well ([Sub-step 8-1](#)).

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General for Electricity (DJK) – Evaluate the application, issue the license</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

*ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral)*



## Temporary Electricity Production License (IUPTL/S)

Description

Required Documents



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- Filled-out application form
- Applicant's identity card (KTP; *Kartu Tanda Penduduk*)
- Deed of establishment of the company
- Company profile
- Tax registration code number (NPWP; *Nomor Pokok Wajib Pajak*)
- Feasibility study (FS)  
Refer to [Sub-step 1-4](#)
- Type of power plant and installed capacity (kW or MW)
- Construction schedule
- Location permit (*Izin Lokasi*)  
Refer to [Sub-step 4a-2](#)
- Letter of appointment to become a biomass/biogas power producer  
Refer to [Sub-step 5a-2](#)

## Progress Report (IUPTL/S)

Description

Required Documents

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*This sub-step must be repeated every six months until the (permanent) business permit for supply of electricity (IUPTL) is granted*

According to the Ministerial Regulation – [PERMEN \(ESDM\) no. 35/2013](#), project developers must report the activities related to their electricity supply business to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) every six months after the temporary business permit for supply of electricity (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) has been granted.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General for Electricity (DJK) – Review the report</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

*ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral);  
IUPTL: Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik);*



## Progress Report (IUPTL/S)

Description

Required Documents



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The following information / data are to be included in the progress report:

- General information regarding activities related to the electricity supply business
- Stage of the project
- Progress of the construction
- Information / data on the obtainments of license and non-license approval from the relevant authorities

*IUPTL/S: Temporary Business Permit for Supply of Electricity, (Izin Usaha Penyediaan Tenaga Listrik Sementara)*

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## (permanent) Electricity Production License (IUPTL)

Description

Required Documents

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After a power purchase agreement (PPA) has been jointly signed by the project developer and respective power utility ([Sub-step 7-3](#)), and after the financial closure of the project has been reached ([Sub-step 7-4](#)), the project developer can apply for a (permanent) Business Permit for Supply of Electricity (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*). IUPTL may be issued to become valid up to 30 years. It can be renewed as necessary. The limitation of IUPTL validity is the duration of the PPA. Project developer must secure an IUPTL before the commercial operation date (COD) of the plant ([Sub-step 9-3](#)).

An application and all supporting documents must be submitted to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*). The Ministerial Regulation – [PERMEN \(ESDM\) no. 35/2014](#) defines the processing time for IUPTL evaluation and processing of 30 working days after the application and all supporting documents have been received from the project developer.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General for Electricity (DJK) – Evaluate the application, issues the license</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

*ESDM: Ministry of Energy and Mineral Resources  
(Kementerian Energi dan Sumber daya Mineral)*



## (permanent) Electricity Production License (IUPTL)

Description	Required Documents
<ul style="list-style-type: none"> <li>Filled-out application form</li> </ul>	<ul style="list-style-type: none"> <li>Type of power plant and installed capacity (in kW or MW)</li> </ul>
<ul style="list-style-type: none"> <li>Applicant's identity (KTP; <i>Kartu Tanda Penduduk</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Construction and operational schedule</li> </ul>
<ul style="list-style-type: none"> <li>Deed of establishment</li> </ul>	<ul style="list-style-type: none"> <li>Approved electricity selling price Only when the developer want the selling price to be higher than the feed-in tariff according to the Ministerial Regulation – <a href="#">PERMEN (ESDM) no. 27/2014</a>, refer to <a href="#">Sub-step 7-2</a></li> </ul>
<ul style="list-style-type: none"> <li>Company profile</li> </ul>	<ul style="list-style-type: none"> <li>Approved Environmental Management and Monitoring (UKL-UPL; <i>Upaya Pengelolaan Lingkungan Hidup-Upaya Pemantauan Lingkungan Hidup</i>) Refer to <a href="#">Sub-step 4a-3</a></li> </ul>
<ul style="list-style-type: none"> <li>Tax registration code number (NPWP; <i>Nomor Pokok Wajib Pajak</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Principle License (<i>Izin Prinsip</i>) from local government Refer to <a href="#">Sub-step 4a-1</a></li> </ul>
<ul style="list-style-type: none"> <li>A loan agreement Refer to <a href="#">Sub-step 8-4</a></li> </ul>	<ul style="list-style-type: none"> <li>Other necessary licenses/permits Important licenses/permits are listed in <a href="#">Step 4</a></li> </ul>
<ul style="list-style-type: none"> <li>Feasibility study (FS) Refer to <a href="#">Sub-step 1-4</a></li> </ul>	<ul style="list-style-type: none"> <li>Bank report confirming that the developer has sufficient capital to carry out the project development In case the project is 100% self-financed without any bank loan</li> </ul>
<ul style="list-style-type: none"> <li>Site layout including situational map</li> </ul>	
<ul style="list-style-type: none"> <li>Single line diagram</li> </ul>	

*IUPTL: Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik)*

## Progress Report (IUPTL)

Description

Required Documents

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*This sub-step must be repeated every six months*

According to the Ministerial Regulation – [PERMEN \(ESDM\) no. 35/2013](#), project developers must report the activities related to their electricity supply business to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) every six month.

The amount of information to be reported during this stage is more detailed than during the execution of the temporary business permit for supply of electricity (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*)

### Related Authority

Central level	<ul style="list-style-type: none"><li>Directorate General for Electricity (DJK) – Review the report</li></ul>
Provincial level	<ul style="list-style-type: none"><li>(none)</li></ul>
Local level	<ul style="list-style-type: none"><li>(none)</li></ul>

*ESDM: Ministry of Energy and Mineral Resources (Kementerian Energi dan Sumber daya Mineral)*

## Progress Report (IUPTL)

Description

Required Documents



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The following information / data are to be included in the progress report:

- General information regarding activities related to the electricity supply business
- Stage of the project
- Progress of the construction
- Investment data
- Data on use of domestic products for the power plant's components
- Employment data
- Information / data on the installation of electrical equipment / devices  
Acceptance test certificates of the electrical equipment / devices are to be submitted as well.

- Electricity consumption data
- Number of consumers of the power plant
- Data on purchase and consumption of primary energy sources  
In this case, the primary energy source is biomass feedstock
- Data on power generation and sale
- Interruption of operation within the period to be reported (if any)
- Information on the implementation of environmental management and monitoring
- Conduction of the corporate social responsibility (CSR)



Performance guarantee (1<sup>st</sup>)

8-2

IUPTL/S

6a-1

# Step 7 | Power Purchase Agreement

7-1

Negotiate the selling price with PLN

In case the selling price is more than FIT

Selling price approval

7-2

30 days (max.)

PPA signing

7-3

- Conditional sub-step to be done once
- Passive conditional sub-step (the developer does not play active roles here)
- Mandatory sub-step to be done once

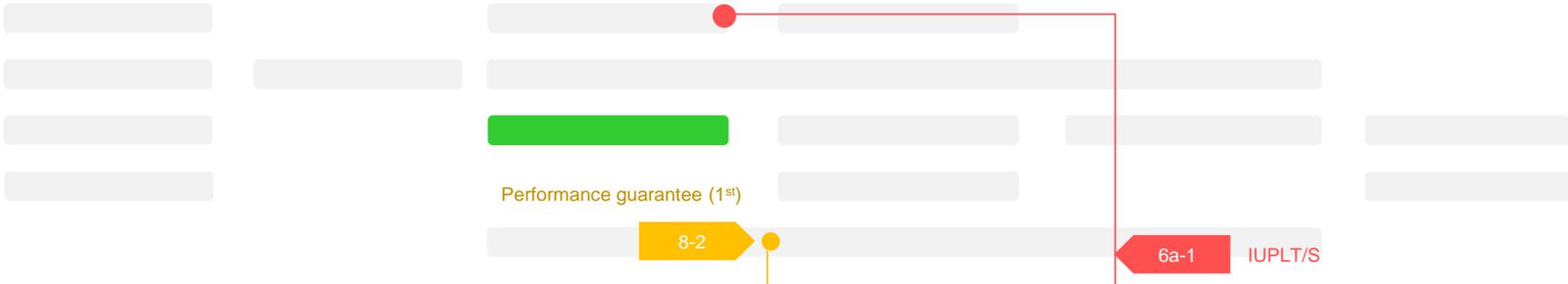
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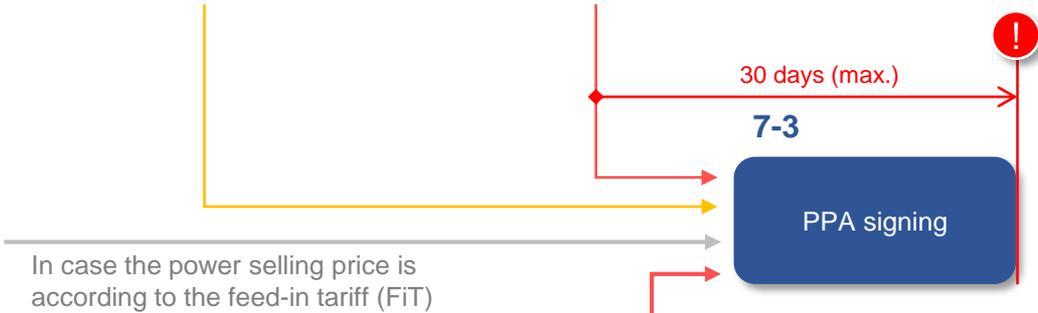
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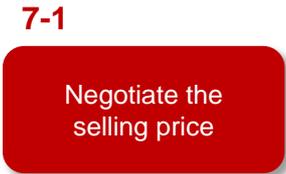
# Step 7 | Power Purchase Agreement

- Conditional sub-step to be done once
- Passive conditional sub-step (the developer does not play active roles here)
- Mandatory sub-step to be done once



In case the power selling price is according to the feed-in tariff (FiT)

When project developer wants a selling price to be higher than the FiT



# Step 7 | Power Purchase Agreement

## Step Description

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A power purchase agreement (PPA or PJBL; *Perjanjian Jual Beli Tenaga Listrik*) is a contract made between a project developer and power utility, governing the framework of selling/buying of electricity (i.e. the price, terms, and conditions, etc.) The Power Purchase Agreement step explains the required procedure to have a PPA being signed for biomass/biogas project development.

In October 2014, a new regulation governing biomass/biogas power project development in Indonesia was issued (Ministerial Regulations – [PERMEN \(ESDM\) no. 27/2014](#)). In the regulation, higher feed-in tariff was also introduced. The new regulation considerably increases the role of the Directorate General of New and Renewable Energy and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*). PLN is still involved in the process by reviewing feasibility study (FS) and interconnection study submitted by project developers.

It is still possible in case a project developer wants to sell electricity at a higher price than what is regulated by the feed-in tariff. In such cases, negotiations with PLN must be conducted. The final tariff must be approved by the Ministry of Energy and Mineral Resources (ESDM; *Kementerian Energi dan Sumber daya Mineral*).

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# Step 7 | Power Purchase Agreement

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Regulation No.	Name
<b>Law</b> UU no. 30/2009	Electricity <i>(Ketenagalistrikan)</i>
<b>Governmental Regulation</b> PP no. 23/2014	Amendment to Governmental Regulation No. 14 Year 2012 on Electrical Power Business <i>(Perubahan atas Peraturan Pemerintah Nomor 14 Tahun 2012 tentang Kegiatan Usaha Penyediaan Tenaga Listrik)</i>
<b>Governmental Regulation</b> PP no. 14/2012	Electrical Power Business <i>(Kegiatan Usaha Penyediaan Tenaga Listrik)</i>
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) <i>(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))</i>
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 4/2012	Power purchase price by PT PLN (Persero) from small and medium-scale renewable energy power plant or purchase of excess power <i>(Harga Pembelian Tenaga Listrik oleh PT PLN (Persero) dari Pembangkit Tenaga Listrik yang Menggunakan Energi Terbarukan Skala Kecil dan Menengah atau Kelebihan Tenaga Listrik)</i>

ESDM: Ministry of Energy and Mineral Resource (Kementerian Energi dan Sumber daya Mineral)

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# Step 7 | Power Purchase Agreement

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#### Penalty of late PPA signing

The new Ministerial Regulation – PERMEN (ESDM) no. 27/2014 introduces a strict timeframe for power purchase agreement (PPA) signing. Any delay will result in severe penalties. However, the delay can be caused by either the developer or PLN. As the penalty is imposed only on the developer's side, the developer will likely want to sign the PPA as soon as possible. However, the new regulation does not apply any mechanisms to accelerate the signing from PLN's side.

In case PLN delays the PPA signing, the developer may face a penalty if he/she does not communicate the situation clearly to the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE, *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*)

The EBTKE is the body that imposes the penalty on the developer in case of a delay. It is crucially important that the developer must maintain close communication with the EBTKE. The progress of a PPA signing must always be informed to the EBTKE. In case there is some tendency of delay in PPA signing caused by PLN, the developer must notify the EBTKE immediately. This is to shield him/herself from a penalty.

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## Negotiate the selling price

Description

This sub-step is conditional and only to be done in case the project developer wants to obtain a higher power selling price than the feed-in tariff

If the project developer, based on his/her financial model, believes the feed-in tariff according to the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) is still too low for the economic viability of the project, he/she may negotiate with PLN for a higher tariff.

Increasing the power selling price beyond the feed-in tariff is possible under the current regulatory framework. However, negotiations can be lengthy and difficult. The developer must be clear on his/her point as to why the feed-in tariff is not sufficient. The facts must be well prepared and presented clearly to PLN. In some areas, PLN has strong needs to diversify its power mix and provide electricity to remote areas, especially in the eastern part of Indonesia. In these locations, there is a high likelihood that project developers can successfully negotiate a higher selling price than the feed-in tariff. The final decision on whether or not the higher selling price is acceptable will be made by PLN headquarters. Nevertheless, the developer must discuss with the regional PLN office as they are the one who give recommendations to PLN headquarters.

In case PLN agrees with the new selling price proposed by the developer, the new price must be submitted to the Ministry of Energy and Mineral Resources (ESDM; *Energi dan Sumber Daya Mineral*) for approval ([Sub-step 7-2](#)).

### Related Authority

Central level	<ul style="list-style-type: none"> <li>PLN headquarter (Renewable Energy Division) – Provide final approval</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>PLN local office – Negotiate with the developer regarding the increase of power selling price</li> </ul>
Local level	

## Selling price approval

### Description

This sub-step is conditional and only to be done in case the project developer wants to obtain a higher power selling price than the feed-in tariff

Upon the successful price negotiation with PLN ([Sub-step 7-1](#)), approval from Ministry of Energy and Mineral Resource (ESDM; *Energi dan Sumber daya Mineral*) must be secured. The respective regional PLN office must submit a request for a new selling price to the ESDM along, with all supporting documents for the final approval.

### Related Authority

Central level	<ul style="list-style-type: none"><li>Ministry of Energy and Mineral Resource (ESDM) – Approve the new (higher) selling price</li><li>PLN headquarter (Renewable Energy Division) – Propose the new selling price to ESDM</li></ul>
Provincial level	<ul style="list-style-type: none"><li>(none)</li></ul>
Local level	

## PPA Signing

Description	Required Documents	Penalty
-------------	--------------------	---------

A Power Purchase Agreement (PPA or PJBL; *Perjanjian Jual Beli Tenaga Listrik*) is an agreement between the project developer and PLN, power utility, governing electricity purchasing and selling, including relevant terms and conditions between both parties.

The new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) defines the duration of PPA as 20 years. Previously, the duration must be negotiated case-by-case with PLN. The PPA must be signed within 30 days after a temporary business permit for supply of electricity (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) is issued ([Sub-step 6a-1](#)). Proof of 5% Deposit and 2% of 1st performance guarantee must be presented before a PPA can be signed ([Sub-step 8-1](#) and [Sub-step 8-2](#))

If the project is to be characterised as a “**load follower**” biomass/biogas power plant, the developer must ensure that this is stated in the PPA. The agreement of Load follower technology usage will be written in the PPA and will eventually determine the feed-in tariff applicable to the developer.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>The respective regional PLN office – sign the PPA</li> </ul>
Local level	

## PPA Signing

Description	Required Documents	Penalty
<b>A   Documents from project developer</b>		<b>B   Documents from PLN</b>
<ul style="list-style-type: none"><li>▪ Biomass/biogas power producer appointment Refer to <a href="#">Sub-step 5a-2</a></li></ul>		<ul style="list-style-type: none"><li>▪ A principle license PLN Headquarter signed by the board of director Only in the case that PPA contract is valued over IDR 100-150 million (~ USD 8,000 – 12,000)</li></ul>
<ul style="list-style-type: none"><li>▪ Temporary Business Permit for Supply of Electricity (IUPTL/S) Refer to <a href="#">Sub-step 6a-1</a></li></ul>		
<ul style="list-style-type: none"><li>▪ Certificate of deposit from bank showing that at least 5% of the investment costs is available, refer to <a href="#">Sub-step 8-1</a></li></ul>		
<ul style="list-style-type: none"><li>▪ 1<sup>st</sup> performance guarantee 2% of first year total transaction value, refer to <a href="#">Sub-step 8-2</a></li></ul>		
<ul style="list-style-type: none"><li>▪ All necessary permits or licenses from the government Refer to <a href="#">Step 4</a> for the list of important licenses or permits to be obtained</li></ul>		

*IUPTL/S: Temporary Business Permit for Supply of Electricity (Izin Usaha Penyediaan Tenaga Listrik Sementara)*

## PPA Signing

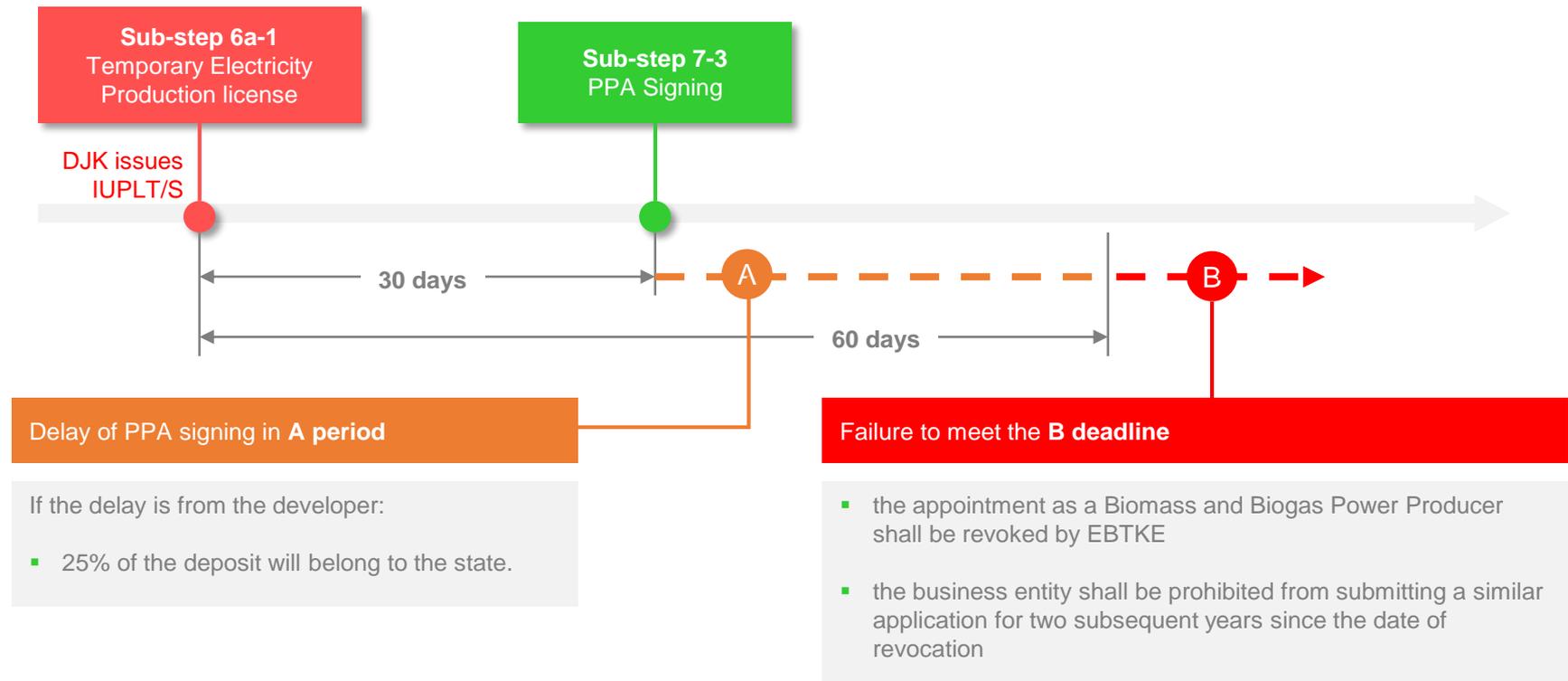
Description

Required Documents

Penalty

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In case the PPA is not signed within 30 days after the Temporary Business Permit for Supply of Electricity (IUPTL/S; *Izin Usaha Penyediaan Tenaga Listrik Sementara*) has been issued by the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*), the developer will face penalty. If the PPA has not been signed 60 days after the IUPTL/S is issued, the “biomass/biogas power producer” appointment will be revoked. In addition, the developer will be banned for two years from any biomass/biogas power project development in Indonesia.



5a-2

EBTKE's appointment of biomass/biogas power producer

PPA Signing

7-3

6b-3 IUPTL

COD

10-3

# Step 8 | Financing

Financial Closure

8-1

30 days (max.)



5% deposit

8-4

Loan application

Loan evaluation / approval

8-5

Financial closure

8-6

12 months (max.)



(1st)

8-2

8-2

(2nd)

Performance Guarantee

Use of the deposit

8-6



- Mandatory sub-step to be done once
- Passive sub-step (the developer does not play active roles here)
- Mandatory sub-step to be repeated on regular basis

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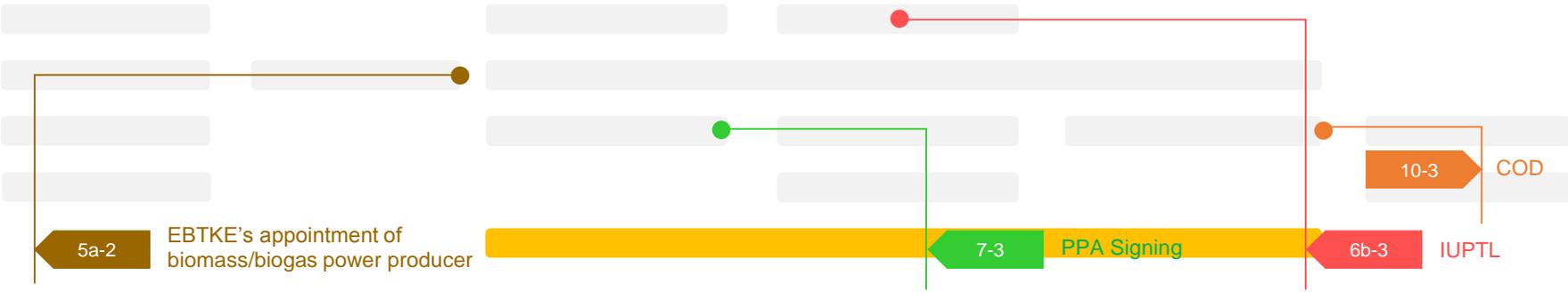
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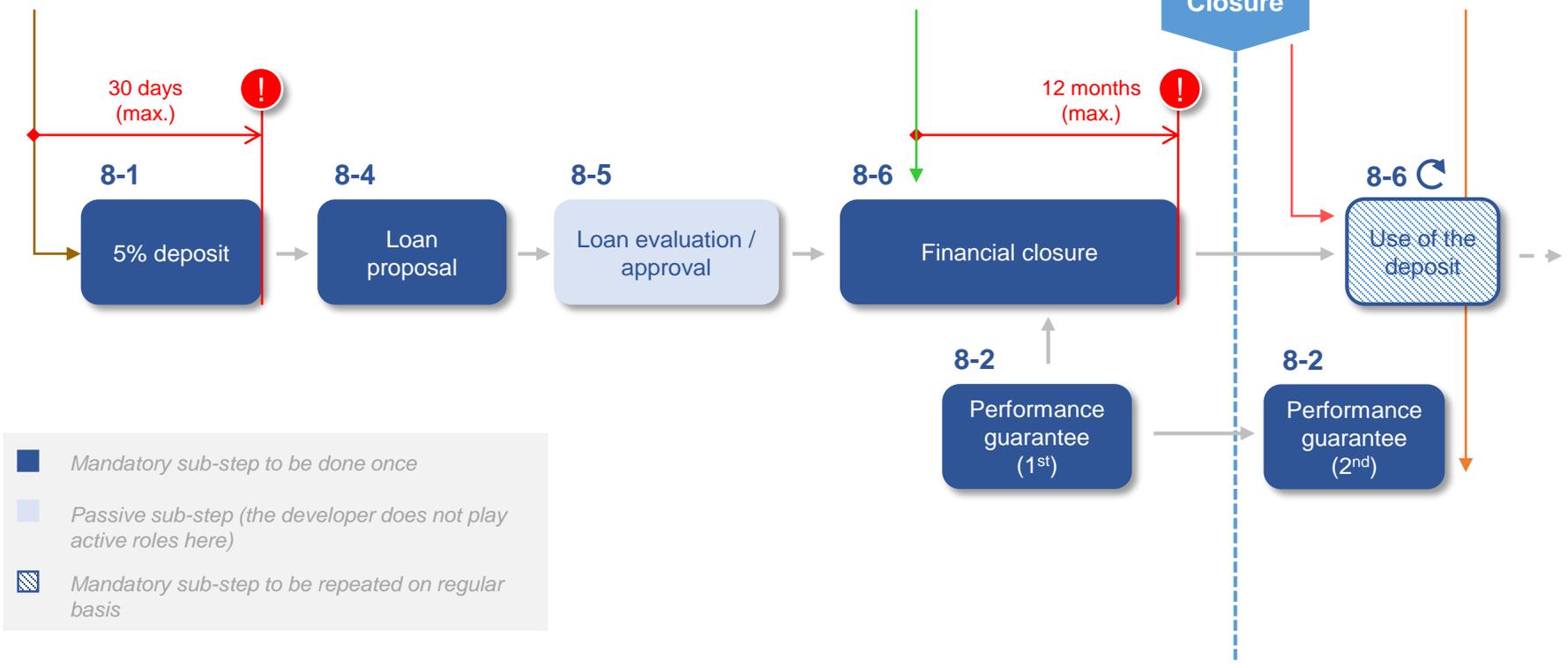


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# Step 8 | Financing



# Step 8 | Financing

## Step Description

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Development of a biomass/biogas power plant requires a considerable amount of capital investment. The developer must secure an external source of financing from a bank or financial institution. The financial sector in Indonesia is still rather new in financing a large RE project. They do not have significant experience and a proven track record on RE projects. Risks in RE project development as perceived by the banks can be high. Thus strict requirements on document submission, high interest rates, and requirement of collateral may apply.

Financing of a biomass/biogas project was not regulated in the past. It was up to the project developers to deal with the bank directly. However, the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) set a framework on biomass/biogas power project financing. It requires a dedicated bank account to be opened and 5% of the total investment cost. This is to ensure that the developer is truly committed to the project realisation. A strict timeframe for certain milestones has also been defined. Delays in reaching these milestones can lead to severe penalties being imposed on the developer (e.g. confiscation of 5% deposit, revocation of biomass/biogas power producer appointment, etc.)

The **Financing** step explains the typical procedure in securing financing or necessary financial documents from a bank. First, the developer must open a dedicated bank account and make 5% of estimated total investment available in the account ([Sub-step 8-1](#)). The deposit certificate must be presented to the Directorate General of New and Renewable Energy and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) within 30 days after the developer has been appointed as a biomass/biogas power producer ([Sub-step 5a-2](#)). This requirement has been introduced by the new regulation. Delay in the deposit certificate submission will result in a penalty. Other than the 5% deposit certificate required by the EBTKE, the project developer should also provide performance guarantees required by PLN ([Sub-step 8-2](#)).

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# Step 8 | Financing

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In parallel, the developer must apply for a loan from bank(s) ([Sub-step 8-2](#)). Based on the loan application filed by the developer, bank performs due diligence, assesses risks in the project development. After its credit committee approves the loan, the bank prepares a loan agreement including the terms and conditions (T&C) to be signed ([Sub-step 8-4](#)).

In case the developer agrees with the loan agreement and its T&C, he/she signs the agreement (it will be counter signed by the bank) Additional documents must also be provided to satisfy all conditions and requirements as specified in the loan agreement. This is when a financial closure is reached ([Sub-step 8-5](#)), meaning that the loan is now enabled for the project development. According to the new regulation, the financial closure must be reached within 12 months after the PPA signing ([Sub-step 7-3](#)). Severe penalty will be imposed on the developer if the financial closure has not been reached within the specified timeframe.

After a business permit for supply of electricity (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*) is granted ([Sub-step 6b-3](#)), the developer can start to utilise the dedicated bank account (5% of total investment) for project development ([Sub-step 8-6](#)). An approval from the EBTKE is required for every withdrawal from this bank account.



### Who can be a financier / investor for my project?

The ASEAN RE Business Directory was launched in 2014 as a part of ASEAN Renewables information portal (ARES). It serves as a reference of RE-related businesses in all ten ASEAN member states, covering equipment suppliers, engineering consultant, to financial institutions or investment firms.

Project developer can use the business directory in searching for financial institution or investment firms in Indonesia. Any companies or businesses listed in the directory are neither endorsed, approved, nor certified by Renewable Energy Support Programme for ASEAN (ASEAN-RESP), ASEAN Centre for Energy (ACE), or Deutsche Gesellschaft für Internationale Zusammenarbeits (GIZ)

<http://aseanrenewables.info/business-directory/>

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# Step 8 | Financing

## Related Regulation

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Regulation No.

Name

**Ministerial Regulation (ESDM)**  
PERMEN (ESDM) no. 27/2014

The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero)  
*(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))*

*ESDM: Ministry of Energy and Mineral Resource (Kementerian Energi dan Sumber daya Mineral)*

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# Step 8 | Financing

## Identified Challenges

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Challenges	Details	Recommendations
<b>Differing procedures</b>	<p>Although the new Ministerial Regulation – <a href="#">PERMEN (ESDM) no. 27/2014</a> defines some framework on biomass/biogas power project financing, there is no specific law or regulation governing the exact procedure in RE project financing. Each bank develops their own procedure for a loan application. Different banks may ask for different types of required documents.</p>	-
<b>Lack of experience with RE projects</b>	<p>Local banks may not have much experience in financing RE projects. They may perceive an RE project as high risk and thus set relatively high interest rates, short loan tenure, stringent requirements on collateral, etc.</p> <p>This challenge is even more critical for new project developers who possess a relatively small portfolio of reference projects and lack of strong track record.</p>	-

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# Step 8 | Financing

## Identified Challenges

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### Challenges

### Details

### Recommendations

#### Bankability of PPA

Typically, when a signed power purchase agreement (PPA) is obtained, the bank perceives this as a crucial milestone implying a high chance that the project will be eventually realised. Unfortunately, this is not yet the case in Indonesia. A signed PPA has not yet bankable. It does not really build up the confidence of the bank and does not carry much weight in the bank's decision to approve/reject the loan.

The developer must be aware of this bank's perspective. He/she must not assume that a signed PPA can ease a loan approval by the bank. It is necessary that the developer spends time and effort in providing other supporting information and documents to build up the bank's confidence in the project.

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## 5% Deposit

### Description

### Penalty

The project developer must open a dedicated bank account for the purpose of biomass/biogas power producer appointment. He/she must deposit 5% of the total investment cost in the bank account. Then, a deposit certificate must be issued by the bank. The certificate must then be submitted to the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) after the “biomass/biogas power producer” status is granted.

The new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) introduces the requirement of this bank account in order to ensure the developer’s commitment. It also requests the developer to submit the deposit certificate to the EBTKE within 30 days after he/she has been appointed a biomass/biogas power producer ([Sub-step 5a-2](#)). It is paramount that the developer meet this deadline. Severe penalties will be imposed in case of delay in the certificate submission.

The initial deposit must be kept in the bank account. It cannot be withdrawn until a Business Permit for Supply of Electricity (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*) is granted to the developer ([Sub-step 6b-3](#)). After obtaining the IUPTL, the developer can gradually use the deposit for the physical construction of the power plant, and the EBTKE must provide approval for every withdrawal ([Sub-step 8-6](#)).

### Related Authority

Central level	<ul style="list-style-type: none"> <li>Directorate General of New and Renewable Energy and Energy Conservation (EBTKE) – Receive the deposit certificate</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

## 5% Deposit

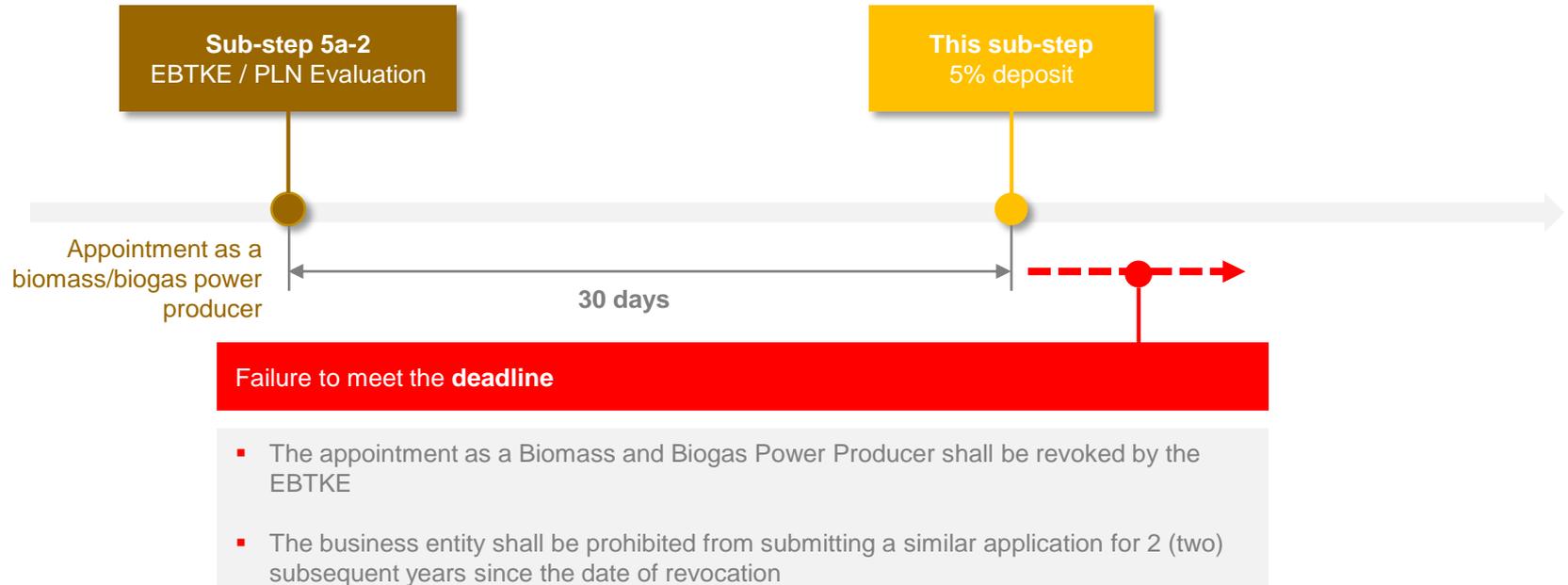
Description

Penalty



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The project developer must submit the deposit certificate of 5% to EBTKE within 30 working days after he/she is appointed a “biomass/biogas power producer”. Failure to submit the deposit certificate on time will result in severe penalties.



# Performance Guarantee

Description	Penalty
-------------	---------

Other than the 5% deposit certificate that is required by the EBTKE, the project developer must also provide performance guarantees required by PLN. Once a PPA is signed, project developers have to issue a performance guarantee (1<sup>st</sup> performance guarantee) in the form of a bank guarantee set at 2% of the total transaction value over a one year period based on the submitted electricity production plan. This performance guarantee should be valid until one month after financial closure.

Following financial closure of the project, PLN requires a 2<sup>nd</sup> performance guarantee to be issued by the project developer. This time the value is set at 5% of the total transaction value over a one year period based on the submitted electricity production plan. The 2<sup>nd</sup> performance guarantee must be valid until one month after the COD. The two performance guarantees will be returned to the project developer once they have reached their intended validity period.

## Related Authority

Central level	<ul style="list-style-type: none"> <li>PLN Headquarter – Receive the deposit certificate</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>(none)</li> </ul>

# Loan Application

## Description

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As capital investment in a biomass/biogas power plant is high, external financing is usually required. The developer must decide on the financial structure of the project (share of debt / equity). It is important that some equity portion is necessary to show the developer's / project sponsor's commitment in realising the project. The remaining capital requirement can be obtained through external sources (e.g. grant from development banks, loans from commercial banks etc.)

This sub-step describes the typical procedure in applying for a commercial loan. It must be noted that different banks apply different procedures and requirements. The developer must approach many banks to check the financial facility available. Then, he/she must enter into a discussion or negotiation with banks to have a common understanding on the projects and banks' perspective. The developer decides or short lists the potential bankers that can serve as a project lender. A concrete business plan must be prepared and presented to the bank.

It is important that the developer build up bank's confidence on the project. The following are key recommendations that should be incorporated in the business plan proposed to the bank.

- Partnership is established between the developer and local partners (Indonesians);
- Sufficient equity is contributed by the developer and project sponsors for the project development. Usually, the equity portion should not be less than 30%;
- An experienced EPC contractor is contracted (or will be contracted) for power plant construction and installation of equipment
- Reliable supply of biomass feedstock has already been secured or planned;
- Etc.

## Loan Evaluation / Approval

Description

This sub-step is mainly to be conducted by the banks. The developer only clarifies some issue with the bank (if necessary).

After a business plan is submitted / presented by project developer, the bank will conduct an internal evaluation to assess feasibility, conduct due diligence, and assess risks associated in each step of the project development. How it is evaluated and the exact criteria used in the evaluation are highly dependent on the bank's policy and its internal procedures.

The evaluation by a bank can take roughly 2-3 months. During the evaluation, the developer may have to clarify some points with the bank upon request. In case the bank agrees to finance the biomass/biogas power project, it prepares a loan agreement which includes the terms and conditions (T&C). The developer must then decide if the loan agreement, including the T&C, is acceptable.

# Financial Closure

Description

Required Documents

Penalty

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A project reaches its “**financial closure**” when all agreements have been concluded between the bank and the developer (e.g. loan agreement, guarantee agreement [if applicable] etc.) and when all terms and conditions specified in the loan agreement have been satisfied (i.e. certain licenses / permits are obtained, provision of collaterals etc.). Financial closure enables the loan to be withdrawn and utilised for the development and construction of the biomass/biogas power plant.

The developer will sign a loan agreement with the bank. The agreement is then counter signed by the bank. Additionally, some documents must also be provided at this stage (according to what have been specified in the loan agreement). According to the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#), the financial closure must be reached within 12 months after the power purchase agreement (PPA) signing ([Sub-step 7-3](#)). Severe penalty will be imposed on the developer if financial closure has not been reached within the specified timeframe. This includes the revocation of the biomass/biogas power producer appointment and a sanction on future biomass/biogas project development.

# Financial Closure

Description

Required Documents

Penalty

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&gt;

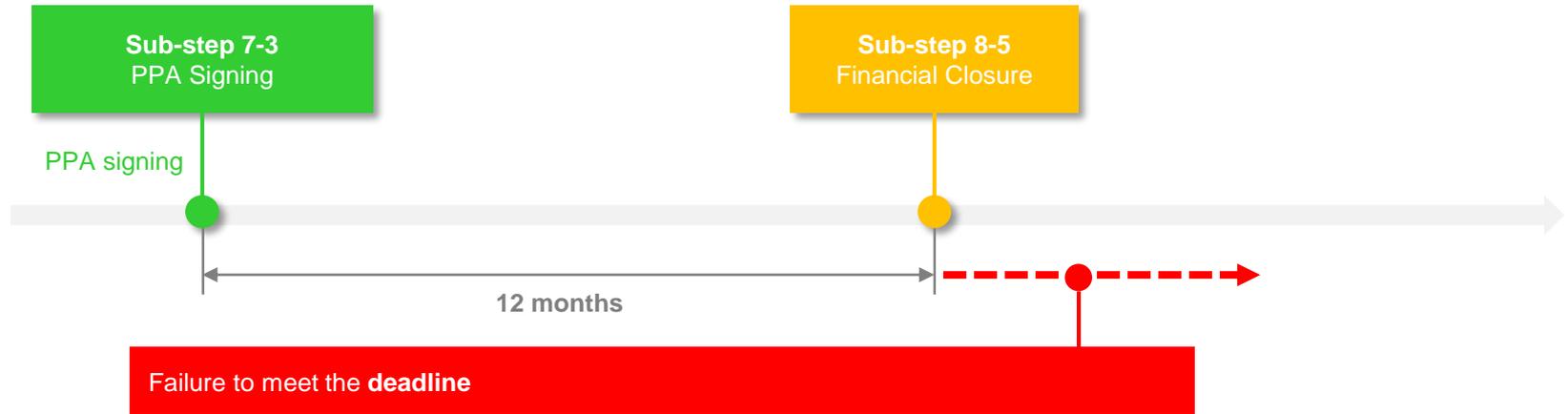
The exact list of required documents in this sub-step may vary, depending on the requirement of the loan agreement. The following are typical documents that must be submitted during this sub-step:

- Signed loan agreement  
Refer to [Sub-step 8-4](#)
- 2<sup>nd</sup> performance guarantee  
Refer to [Sub-step 8-2](#)
- All necessary licenses/permits  
Usually, the list of necessary licenses / permits that must be provided is specified in the loan agreement. Important licenses/permits are listed in [Step 3](#)

# Financial Closure

Description	Required Documents	Penalty
-------------	--------------------	---------

The project developer must reach financial closure with the bank within 12 months after the PPA is signed. Failure to reach the financial closure in time will result in the revocation of the “biomass/biogas power producer” appointment and the developer will be sanctioned for development of biomass/biogas project for two years. 50% of the deposit ([Sub-step 8-1](#)) will also be confiscated by the government. Following financial closure of the project, PLN requires a 2nd performance guarantee to be issued by project developers ([Sub-step 8-2](#)).



**Failure to meet the deadline**

- the appointment as a Biomass and Biogas Power Producer shall be revoked by the Director General of EBTKE
- the business entity shall be prohibited from submitting a similar application for two subsequent years since the date of revocation
- A total of 50% (fifty percent) of the deposit shall belong to the state.

# Use of the Deposit

## Description

After a Business Permit for Supply of Electricity (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*) is granted to the project developer, he/she is allowed to use the 5% deposit ([Sub-step 8-1](#)) for the purpose of the physical construction of the power plant. The use of funds must be approved by the EBTKE. The developer must submit the proposal of the deposit utilisation to the EBTKE, along with proof of financial closure.

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## Related Authority

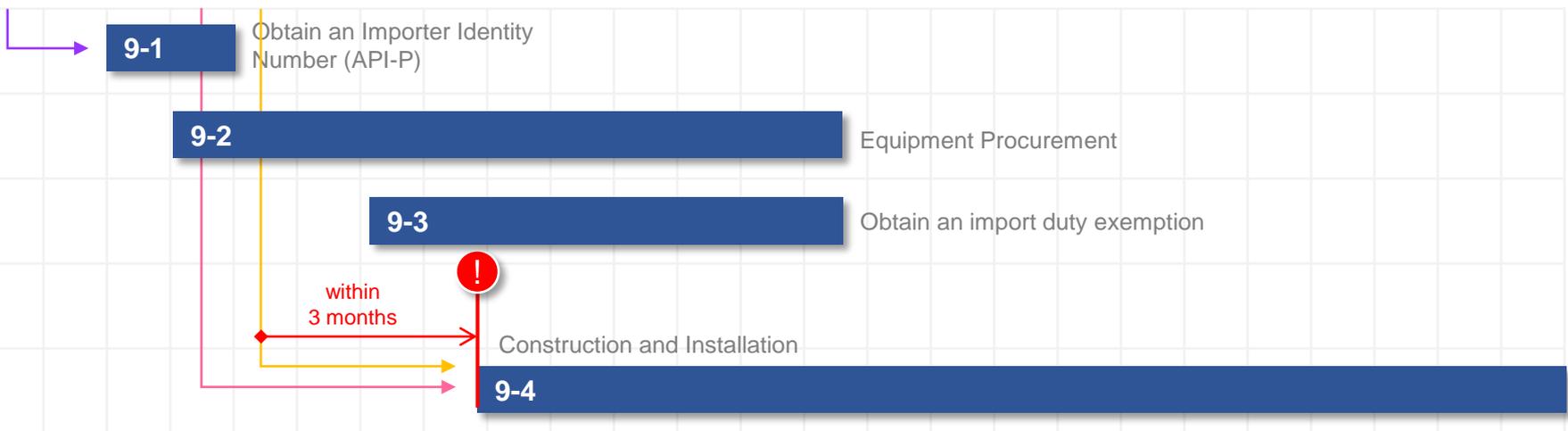
Central level	<ul style="list-style-type: none"><li>Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE) – Approve the deposit withdrawal</li></ul>
Provincial level	<ul style="list-style-type: none"><li>(none)</li></ul>
Local level	<ul style="list-style-type: none"><li>(none)</li></ul>

3a-1  
Principle License for Investment

4b-7 IMB

8-5 Financial Closure

# Step 9 | Procurement and Construction



API-P: Importer identity number (Angka Pengenal Importir-Produsen); IMB: Building permit (Izin Mendirikan Bangunan)

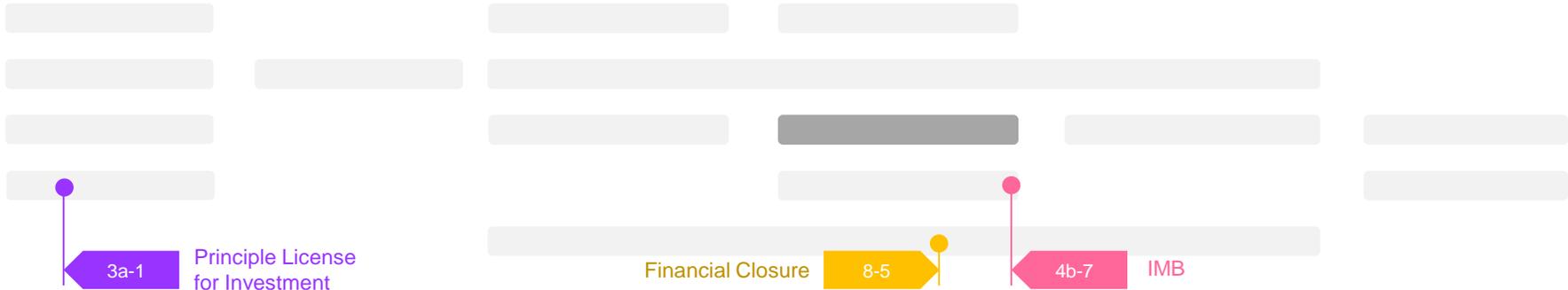
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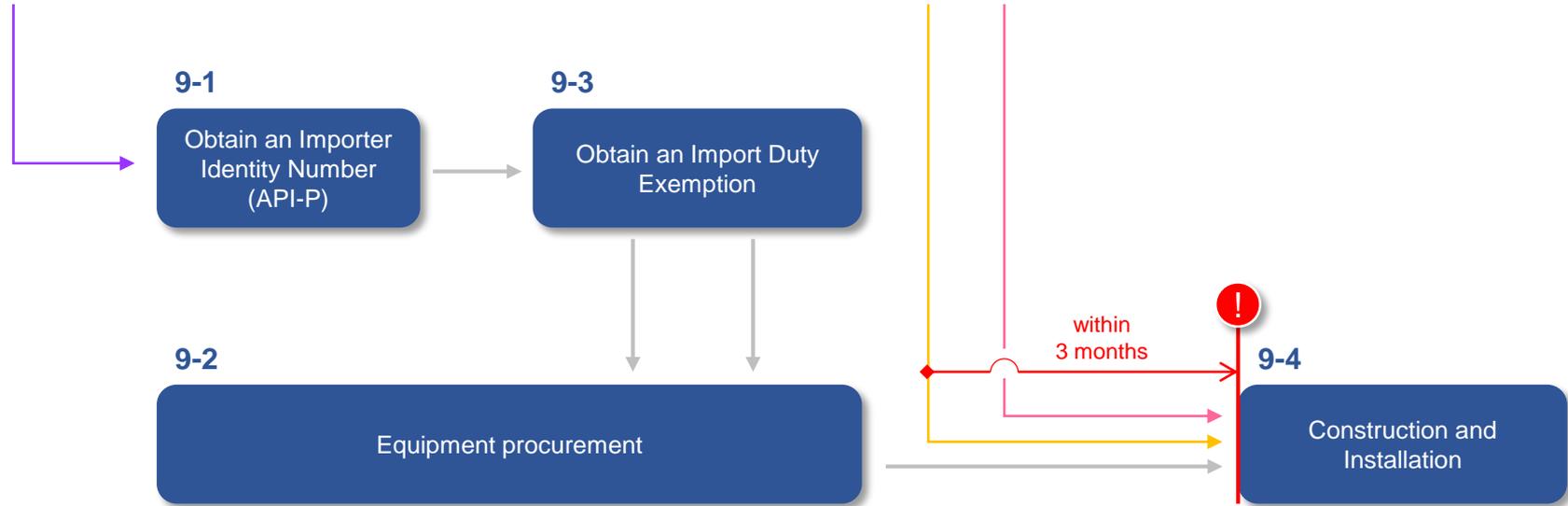
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# Step 9 | Procurement and Construction



API-P: Importer identity number (Angka Pengenal Importir-Produsen); IMB: Building permit (Izin Mendirikan Bangunan)

# Step 9 | Procurement and Construction

## Step Description

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From the perspective of a project developer, the **Procurement and Construction** step is the most important phase (and sometimes the most risky) of the project development cycle. It is when the biomass/biogas power plant is actually built and the majority of the investment capital is going to be spent.

Typically, there are three main activities involved in the construction of a power plant: (1) design and engineering (i.e. front-end engineering design or FEED, basic engineering, and detailed engineering), (2) procurement of necessary equipment / devices, and (3) physical construction and installation. There are many approaches and contractual framework that can be implemented during construction (See box).

Detailed engineering must be performed based on the feasibility study (FS) or any basic engineering performed earlier. Necessary drawings, design, bill of materials (BOM), and other technical documents are prepared with sufficient details for the construction. A list of equipment is part of the detailed engineering. Technical specifications and data sheets of each equipment are also generated. They form a technical inquiry which is a basis for the procurement process ([Sub-step 9-2](#)). The procurement usually takes place after the financial closure of the project<sup>1</sup> ([Sub-step 8-5](#)). Some equipment or devices can be procured domestically, while others must be imported from foreign countries as they cannot be manufactured domestically (or they can be produced domestically but usually not in sufficient quantity).

Therefore, the developer must arrange for the importation of machinery/equipment. An importer identity number (API-P; *Angka Pengenal Importir-Produsen*) must be obtained from the Investment Coordination Board of the Republic of Indonesia (BKPM; *Badan Koordinasi Penanaman Modal Republik Indonesia*) ([Sub-step 9-1](#)). This application can be done immediately after a principle license for investment is granted by the BKPM ([Sub-step 3a-1](#)).

*Note 1: However, not mandatory in case the developer or his/her company has strong balance sheet, it can start the equipment procurement right away*

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# Step 9 | Procurement and Construction

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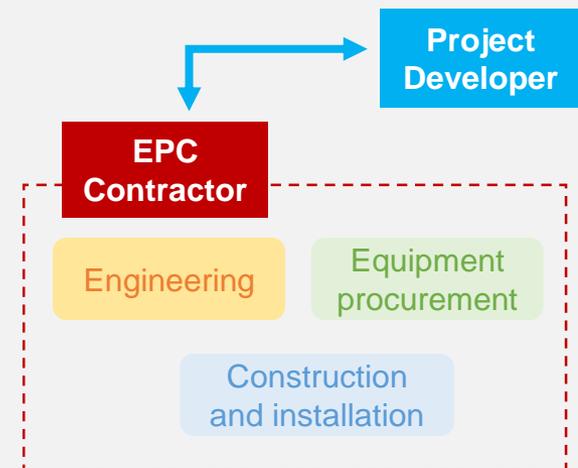


The Ministerial Regulations – [PERMEN \(Finance\) no. 21/PMK.011/2010](#) provides import duty exemption incentive for RE projects. The developer can enable this incentive during the importation ([Sub-step 9-2](#))

Physical construction of a power plant can commence ([Sub-step 9-4](#)). A building permit (IMB; *Izin Mendirikan Bangunan*) ([Sub-step 4b-7](#)) however is required before physical construction can begin. The new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#) defines a strict timeframe for the physical construction. Within 3 months after the financial closure is reached, the physical construction must commence. Failure to meet this deadline will result in a severe penalty.

## EPC Contracting Approach

An engineering, procurement, and construction (EPC) contract may be applied for the project. From the developer's or investor's perspective, this approach simplifies the management of construction phase considerably. An EPC contractor is responsible for design, engineering, equipment procurement until the physical construction of the power plant. Additionally, a scope of the power plant commissioning is sometime added under the EPC responsibility as well. In this case, the developer is responsible on high-level steering (i.e. checking the progress with respect to certain critical milestones etc.) In contrast, the EPC contractor takes most of the risks (e.g. delay of equipment suppliers, damage during transportation of equipment etc.) For the developer who do not has sufficient experience or manpower to handle the construction, this EPC approach is suitable. However, the outcome of the construction very much depends on the EPC contractor's capability and reliability. It is very important that the right contractor be chosen from the outset. In addition, as most of the risk is taken by the EPC contractor, they expect a high return as well to compensate for the risk they are taking. Thus, the total contracting cost is usually high.



# Step 9 | Procurement and Construction

## Step Description

Description

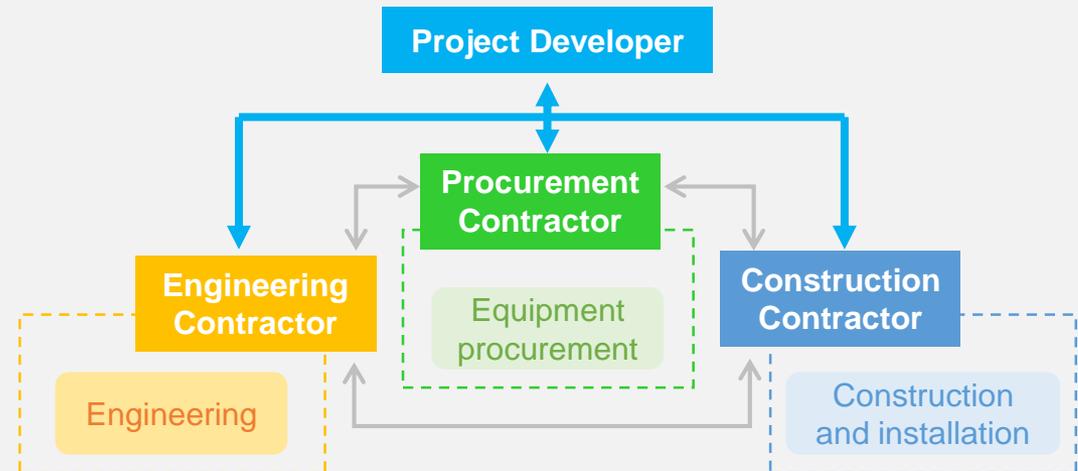
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### Separate E/P/C Contracting Approach

Alternatively, it is possible to split the engineering, construction, and procurement from others. In this case, the developer must invest more effort and time in steering a larger number of relevant stakeholders. It is also important that the developer possess sufficient expertise, experience, and manpower to do so. Nevertheless, splitting the contract has a cost saving potential as some risks are absorbed by the developer himself/herself. Therefore, the profit margin of each relevant stakeholder can be reduced as they take less risk.



### Who can build my power plant?

The ASEAN RE Business Directory was launched in 2014 as part of ASEAN Renewables information portal (ARES). It serves as a reference of RE-related businesses in all ten ASEAN member states, covering equipment suppliers, engineering consultant, to financial institutions or investment firms.

A project developer can use the business directory in searching for a potential engineering consultant, EPC contractor, equipment suppliers in Indonesia. Any companies or businesses listed in the directory are neither endorsed, approved, nor certified by Renewable Energy Support Programme for ASEAN (ASEAN-RESP), ASEAN Centre for Energy (ACE), or Deutsche Gesellschaft für Internationale Zusammenarbeits (GIZ)

<http://aseanrenewables.info/business-directory/>

# Step 9 | Procurement and Construction

## Related Regulations

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Regulation No.	Name
<b>Governmental Regulation</b> PP no. 59/2010	Amendment of PP No. 29/2000 <i>(Perubahan atas Peraturan Pemerintah Nomor 29 Tahun 2000)</i> PP No. 29/2000 amends some articles of PP No. 29/2000
<b>Governmental Regulation</b> PP no. 29/2000	Implementation of Construction Services <i>(Penyelenggaraan jasa Konstruksi)</i> Some articles of PP No. 29/2000 are amended by PP No. 59/2010. Other articles remain in effect.
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) <i>(Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero))</i>
<b>Ministerial Regulation (Industry)</b> PERMEN (Industry) no. 54/M-IND/PER/3/2012	Guideline for Use of Domestic Goods/Products in Electricity Infrastructure Project Development <i>(Pedoman Penggunaan Produk dalam Negeri untuk Pembangunan Infrastruktur Ketenagalistrikan)</i>
<b>Ministerial Regulation (Finance)</b> PERMEN (Finance) no. 21/PMK.011/2010	Regulation of tax and customs facility for renewable energy resources utilisation activities <i>(Pemberian Fasilitas Perpajakan dan Kepabeanan untuk Kegiatan Pemanfaatan Sumber Energi Terbarukan)</i>

ESDM: Ministry of Energy and Mineral Resource (Kementerian Energi dan Sumber daya Mineral)

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# Step 9 | Procurement and Construction

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### Challenges

### Details

### Recommendations

#### Import duty exemption

Obtaining an import duty exemption can be time-consuming and complex. For example, if the project developer makes any mistake in the import master list, the entire equipment import process can experience considerable delays.

Project developers may contract a logistic consultant to help with equipment import and import duty exemption. Alternatively, the developer can enter into an engineering, procurement, and construction (EPC) contract so that equipment imports and all duty clearance are included in the EPC contractor's scope.

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# Importer Identity Number (API-P)

Description

Required Documents

Page 1/2 &gt;

The project developer must obtain an Importer Identity Number (API-P; *Angka Pengenal Importir-Produsen*) to import goods into Indonesia. The imported goods must be used only by the company itself as capital goods, raw materials, auxiliary materials, and/or materials to support the production process. They cannot be sold to other parties.

The API-P application can be done through a one-stop window service at the Indonesia Investment Coordinating Board (BKPM; *Badan Koordinasi Penanaman Modal Republik Indonesia*). It must be issued under the name of the special purpose company (SPC) of the developer.

Application for an API-P can take place after a principle license for investment is granted by the BKPM ([Sub-step 3a-1](#)).

## Related Authority

Central level	<ul style="list-style-type: none"><li>Indonesia Investment Coordinating Board (BKPM)</li></ul>
Provincial level	<ul style="list-style-type: none"><li>(none)</li></ul>
Local level	<ul style="list-style-type: none"><li>(none)</li></ul>

# Importer Identity Number (API-P)

Description

Required Documents

&lt;

Page 2/2

- Filled-out application form for importer general identification number (*Permohonan untuk mendapatkan angka pengenal importer umum*)
- Deed of establishment  
The deed must have already been approved by Ministry of Laws and Human Rights (*Kementerian Hukum dan Hak Asasi Manusia*)
- Principle License for investment  
Refer to [Sub-step 6a-1](#)
- Domicile of corporation
- Tax registration code number (NPWP; *Nomor Pokok Wajib Pajak*)
- Company registration (TDP; *Tanda Daftar Perusahaan*)
- Photos of director and board of directors
- Expatriate employment permit (IMTA; *Izin Mempekerjakan Tenaga Kerja Asing*)  
In case foreigners are to be employed by the special purpose company (SPC) of the developer
- Reference from foreign banks  
This document to be submitted only if it is applicable
- Power of attorney from directors  
In case the signatory of API-P is not from the director
- Power of attorney for application submission  
In case the submission of documents is not done directly by the director

API-P: Importer Identity Number (*Angka Pengenal Importir-Produsen*)

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# Engineering / Equipment Procurement

## Description

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Detailed engineering is an important aspect of biomass/biogas power plant project development. This usually goes in-line with the procurement of equipment. Some preliminary studies have been performed during the early phase of project development (i.e. feasibility study or, in some cases, a front-end engineering design and/or basic engineering). They need to be enhanced, verified, and supplemented with additional content during the detailed engineering in order to serve as a basis for construction and procurement. Typically, the output from detailed engineering are: drawings, detailed site layout, foundation layout, engineering design and calculation, bill of material (BOM), technical specifications and data sheets of equipment. The detailed engineering can be contracted separately to a consultancy firm or included as a part of an engineering, procurement, and construction (EPC) contract.

The procurement must be done based on the documents produced from the detailed engineering. Typically, technical specifications and data sheets are compiled with some commercial terms and conditions and forms up a request for quotation (RFQ) packages. The RFQ is distributed to potential suppliers. The suppliers then prepare a quotation according to the RFQ. Then, a consultant responsible for the procurement process, in consultation with the developer, select the best quotation and award the contract to the respective suppliers. Usually, the procurement is done after the financial closure of the project as large amount of the capital must be spent.

The Ministerial Regulation – [PERMEN \(Industry\) no. 54/M-IND/PER/3/2012](#) set the requirement of local content for power infrastructure project (see box). For a biomass/biogas power plant, it is under the classification of a steam power plant. The developer must ensure that the procurement is done according to the regulation. Purchasing of equipment locally should be prioritised as this can ease the logistic matter. However, equipment performance, quality, and manufacturing workmanship should be one of the decisive factors in the procurement process.

# Engineering / Equipment Procurement

Description

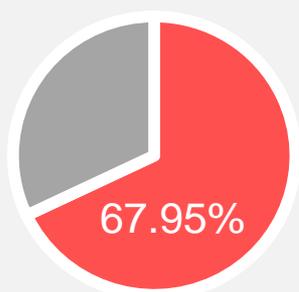
< Page 2/2

In case the equipment can be procured domestically, the developer (or the procurement consultant) only has to oversee the transportation of the equipment from the factory to the site. However, some equipment cannot be manufactured domestically or they can be produced in the country but lack sufficient performance or adequate quality as required. Therefore, they must be imported from a foreign country. The developer must arrange for an importation facility (See [Sub-step 9-1](#) and [Sub-step 9-3](#))

## Local Content

The Ministerial Regulation – [PERMEN \(Industry\) no. 54/M-IND/PER/3/2012](#) defines the local content requirements for a power infrastructure project. A biomass/biogas power plant is classified under this regulation as a “steam power plant” (PLTU; *Pembangkit Listrik Tenaga Uap*). There are requirements on local content of equipment, local content of services, and overall (combined equipment and services) local content. “Equipment” means steam turbine, boiler, generator, electrical, instrument and control, balance of plants including civil and steel structure of the power plant

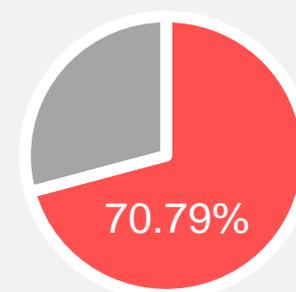
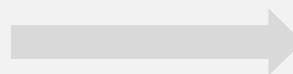
“Services” means consultancy services – feasibility study, engineering, procurement, and construction (EPC), inspection and testing, certifications and other supporting services



Equipment



Services



Overall

● Minimum local content portion

# Obtain Import Duty Exemption

Description

Required Documents

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The developer can obtain import duty exemption on some imported goods and machineries for RE projects. The following requirements are to be met in order to obtain import duty exemption:

- The equipment or machinery cannot be produced domestically; or
  - They can be domestically produced, but the quality does not meet the required specification(s); or
- \* They can be domestically produced but the production is not sufficient enough to satisfy demand.

The importation of equipment can either be included as part of an EPC contract or outsourced to a reliable logistic consultant. In the latter case, the developer must ensure sufficient communication between the EPC contractor and the logistic consultant. Both parties might have different priorities, e.g. with regards to import sequence.

## Related Authority

Central level	<ul style="list-style-type: none"> <li>▪ Indonesia Investment Coordinating Board (BKPM; <i>Badan Koordinasi Penanaman Modal</i>)</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>▪ (none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>▪ Custom Services at the port of arrival</li> </ul>



# Obtain Import Duty Exemption

Description

Required Documents

&lt;

Page 2/2

- Filled-out application form on the import machinery facilities (*Bentuk Surat Permohonan Persetujuan Fasilitas atas Impor Mesin*)
- Deed of establishment
- List of machines/equipment
- Tax registration code number (NPWP; *Nomor Pokok Wajib Pajak*)
- VAT number
- Custom Identification number (NIK; *Nomor Induk Kependudukan*)
- Importer Identity Number (API-P; *Angka Pengenal Importir-Produsen*)  
Refer to [Sub-step 9-1](#)
- Production process description  
Process flow diagram and raw material requirements/balance must be included
- Plan layout of facility/equipment/machinery  
Office facilities must be included in the plan layout as well
- Technical data or brochure of the machine/equipment
- Principle License for Investment  
Refer to [Sub-step 3a-1](#)
- Investment activity report (LKPM; *Laporan Kegiatan Penanaman Modal*)  
Only submit this document if it is applicable
- Power of attorney for application submission  
In case the submission of document is not done directly by director

# Construction and Equipment Installation

Description

Penalty

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After the building permit (IMB; *Izin Mendirikan Bangunan*) is granted, the physical construction of the biomass/biogas power plant can commence. Previously, there was no regulation governing the duration of the construction. However, with the passing of a new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#), the developer must now ensure that the physical construction of the power plant must start no later than three months after financial closure is reached. Failure to meet this deadline will result in severe penalties (e.g. revocation of the biomass/biogas power producer appointment, etc.) Depending on the project scale and technology, construction of a biomass/biogas power plant can take around 1 – 2 years. When the developer jointly defines a construction schedule with the contractor, he/she should keep in mind that there is another critical milestone that must be reached based on the regulation. The commercial date of operation (COD) must be reached within 40 months after the power purchase agreement (PPA) is signed.

Typically, civil work (e.g., land preparation) is done first. Following that, laying the foundation and building shall commence. Detailed engineering on equipment, instruments and/or devices and procurement can be done in parallel ([Sub-step 9-2](#)). The scope of installation must be defined for each piece of equipment. Some equipment can be installed by the contractor at the site. Installation of some equipment may be complex and require specific expertise. In such a case, the equipment manufacturer should be the one who performs the installation (or supervision). For large equipment, it may be shipped as several modules to be assembled on site.

Although the construction and installation are taken care by an engineering firm or an engineering, procurement, and construction (EPC) contractor, the developer must still oversee the progress, at least from the high-level. Usually, a progress report must be prepared by the contractor and submitted to the developer in regular basis.

In principle, equipment should be shipped to the site only when it is to be installed. This is to limit the amount of space they occupy at the site and additional work on site in handling them.

# Construction and Equipment Installation

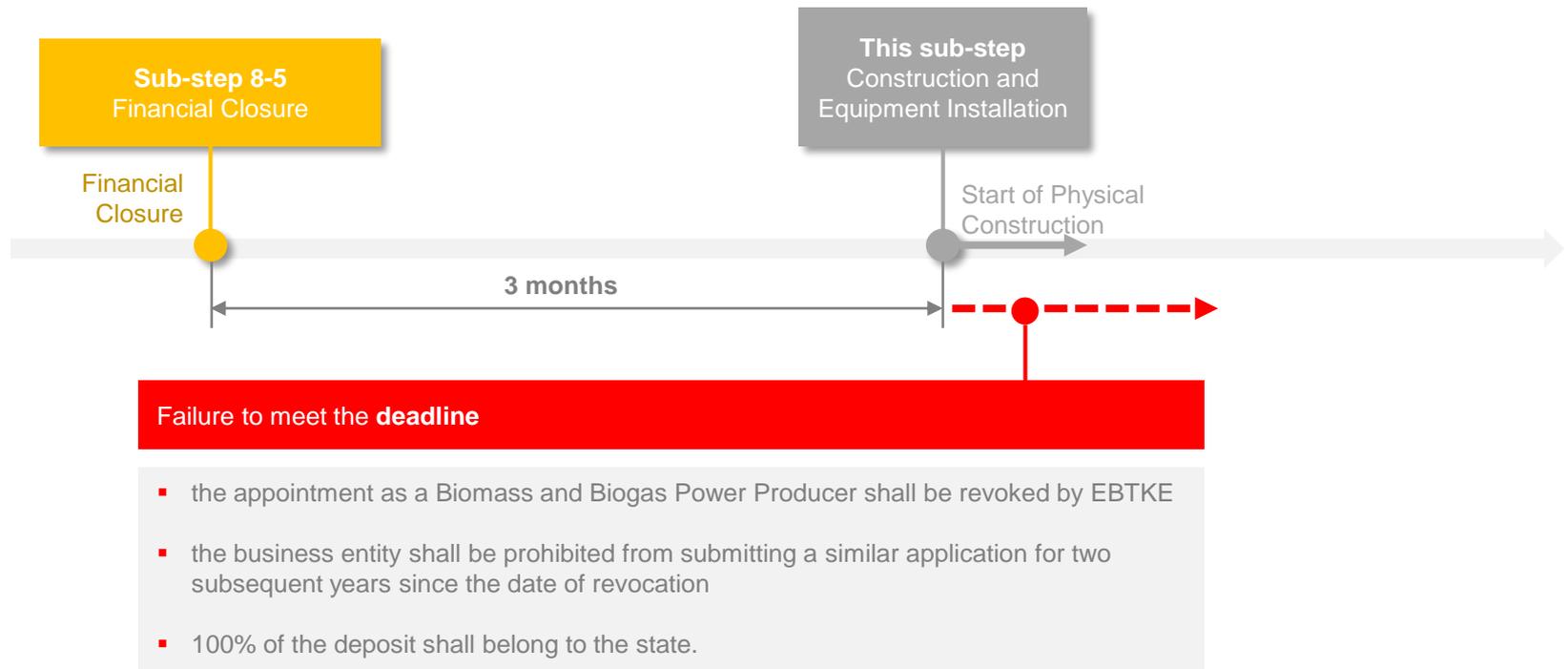
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Penalty

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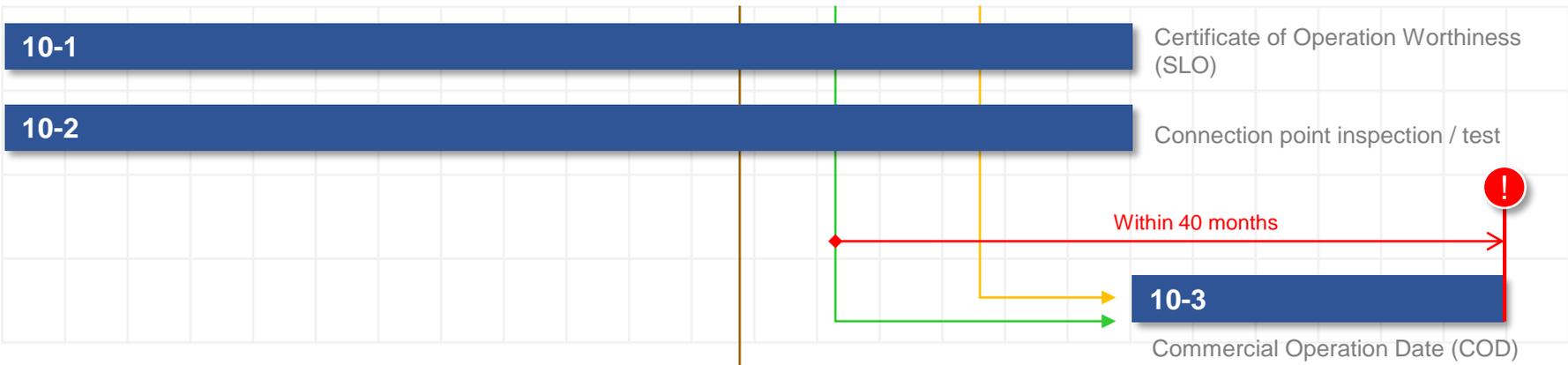
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Within three months after financial closure is reached, the developer must start physical construction of the power plant. In case this deadline is not met, the biomass/biogas power producer appointment will be revoked, 100% of the deposit ([Sub-step 8-1](#)) will be confiscated, and a 2-years sanction will be imposed on the developer.





# Step 10 | Grid Connection and Commissioning

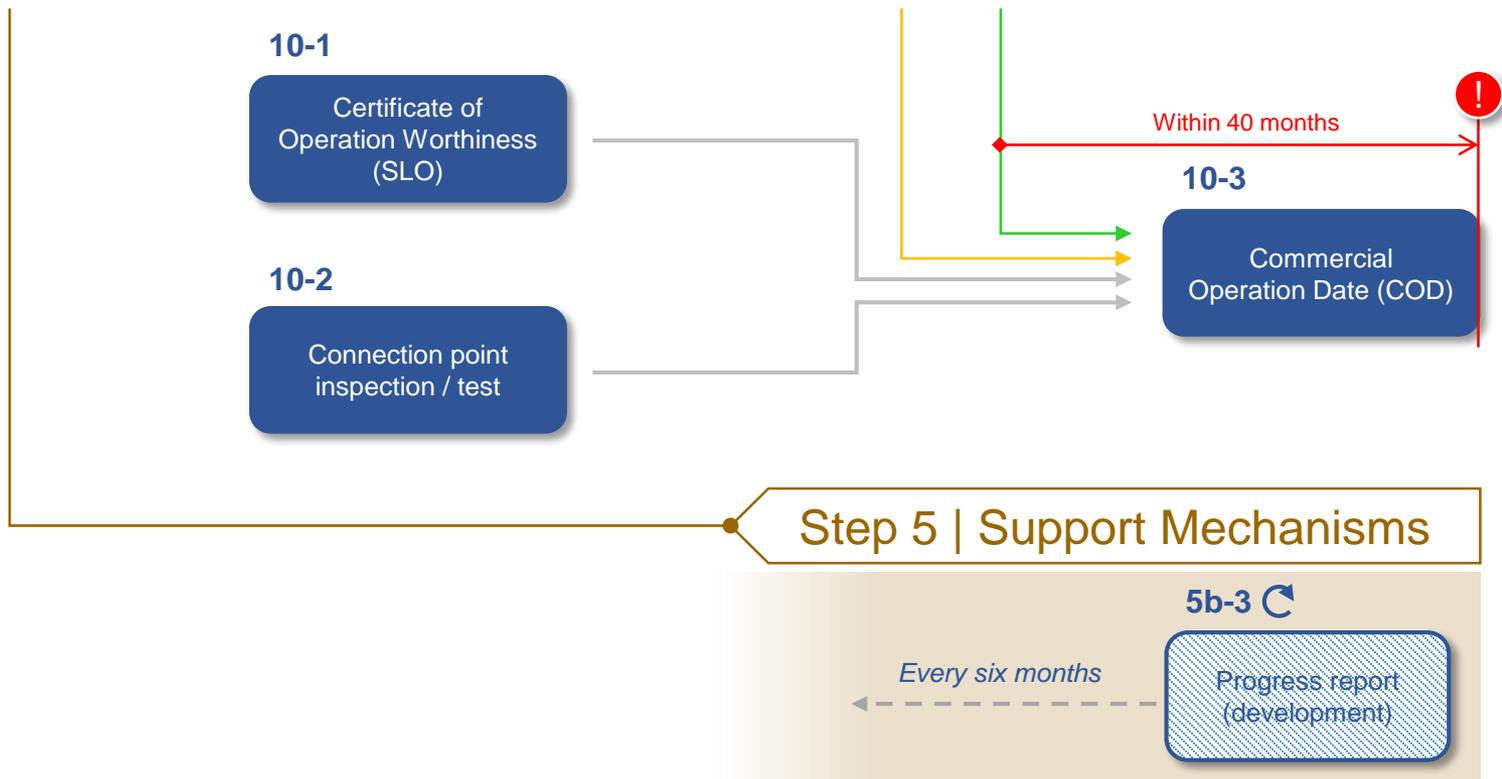


## Step 5 | Support Mechanisms



SLO: Certificate of Operation Worthiness (Sertifikat Laik Operasi)

# Step 10 | Grid Connection and Commissioning



SLO: Certificate of Operation Worthiness (Sertifikat Laik Operasi)

# Step 10 | Grid Connection and Commissioning

## Step Description

Description

Regulations

Challenges

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When a biomass/biogas power plant has been completely built and all components have been installed, the project developer must arrange for inspection and testing. This is to ensure that the power plant can be operated safely and meet the relevant standards.

Two separate inspections must be conducted. A plant inspection must be performed by a licensed or accredited certifier in order to obtain a certificate of operational worthiness (SLO; *Sertifikat Laik Operasi*) ([Sub-step 10-1](#)). In parallel, a joint inspection between the developer and PLN must be conducted at the point of connection ([Sub-step 10-2](#)). This is to ensure that the facility provided and installed at the connection point meets PLN's requirements and standards. PLN will issue a connection point certificate, allowing the connection point to be made. The developer must carefully coordinate these inspections.

After the plant passes proper testing, inspection, and is commissioned, the commercial operation date (COD) of the project can be reached ([Sub-step 10-3](#)) and sale of electricity can commence.

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# Step 10 | Grid Connection and Commissioning

## Related Regulations

Description

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Challenges

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>

Regulation No.	Name
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 2/2015	Sulawesi Transmission (Grid) Code ( <i>Aturan Jaringan Sistem Tenaga Listrik Sulawesi</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 4/2009	Power Distribution Code ( <i>Aturan Distribusi Tenaga Listrik</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 37/2008	Sumatera Transmission (Grid) Code ( <i>Aturan Jaringan Sistem Tenaga Listrik Sumatera</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 3/2007	Java, Madura, and Bali (“Ja-Ma-Li”) Transmission (Grid) Code ( <i>Aturan Jaringan Sistem Tenaga Listrik Jawa-Madura-Bali</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 46/2006	Amendment of PERMEN (ESDM) No. 45/2005 ( <i>Perubahan atas Peraturan Menteri Energi dan Sumber daya Mineral Nomor 0045 Tahun 2005</i> ) PERMEN (ESDM) No. 46/2006 modifies some article of PERMEN (ESDM) No. 45/2005
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 45/2005	Electrical Installation ( <i>Instalasi Ketenagalistrikan</i> ) PERMEN (ESDM) No. 45/2005 was amended by PERMEN (ESDM) No. 46/2006
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 5/2014	Procedures for Electrical Accreditation and Certification ( <i>Tata Cara Akreditasi Dan Sertifikasi Ketenagalistrikan</i> )

ESDM: Ministry of Energy and Mineral Resource (Kementerian Energi dan Sumber daya Mineral)

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# Step 10 | Grid Connection and Commissioning

## Identified Challenges

Description

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Challenges



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Challenges	Details	Recommendations
<b>Time-consuming procedure</b>	It usually takes 2-4 weeks to obtain a Certificate of Operational Worthiness (SLO; <i>Sertifikat Laik Operasi</i> ). However, if a test item is not approved during inspection/testing, it is pending for improvement. This can delay the entire process considerably and directly affects the commercial operation date (COD) of the plant.	-
<b>Revision of a construction plan as a result of poor feasibility study</b>	It is a relatively common occurrence for a construction plan of a EPC contractor to undergo considerable revisions once actual construction gets underway. This is due to inaccuracies in the feasibility study that is a basis for the construction plan as prepared by the EPC contractor. The revision of the plan during construction may lead to delays or cost overrun.	Project developers must carefully select a local consultant to perform the (pre-)feasibility study. Only consultants with sufficient experience and a proven track record should be considered.

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# Step 10 | Grid Connection and Commissioning

## Identified Challenges

Description

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Challenges



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### Challenges

### Details

### Recommendations

#### **Insufficient skills/ capability of EPC contractor**

The local EPC contractor may not have adequate experience, skills, or capability to perform the plant construction with good workmanship. This may be a result of an unrealistic construction schedule, or a mismatch between construction and engineering drawing. As a result, many on-spot corrections must be made, which can in turn result in the project falling behind schedule. Furthermore, the plant performance can even suffer.

The project developer should award an EPC contract to a reliable engineering firm with a proven track record in similar project scale and technology. During construction, the project developer must closely monitor the quality of work. Some third parties may be contracted to perform quality control at the site.

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## Plant Commissioning

Description

List of Certifiers

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A Certificate of Operational Worthiness (SLO; *Sertifikat Laik Operasi*) certifies the technical feasibility of an electrical power system installation. Only a licensed certifier is allowed to perform inspection and testing.

The developer must request a licensed third-party inspector to conduct the inspection and testing. A copy of the request must be submitted to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*), Ministry of Energy and Mineral Resources (ESDM; *Kementerian Energi dan Sumber daya Mineral*). Scope and specifications of the test are determined by the DJK. The certifier will conduct the test and inspection accordingly.

If the third-party certifier is an accredited inspector, a SLO can be issued without further approval from the DJK. The accredited certifiers only register the SLO number with the DJK later. In case the certifier is only a licensed inspector but not accredited, the DJK must provide approval before a SLO can be issued.

The duration for SLO processing is not regulated; however, it can take around two weeks to a month's time, depending on the installed capacity of the power plant.

The complete list of licensed certifiers is available on the DJK website ([www.djlpe.esdm.go.id](http://www.djlpe.esdm.go.id)).

### Related Authority

Central level	<ul style="list-style-type: none"> <li>DJK – issues a SLO based on the report from the licensed certifier</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Licensed certifier – perform inspection and testing, report to DJK</li> </ul>

### Related Authority

Central level	<ul style="list-style-type: none"> <li>DJK – registered a SLO issued by accredited certifier in the database.</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>(none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>Accredited certifier – directly issues a SLO</li> </ul>



## Plant Commissioning

Description	List of Certifiers	
<ul style="list-style-type: none"> <li>PT Depriwangsa (Jakarta Selatan)</li> </ul>	<ul style="list-style-type: none"> <li>PT PLN Jasa Sertifikasi (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Kata Utama (Jakarta Selatan)</li> </ul>
<ul style="list-style-type: none"> <li>PT Indospec Asia (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Wide Dan Pin (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Sanggadelima Nusantara (Jakarta Selatan)</li> </ul>
<ul style="list-style-type: none"> <li>PT EMI d/h PT Koneba (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Gamma Iridium (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Multi Energytama Nusantara (Surabaya)</li> </ul>
<ul style="list-style-type: none"> <li>PT Silma Instrumentama (Jakarta Selatan)</li> </ul>	<ul style="list-style-type: none"> <li>PT Energy Solusi Electrindo (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Fakom Hesti Labora Krida (Surabaya)</li> </ul>
<ul style="list-style-type: none"> <li>PT Biro Klasifikasi Indonesia (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Gold Nusantara Abadi (Bekasi)</li> </ul>	<ul style="list-style-type: none"> <li>PT Kencana Andalas Riau Mandiri (Pekanbaru)</li> </ul>
<ul style="list-style-type: none"> <li>PT Electric Power Indonesia (Malang)</li> </ul>	<ul style="list-style-type: none"> <li>PT Surveyor Indonesia (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Sertifikasi Mandiri Sejahtera (Kebayoran Baru)</li> </ul>
<ul style="list-style-type: none"> <li>PT Central Energy Positive (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PT Industira (Tangerang)</li> </ul>	<ul style="list-style-type: none"> <li>PT Lintas Prima Energi (Jakarta Selatan)</li> </ul>
<ul style="list-style-type: none"> <li>PT Indo Karya Senior (Jakarta Selatan)</li> </ul>	<ul style="list-style-type: none"> <li>PT Sabda Duta Paramitha Konsultan (Surabaya)</li> </ul>	<ul style="list-style-type: none"> <li>KONSUIL (Komite Nasional Keselamatan untuk Instalasi Listrik) (Jakarta)</li> </ul>
<ul style="list-style-type: none"> <li>PT Andalan Mutu Energi (Bandung)</li> </ul>	<ul style="list-style-type: none"> <li>PT Sucofindo (Persero) (Jakarta)</li> </ul>	<ul style="list-style-type: none"> <li>PPILN (Perkumpulan Perlindungan Instalasi Listrik Nasional) (Jawa Tengah)</li> </ul>
<ul style="list-style-type: none"> <li>PT Prima Teknik System (Surabaya)</li> </ul>	<ul style="list-style-type: none"> <li>PT Masaryo Gatra Nastiti (Banten)</li> </ul>	
<ul style="list-style-type: none"> <li>PT Deteksi Instalasi Nasional (Bandung)</li> </ul>	<ul style="list-style-type: none"> <li>PT Trijaya Sampurna (Samarinda)</li> </ul>	

*Note: The list is valid as of July 2012. For the official latest list, please refer to Directorate General of Electricity (DJK) website ([www.djipe.esdm.go.id](http://www.djipe.esdm.go.id)) -> Daftar Lembaga Inspeksi Teknik)*

## Inspect and test the connection point

Description

Required Documents



The project developer must refer to the applicable distribution code or grid code in the respective area. All technical requirements for connection to the grid must be fulfilled.

At 30 days before energizing the connection point, the developer must notify the respective PLN local office and arrange a joint inspection and testing at the connection point. This joint inspection is to be done together by PLN and the developer. Upon completion of inspection and testing, PLN will issue a connection point certificate. The project developer must then agree with PLN on the date and time of connection point energizing. The procedure for energizing the connection point will be advised by PLN in which the developer must strictly follow.

### Related Authority

Central level	<ul style="list-style-type: none"><li>(none)</li></ul>
Provincial level	<ul style="list-style-type: none"><li>Regional PLN office – Inspect and test the connection point, issues a connection point certificate</li></ul>
Local level	

*Energizing the connection point means voltage provision at the connection point.*



## Inspect and test the connection point

Description

Required Documents



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- **Written request to local PLN office**  
The request must clearly states the purpose of energizing the connection point and proposed time of energizing
- **List of equipment in the power plant that may affect the grid**  
e.g. transformers, reactive power regulators, protective devices etc.
- **A list of personnel who act as a focal point in data correspondence.**  
This list must include at least: name, job title, and list of responsibilities at the point of connection.
- **Written confirmation from the project developer**  
This letter must state that all equipment at the connection point is according to the grid code's requirements

## Commercial Operation Date (COD)

Description

Required Documents

Penalty

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Commercial operation date (COD) is the date when electricity is generated by the plant and fed into PLN's power network. The COD must be agreed between the project developer and PLN. It is clearly specified in the Power Purchase Agreement (PPA) ([Sub-step 7-3](#)).

According to the new regulation – [PERMEN \(ESDM\) no. 27/2014](#), the COD must be reached within 40 months after the power purchase agreement (PPA). If the COD is not reached within the mentioned timeframe, penalties will be imposed on the developer.

### Related Authority

Central level	<ul style="list-style-type: none"><li>(none)</li></ul>
Provincial level	<ul style="list-style-type: none"><li>Regional PLN office – be notified about the COD, receives the documents from the developer</li></ul>
Local level	

## Commercial Operation Date (COD)

Description

Required Documents

Penalty

- Electricity production license (IUPTL; *Izin Usaha Penyediaan Tenaga Listrik*)  
Refer to [Sub-step 6b-3](#)
- Certificate of Operation Worthiness (SLO; *Sertifikat Laik Operasi*)  
Refer to [Sub-step 10-1](#)

## Commercial Operation Date (COD)

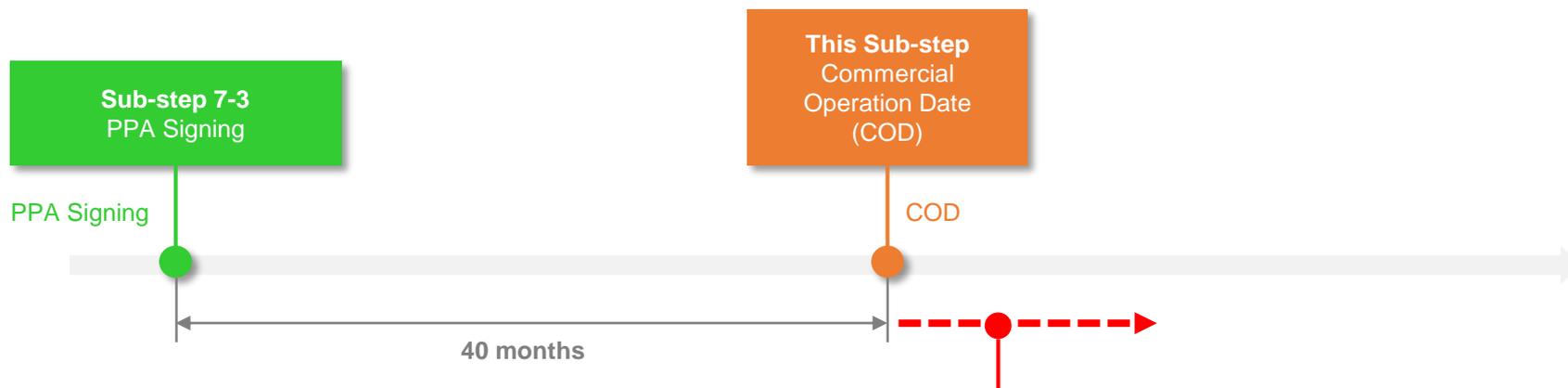
Description

Required Documents

Penalty



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### Failure to meet the **deadline**

- The appointment as a Biomass and Biogas Power Producer shall be revoked by EBTKE
- The business entity shall be prohibited from submitting a similar application for two subsequent years since the date of revocation
- 100% of the deposit shall belong to the state.

COD

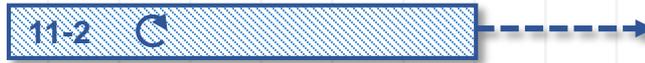
10-3

# Step 11 | Operation and Maintenance

11-1

Developing an O&M Manual for the Plant

Updating the O&M Manual



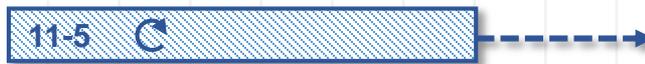
Performance monitoring



Progress report (Operation)



Capacity Building / Training



■ Sub-Step that must be done only **once**

▨ Sub-step that must be **repeated** on regular basis

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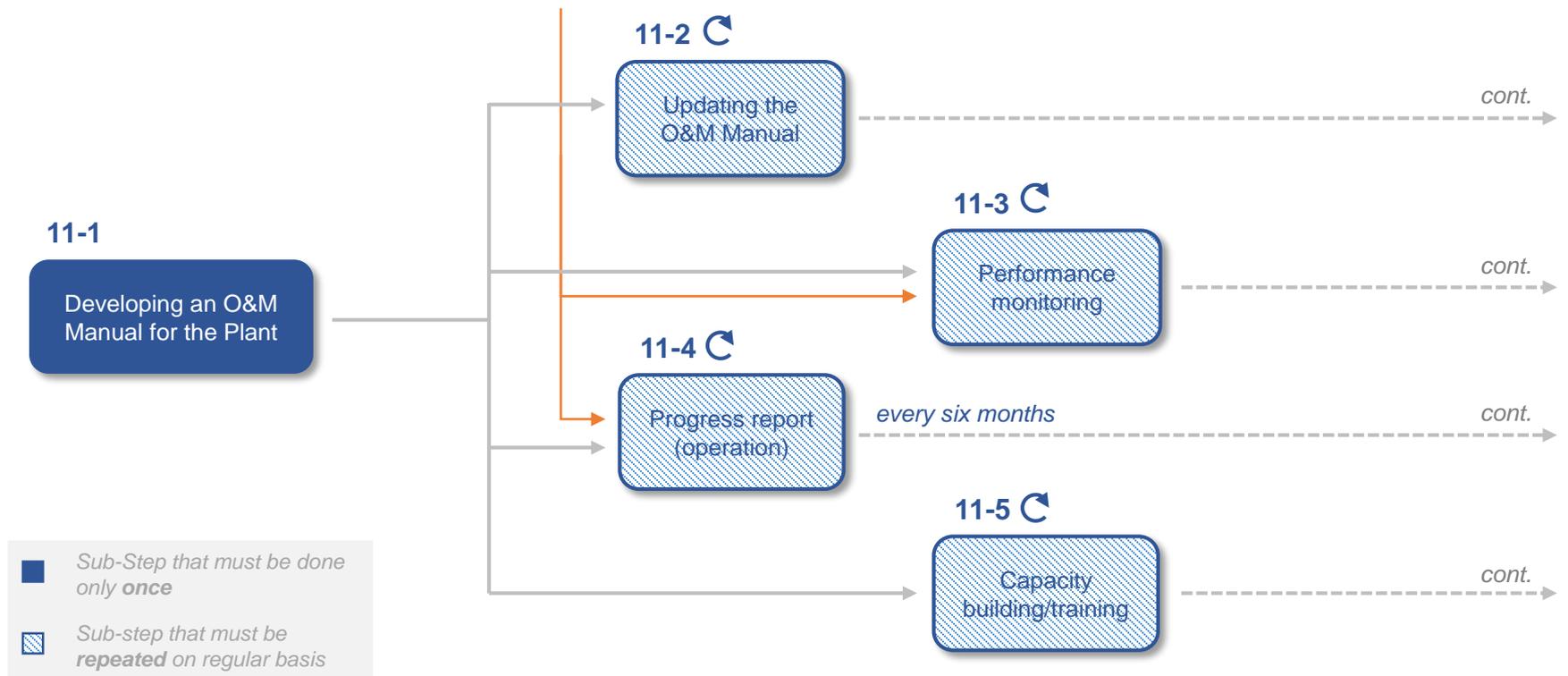


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COD 10-3

# Step 11 | Operation and Maintenance



# Step 11 | Operation and Maintenance

## Step Description

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The Operation and Maintenance step covers the entire lifetime of a power plant after the commercial operation date (COD). In this step, the project developer must develop a standard operation procedure (SOP) and keep it updated, monitor day-to-day operation and maintenance activities performed by the operators, assess the need for capacity building and conduct capacity building/training activities accordingly. Updates to the SOP, monitoring of plant operation, capacity building assessment, and implementing capacity building activities must be performed regularly and throughout the project life cycle.

The actual operation of the plant and sale of electricity can only begin after the COD as agreed with PLN ([Sub-step 11-3](#)). However, some sub-steps such as SOP development and capacity building needs can and should be done earlier .

A biomass/biogas power plant that is well operated and maintained can produce for more than 20 years. The Operation and Maintenance step is crucial and needs to be properly managed to ensure sustainability of the RE project. A preventive maintenance approach should be planned and implemented to ensure efficient and reliable operation of the plant for the long term.

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# Step 11 | Operation and Maintenance

## Related Regulations

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Regulation No.	Name
<b>Law</b> UU no. 36/2009	Health ( <i>Kesehatan</i> )
<b>Law</b> UU no. 1/1970	Work Safety ( <i>Keselamatan Kerja</i> )
<b>Governmental Regulation</b> PP no. 41/1999	Air Pollution Control ( <i>Pengendalian Pencemaran Udara</i> )
<b>Ministerial Regulation (ESDM)</b> PERMEN (ESDM) no. 27/2014	The Purchase of Electricity from Biomass Power Plants and Biogas Power Plants by PT Perusahaan Listrik Negara (Persero) ( <i>Pembelian Tenaga Listrik dari Pembangkit Listrik Tenaga Biomassa (PLTBm) dan Pembangkit Listrik Tenaga Biogas (PLTBg) oleh PT Perusahaan Listrik Negara (Persero)</i> )

TOC



Overall

Step



Overall

Step

# Step 11 | Operation and Maintenance

## Identified Challenges

Description

Regulations

Challenges



Page 3/3

Challenges	Details	Recommendations
<b>Availability of spare parts/after-sales support</b>	Spare parts for critical components might not be available or cannot be resupplied in time. This can cause lengthy interruption in the plant operation. If equipment is purchased from small local companies, long-term after-sales support may not be guaranteed.	The project developer should procure equipment from reliable suppliers with proven records. Some spare parts for critical components should be kept readily available. Otherwise, a guarantee for future supply needs to be obtained from the supplier.
<b>Lack of experience/capacity of a local operator</b>	Local operators do not have a lot of experience with the operation of power plants. They may operate and maintain incorrectly, leading to interruptions in plant operation and/or damage to the equipment.	The project developer should contract an experienced operator, at least for the first phase of the plant operation. An experienced operator can provide on-job training to local and less experienced operators before handing over tasks completely. The developer also needs to plan for regular training for the operating staff.

# Developing an O&M Manual for the Plant

## Description

Page 1/2



The project developer must develop an operational manual for the biomass/biogas power plant. The manual serves as a reference for all plant operators for effective and safe operation of the facility. The development of the manual must be done even before the commercial operation date (COD) of the power plant ([Sub-step 10-3](#)). The manual may be divided into (1) operation manual and (2) maintenance manual.

A preventive maintenance approach should be integrated as a part of the manual, especially on the critical systems or components. The operation of a biomass/biogas power plant involves handling of combustible materials. It always associates with fire and explosion risk. Safety and risk mitigation must be included in the manual as well.

Manufacturers of each piece of equipment in the power plant must provide an operation and maintenance manual for each type. The developer, together with his/her technical consultant or expert, shall combine these O&M manuals together and formulate the manual for the entire power plant. All technical documents must be properly kept at the power plant within the reach of operators.

It is important to understand that the operational manual is not a static document. Its practicality must be regularly checked and updated as necessary. When the systems or components have been retrofitted or new components have been implemented, the manual must be reviewed by all concerned parties (i.e. plant operator, components suppliers etc.) Adjustments must be made if necessary and it must be communicated to all plant operators. Joint meetings with relevant plant operators can be arranged to check if the manual is used and followed.

## Developing an O&M Manual for the Plant

### A | Recommended contents for **operation manual**

- Technical specifications and data sheets of systems, modules, or components
- Operational ranges, set-points of system, modules, or components
- Feedstock acceptance and handling procedure
- Guarantee performance of the plant (e.g. committed power outputs, emission limit, etc.)
- Operation procedure (i.e. start-up, shutdown etc.)
- Warning indicators and their resolutions
- Troubleshooting guides

### B | Recommended contents for **maintenance manual**

- Technical specifications and data sheets of system, module, or component
- Schedule / Plan on maintenance and inspection
- Maintenance and inspection procedures
- List of spare parts and their specifications

*Note: The lists of contents for the manuals as provided above are only recommendations.*

## Updating the Manual

Description

*This sub-step is to be performed whenever there is a need*

Standard Operation Procedure (SOP) must be updated regularly, taking into account any upgrade or change of equipment in the plant. Project developer should plan from the beginning about the interval of SOP review/ update and ensure that the intervals are followed.

# Performance Monitoring

## Description

Page 1/1

Proper operation and maintenance can keep a biomass/biogas power plant running in the long-term. Typically, a well-operated and maintained biomass/biogas power plant can remain in operation for more than 20 years. To ensure good operation and maintenance, the plant's performance must be closely monitored. This allows the plant operators to be aware of any potential problems in advance. So, that mitigation or avoidance of more severe problem can be made. It also help the plant operator in pinpointing systems or components that are operating below the designed performance. Furthermore, good information regarding the performance of the plant collected during the operation can help the developer in planning and design of biomass/biogas power plant in the future.

For example, emission levels have to be checked to ensure their compliance with Indonesian laws and regulations. Residual materials from the plant operation, i.e. ash, fly-ash, etc. must be properly handled. The day-to-day monitoring is the responsibility of the plant operators. However, the project developer must determine the extent of monitoring activities to be carried out by the operators (e.g., what are to be monitored and how frequent, etc.). The developer should ask the operators to submit the plant operation report on regular basis to ensure that the monitoring activities are properly carried out.

Apart from the performance of the biomass/biogas power plant itself, the performance of the plant operator should be regularly checked and reviewed as well. The important aspects to check include how frequently the plant's operation is disrupted, as well as how many of them are caused by malpractice or human error, etc.

The working environment is another important aspect for biomass/biogas power plants. The operators must always work with waste and combustible material. Therefore, proper safety measures in operation and maintenance must be implemented.

# Performance Monitoring

## Description

Page 1/1

The following parameters are crucial for the operation of a biomass/biogas power plant. It is recommended to closely monitor them during operation. As there is a variety of technology used for energy conversion, there may be additional parameters to monitor for each system.

- **Biomass feedstock consumption**  
Including the characteristics of each batch of biomass feedstock (e.g. moisture content, heating value etc.)
- **Biogas production**  
In case of biogas power plant
- **Gas composition**
- **Power generation (GWh)**
- **Sale of electricity (GWh)**
- **Emission**  
Volume, composition, temperature
- **Waste from the process**  
Wastewater, ash (in case of direct combustion)
- **Digester characteristics (in case of biogas power plant using anaerobic digester technology)**  
pH value, temperature etc.
- **Amount of additional (auxiliary) fuel used**
- **Internal consumption of the power plant**  
Including electricity and other utilities (e.g. steam, gas, water demand etc.) for each components / systems
- **List of outages, accidents**  
Including the cause of such event

Reference source: *Guide to biogas – from Production to Use*

## Progress Report (Operation)



According to the new Ministerial Regulation – [PERMEN \(ESDM\) no. 27/2014](#), a project developer must submit a progress report regarding the biomass/biogas power plant operation every six months.

Similar to the progress report submitted during the development phase (Sub-step), it must be submitted to the Directorate General of New, Renewable Energy, and Energy Conservation (EBTKE; *Direktorat Jenderal Energi Baru Terbarukan dan Konservasi Energi*) and always be copied to the Directorate General of Electricity (DJK; *Direktorat Jenderal Ketenagalistrikan*) and PLN.

At the time of the Guideline’s publication (February 2015), the form or template of the report has not yet been defined.

### Related Authority

Central level	<ul style="list-style-type: none"> <li>▪ Directorate General of New and Renewable Energy and Energy Conservation (EBTKE) – receive the report, monitor the implementation</li> <li>▪ PLN – be informed</li> <li>▪ Directorate General of Electricity (DJK) – be informed</li> </ul>
Provincial level	<ul style="list-style-type: none"> <li>▪ (none)</li> </ul>
Local level	<ul style="list-style-type: none"> <li>▪ (none)</li> </ul>



## Capacity building/training

Description



*This sub-step is to be performed regularly throughout the project's lifetime*

A capable operator is key to the overall success of an RE project. Thus, the developer needs to plan for necessary capacity building and training measures. This is especially important in case a member of the local community is contracted as a plant operator. Capacity building needs proper assessment, and initial training should be done even before the operation of the plant.

An assessment for capacity building needs should be done once more after the plant has been operational for a certain period of time. Any issues identified can then be tackled by targeted training measures.

The project developer may contract a professional training institute to conduct a capacity building needs assessment.

Based on the capacity building needs assessment (Sub-step C9-4), specific training will be held for the plant operating staff. Project developers may contract professional training institutions to perform this task.

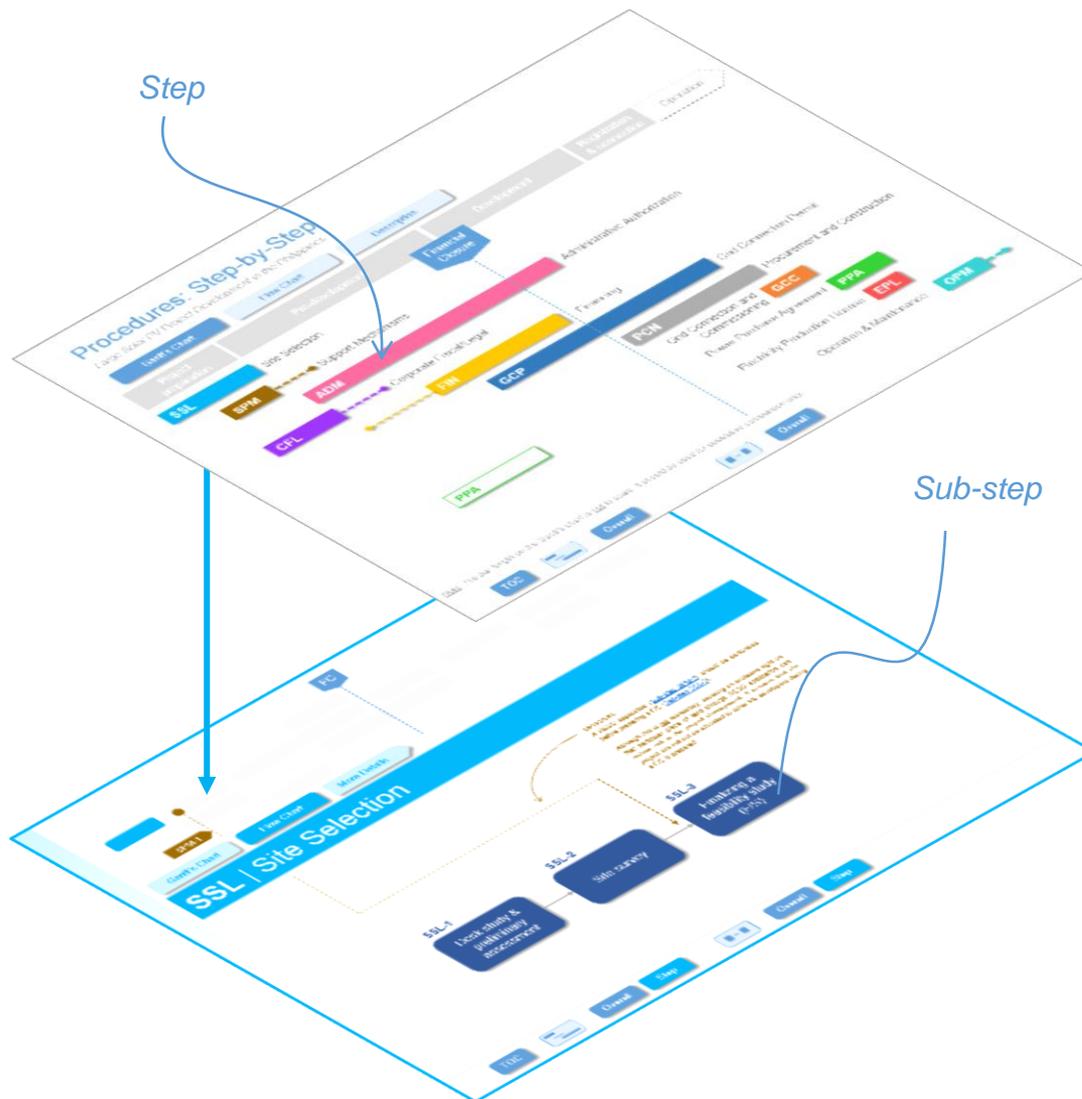
Feedback from the plant operator on each training should be properly collected and recorded. This will allow the developer to assess effectiveness of the trainings and to improve future capacity building activities.

Apart from the knowledge on the plant operation and maintenance, training on other topics should be arranged as well.



# How to use the Guideline?

## Guideline Structure



## “Two levels of details”

### Overview Layer

From the overview layer, readers can see the entire procedure in project development (from site selection until operation and maintenance). It gives a big picture on how biomass/biogas project development in Indonesia has to be done. Only predefined steps are shown in this layer in different color codes (e.g. site selection, administrative authorization, etc.). These steps are standardised for every guideline.

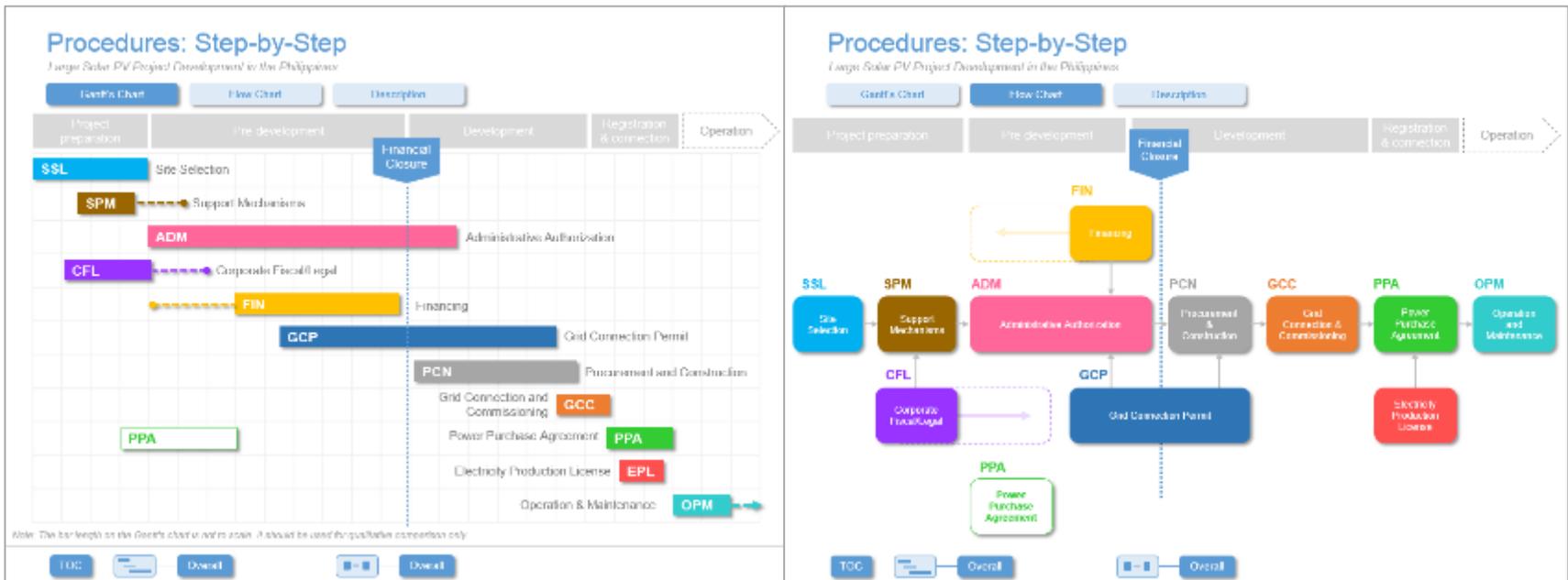
### Detailed Layer

The detailed layer provides more details for each step shown in the overview layer. This allows for more flexibility in providing more details to readers on specific phase of project development.

# How to use the Guideline?

## Guideline Structure

“Two ways to illustrate the procedural flow”



### Gantt Chart View

The Gantt chart is a typical planning tool for project developer. It can show sequences of steps / sub-steps.

### Flow Chart View

The flow chart is a simplified version to illustrate the procedural flow. It can better show the relation between steps / sub-steps.

# How to use the Guideline?

Page details – Overall Gantt Chart



**A** Page title and sub-title

**B** Section navigation

Click these navigation buttons to jump directly to the respective sub-section. There are three buttons: Gantt Chart (change to Gantt chart view); Flow Chart (change to flow chart view), and Description (go to the overall description page). The current page is always highlighted in dark.

**C** Phase of project development

The typical phase of project development.

**D** Financial closure milestone

The financial closure is an important milestone in RE project development. It is clearly marked up on the Gantt chart and flow chart, allowing comparison about the procedure in different countries.

**E** Step bar

Click these bars to jump directly to the respective step.

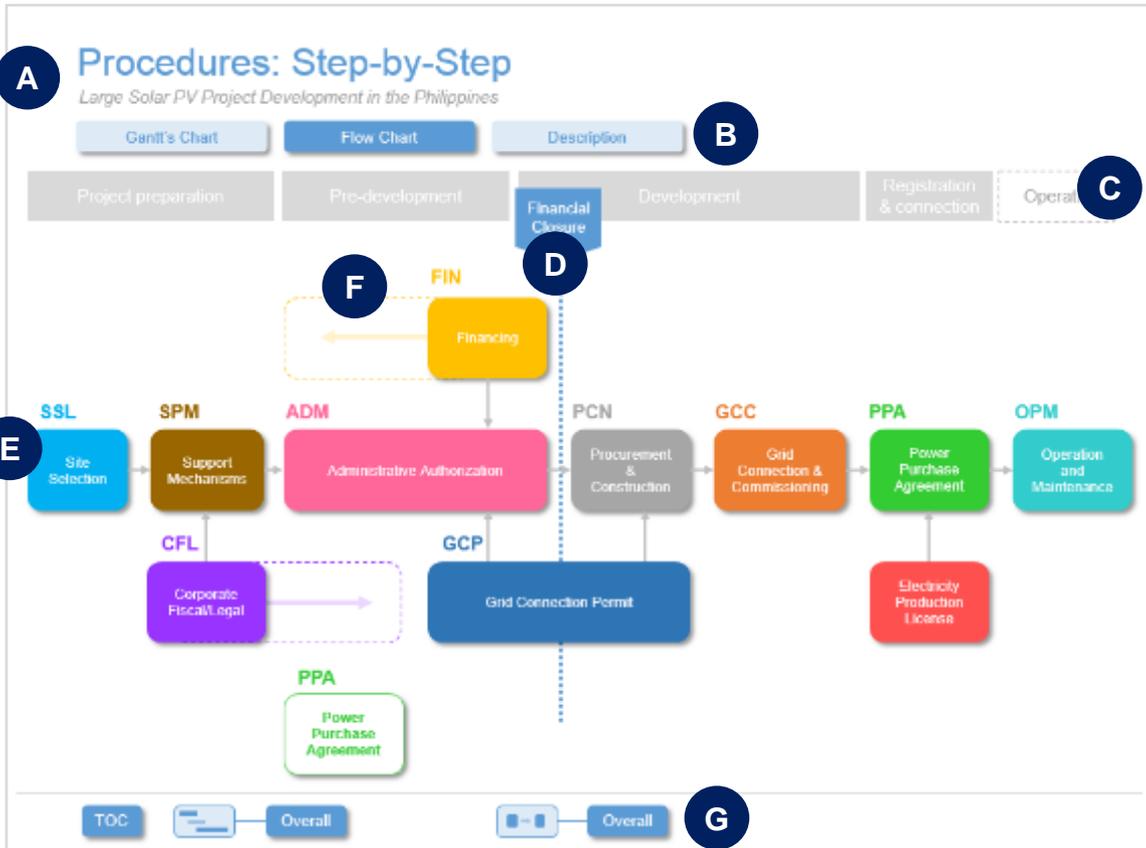
**F** Flexibility indication

Some step can be done at different time. The dot line represent flexibility of the step.

**G** Main navigation

# How to use the Guideline?

Page details – Overall Gantt Chart



**A** Page title and sub-title

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**E** Step block

Click these blocks to jump directly to the respective step.

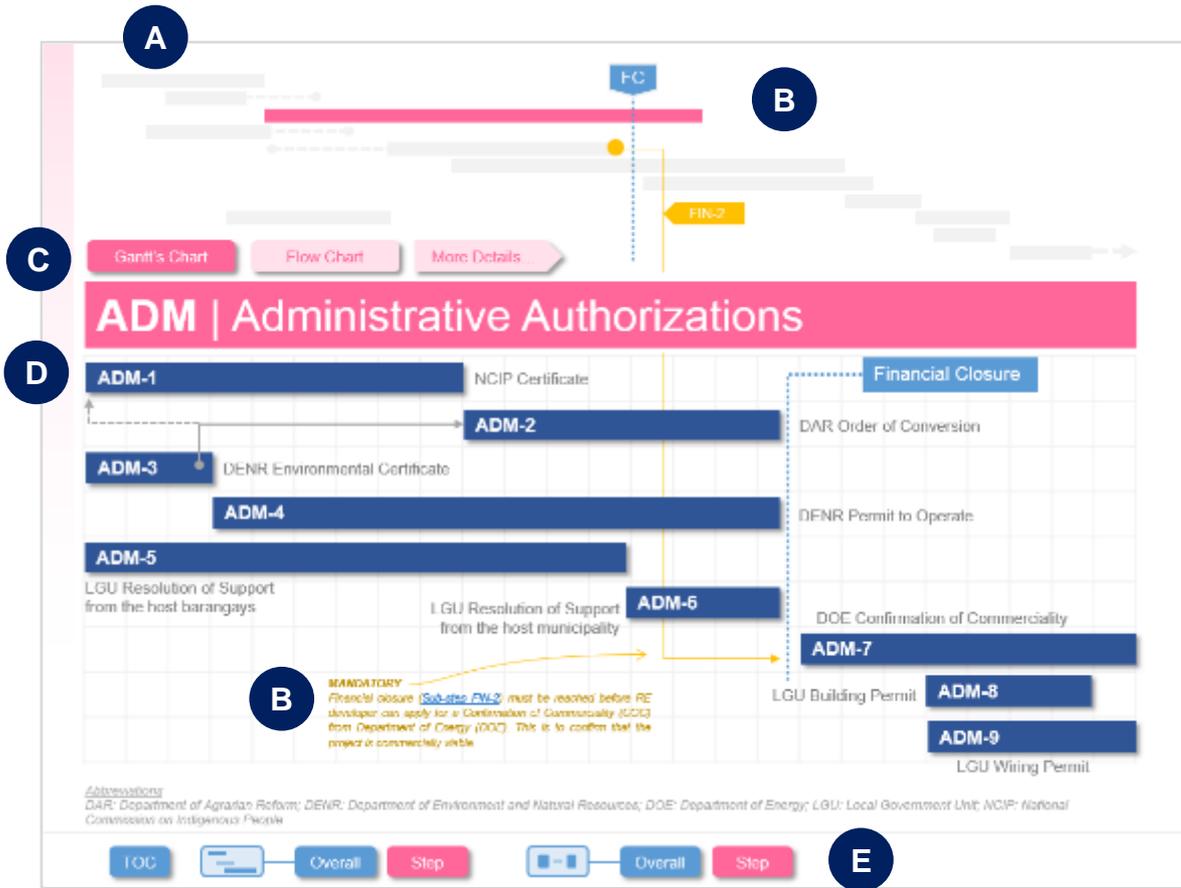
**F** Flexibility indication

Some step can be done at different time. The dot line represent flexibility of the step.

**G** Main navigation

# How to use the Guideline?

Page details – Step Flow Chart



## A Navigation Gantt chart

The overall Gantt chart is shown with the current step highlighted. Click on any Gantt bar to jump to the respective step.

## B Relationship to other steps

The relationship of this step to others is shown with a short explanation. There are two types of the relationship: (1) Recommendation – Based on good practice; and (2) Mandatory relationship – by regulations.

## C Section navigation

Click these navigation buttons to jump directly to the respective sub-section. There are three buttons: Gantt Chart (change to Gantt chart view); Flow Chart (change to flow chart view), and More Details (go to the detailed description page). The current page is always highlighted in dark color.

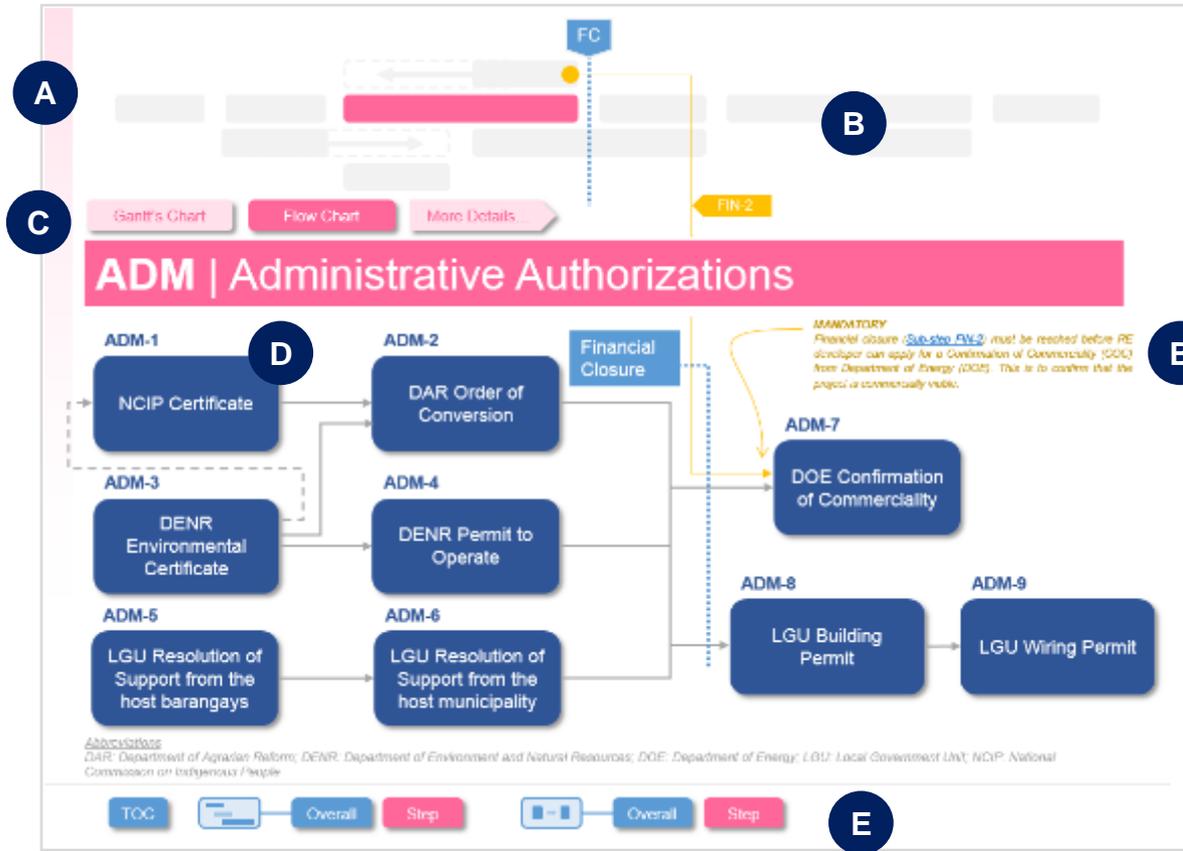
## D Sub-step bar

Click these bars to jump directly to the respective sub-step.

## E Main navigation

# How to use the Guideline?

Page details – Step Flow Chart



## A Navigation flow chart

The overall Gantt chart is shown with the current step highlighted. Click on any Gantt bar to jump to the respective step.

## B Relationship to other step

The relationship of this step to others is shown with a short explanation. There are two types of the relationship: (1) Recommendation – Based on good practice; and (2) Mandatory relationship – by regulations.

## C Section navigation

Click these navigation buttons to jump directly to the respective sub-section. There are three buttons: Gantt Chart (change to Gantt chart view); Flow Chart (change to flow chart view), and More Details (go to the detailed description page). The current page is always highlighted in dark color

## D Sub-step block

Click these blocks to jump directly to the respective sub-step.

## E Main navigation

# How to use the Guideline?

Page details – Step Flow Chart

**ADM | Administrative Authorizations**

... Gantt's / How Chart

**A** Step Description Related Regulations Related Documents Identified Challenges

Page 1/10 **B**

**Step Description**

**Scope of this guideline**

1. The guideline lists only the most important and crucial licenses in developing a SPV power project. It does not list all necessary documents to establish, operate and maintain a business firm or entity in the Philippines as this is not the main focus of the guideline.
2. In the Philippines, the Local Government Code (Republic Act 7160) defines the standard procedures for acquiring various permits (e.g. business permit, construction permits, etc.) in the local level. Local government unit (LGU) is allowed to set its own procedure on, defines incurred fees, required documents. Therefore, the exact procedures may differ from one place to another. Additional licenses and permits may be required in some cases. The developer must always re-check with the local government if additional fees, licenses or permits are needed.

The **Administrative Authorization (ADM) step** involves obtaining the necessary licenses or permits from various national and local government agencies. These authorizations covers many areas i.e. indigenous people, local community, environment, land use etc.

- **Indigenous people**

National Commission of Indigenous People (NCIP) is mandated to protect rights, cultures and sites of indigenous people (IP) in the Philippines. NCIP shall ensure that RE projects do not cause negative impact to IP. Several types of certificate can be issued by NCIP. They are: (1) a Certificate of Non Overlap (CNO), attesting that the area where the particular plan, program, project or activity will be done does not overlap with, or affect, any ancestral domain, and (2) a Certification Precondition (CP) to the grant of Free and Prior Informed Consent (FPIC) by the concerned Indigenous Cultural Communities (ICCs) or Indigenous Peoples (IPs). RE developer must secure one of them depending on the project location and its characteristic.

**C**

TOC Overall Step Overall Step

## A Section navigation

Click these navigation buttons to jump directly to the respective sub-section. There are four buttons:

**Step description** – Click to see explanation of the step.

**Related regulations** – Go to the list of relevant laws or regulations.

**Related documents** – Go to the list of reference documents which are not legal documents (e.g., guidebook, study, etc.)

**Identified challenges** – Go to the list of challenges associated to this step.

The current page is always highlighted in dark color .

## B Section page

The current and total page of the section.

## C Main navigation

# How to use the Guideline?

Page details – Step Flow Chart

**PPA | Power Purchase Agreement**

**Approval of PSA**

**PPA-4**

Page 1/4

**Sub-step Details** | **Required Documents**

*This sub-step is for a solar PV project under the PSA Scheme*

While RE developer can directly agree on a power supply agreement (PSA) directly with the relevant distribution utility, approval from Energy Regulatory Commission (ERC) is required. Without such approval, the PSA is not valid.

Within 30 days after the PSA has been agreed, the RE developer and the power utilities must file a joint application to ERC for its PSA approval and for the determination of the reasonable generation costs that the distribution utility (DU) can recover from its captive market as part of its retail rate.

The ERC shall determine the reasonable generation cost under the PSA, taking into account the following fees, if applicable: capital recovery fee (CRF), operation and maintenance (O&M) fee, and fuel fee.

**Related Authorities**

Central government	• The Energy Regulatory Commission (ERC)
Local government	-

**TOC** | **Overall** | **Step** | **Overall** | **Step**

## A Sub-step identifier

The identifier of sub-step for cross-reference purpose. The number doesn't represent the flow sequence.

## B Section navigation

Click these navigation buttons to jump directly to the respective sub-section. In the sub-step level, there is no predefined structure for the sub-section. Each sub-step has different structure. Nevertheless, typical sub-steps consist of three sub-sections:

**Sub-step details** – Click to see explanation of the sub-step

**Required documents**– Go to the list of documents that RE developer must prepare and submit to authority

**Incurred fee** – Click to see information regarding regulated fee for each sub-step

## C Section page

The current and total page of the section

## D Main navigation

# How to use the Guideline?

## Main Navigation

### Main navigation bar (general)

Normally, three navigation buttons appear at the bottom of each page



### Main navigation bar (in step & sub-step level)

On the pages in step or sub-step level, two additional buttons present.



In the Financing (FIN) Step...

In the Corporate Fiscal / Legal (CFL) Step



The colour is different depending on the location of current page. It represent the colour of current step.

#### A Table of Content (TOC)

Click to go back to the Table of Contents page

#### B Overall Gantt Chart

Click to go back to the overall Gantt Chart

#### C Overall Flow Chart

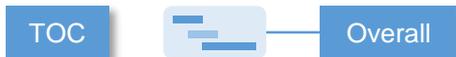
Click to go back to the overall Flow Chart

#### D Step Gantt Chart

Click to go back to the respective Gantt Chart of the step. For example, if the current page is a part of Site Selection (SSL) step, this button will lead to the Gantt chart of SSL step.

#### E Step Flow Chart

Click to go back to the respective Flow Chart of the step. For example, if the current page is a part of Site Selection (SSL) step, this button will lead to the Gantt chart of SSL step.



# Appendix A: New Regulation vs. Old Regulation

Comparison and assessment on the new regulation

Topics	Old Regulation	New Regulation PERMEN (ESDM) no. 27/2014	Assessment
<b>Authority acting as a focal point</b>	The authority who makes a decision on proposed biomass/biogas power plant is PLN.	<p>The authority who makes a decision on proposed biomass/biogas power plant is the EBTKE (still in close consultation with PLN).</p> <p>The new regulation simplifies the application procedure by appointing EBTKE as a single point of contact for project developers. PLN still review and evaluate relevant project documents, however, all communication with project developers are done through EBTKE.</p>	<p>The new regulation increases the roles of the EBTKE and its involvement in project development. Previously, EBTKE is the one who define a feed-in tariff (FIT). However, under the old regulatory framework, the applications go directly to PLN. EBTKE cannot effectively monitor or supervise the progress.</p> <p>In addition, the new regulation shift more decision making from PLN to EBTKE. Previously, PLN has an ultimate authority in deciding if the proposed biomass/biogas project can be realised or not. Now, EBTKE is making this decision (with a consultation with PLN). This shift of authority is important. PLN views RE projects from the power utility's angle which can be different from the EBTKE's perspective.</p>
<b>Feed-in tariff</b>	Biomass and biogas power plant is eligible for the same FIT	Separate FITs are defined for biomass power and biogas power plants. Both FITs are higher than the one stipulated in 2012 (PERMEN (ESDM) no. 4/2012). A biomass power plant is eligible for higher tariff.	The new regulation increases the tariffs, therefore increase the attractiveness of biomass/biogas power project investment. It also better address the different technology cost by defining different tariffs separately for biomass power plant and biogas power plant.

# Appendix A: New Regulation vs. Old Regulation

Comparison and assessment on the new regulation

Topics	Old Regulation	New Regulation	Assessment
<b>Penalty</b>	No penalty	Strict timeframes have been defined. Several deadlines have been determined for certain milestones. Severe penalties will be imposed on the developer in case any deadline is not met.	<p>Defining a clear timeframe improves the transparency of the whole process. It also equips the authority with a clear framework to regulate the development and to identify non-performing developer.</p> <p>Introduction of the penalties have both positive and negative effects. It can ensure more commitment from the developer. However, it can increase more risk from the developer's perspective and can discourage some developer to invest in the project.</p>
<b>Interconnection study</b>	Interconnection study is usually required. However, this requirement is communicated directly to project developer from PLN. This requirement is not clearly specified in the regulation.	An interconnection study is now clearly specified in the new regulation. This must be conducted before project developer can apply for an appointment as biomass/biogas power producer.	As the new regulation clearly specifies the requirement of interconnection study, it increases transparency in the procedure.
<b>Appointment as "biomass/biogas power producer"</b>	-	Project developer must now be first appointed as a biomass/biogas power producer by the EBTKE.	<p>The appointment increase the roles of the EBTKE in the development. Previously, the EBTKE is responsible only in issuing feed-in tariff. It did not aware on how many projects are in the pipeline. Hence, cannot assess effectiveness of the FIT it implemented.</p> <p>Now, the applications must come to the EBTKE, allowing it to monitor and evaluate the outcome of the FIT scheme.</p>

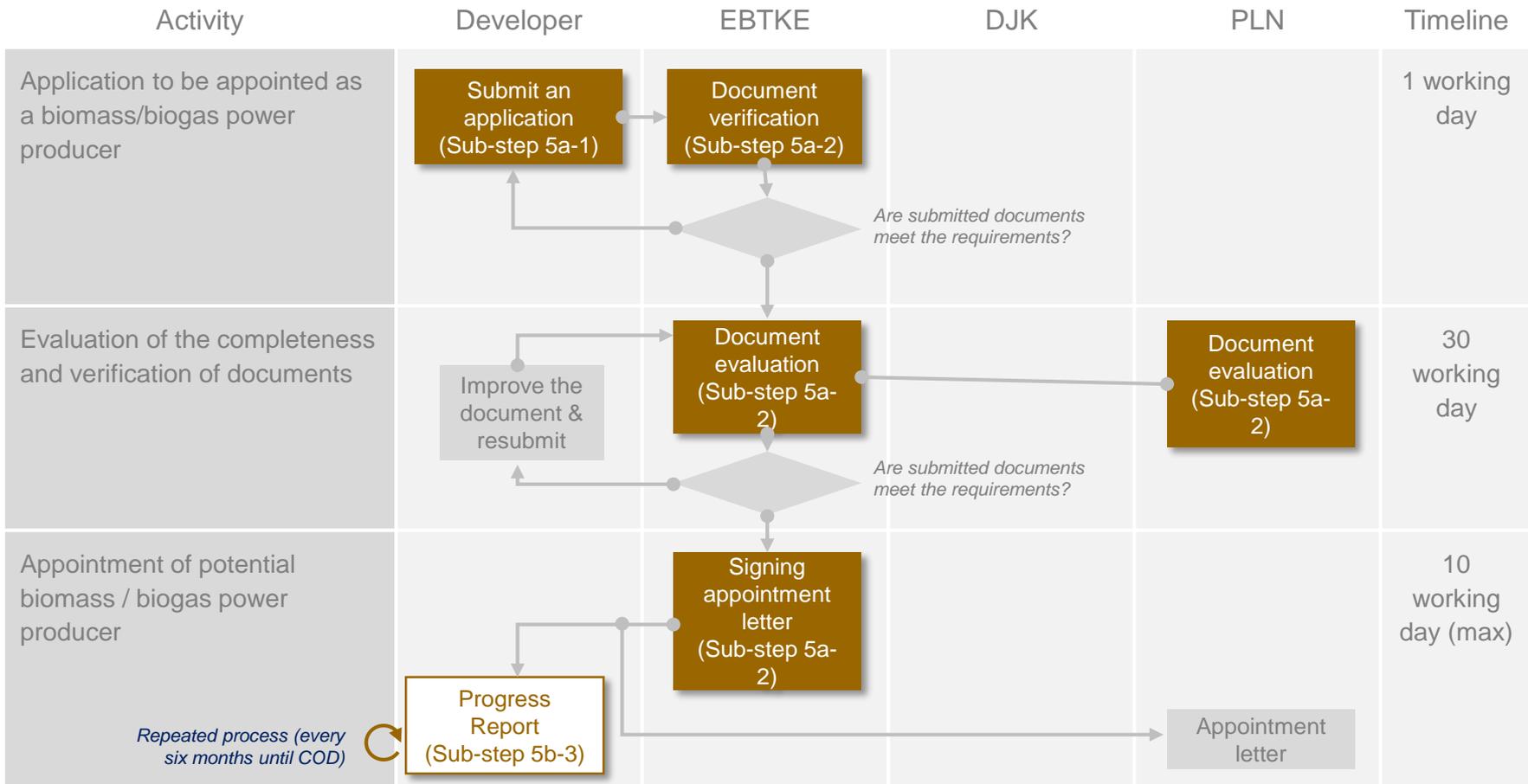
# Appendix A: New Regulation vs. Old Regulation

Comparison and assessment on the new regulation

Topics	Old Regulation	New Regulation	Assessment
<b>Required study in the early stage</b>	Only pre-feasibility study is required in a PPA application. A feasibility study can be conducted later during the PPA application is evaluated by PLN.	Currently, a feasibility study including an interconnection study must be conducted in advance. They are required for an application for a biomass/biogas power producer appointment.	The new regulation ensures that more detailed and comprehensive study is performed properly from the beginning. This reduce a chance that the project fails later on because poor or too general study is done only to get necessary permits or PPA. The new regulations ensure that project developer spend more time and efforts in preparing a sound and more reliable studies.
<b>Deposit</b>	-	5% of the total investment cost must be deposited in a dedicated bank account. In case of delay or no progress, the state will confiscate this deposit.	The requirement of the deposit increases commitment from project developer in the project realisation. However, as the deposit must remain in the account and cannot be withdrawn for some certain period, it increase more financial burden for the project and increase intensity of the project cash flow.
<b>Load follower</b>	-	The power plant that is classified as a "load follower" receives a higher feed-in tariff.	The introduction of "load follower" classification benefits PLN in easing power balancing in their network as the plant must be operated based on the demand. It also provides some benefit to the developer in a form of higher feed-in tariff to compensate for their operation to follow the load.

# Appendix B: Procedure from the New Regulation

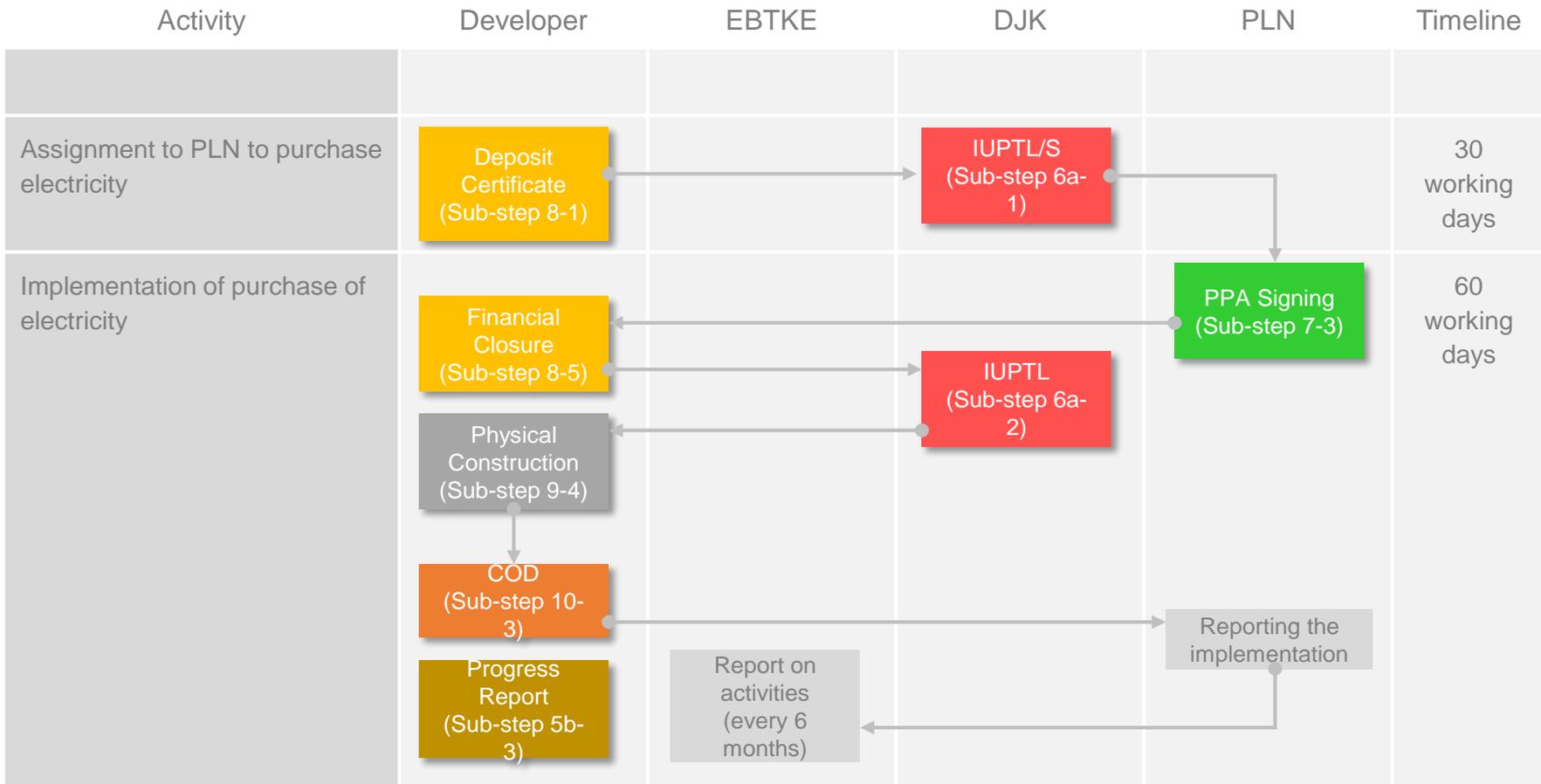
Biomass/biogas Power Plant Development in Indonesia



Note: This chart is adapted from the Standard Operating Procedure (SOP) in the Ministerial Regulation – PERMEN (ESDM) no. 27/2014

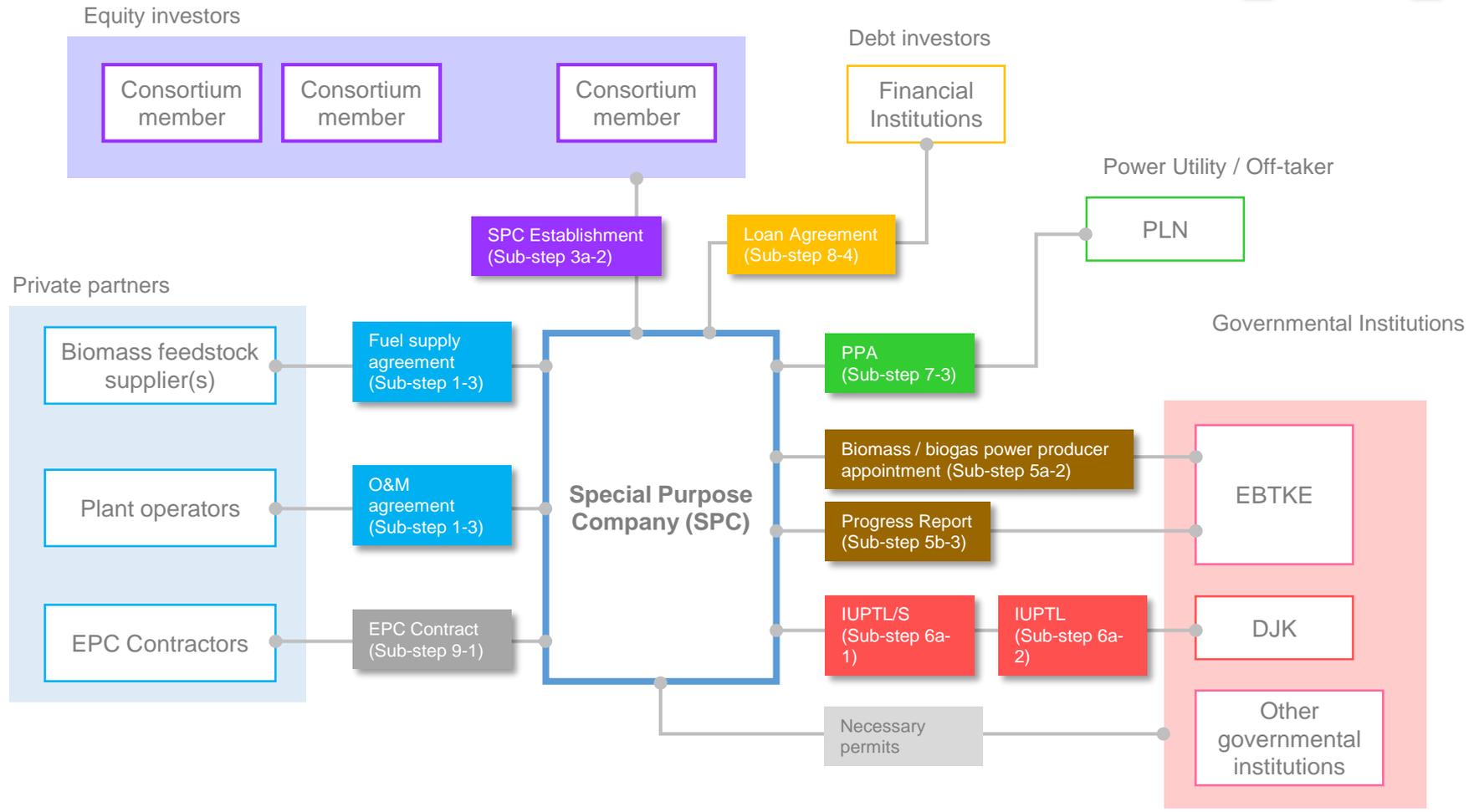
# Appendix B: Procedure from the New Regulation

Biomass/biogas Power Plant Development in Indonesia



Note: This chart is adapted from the Standard Operating Procedure (SOP) in the Ministerial Regulation – PERMEN (ESDM) no. 27/2014

# Appendix C: Typical Relevant Stakeholders



# Appendix D: Indonesia Legal Structure

The hierarchy of Indonesia's legal system is according to the UU No. 10/2004. The following table summarizes the list of laws and regulations in different layers of the government. It should be noted that the objective of the table is not to contain a complete list of laws and regulations. Rather, it focuses on the ones which are closely related to the Guideline.

Level	Type of Law/Regulation
National level	<ul style="list-style-type: none"><li>Constitution (<b>UUD</b>; <i>Undang-Undang Dasar</i>)</li><li>Law (<b>UU</b>; <i>Undang-Undang</i>)</li><li>Government Regulation in lieu of a law or interim law (<i>Peraturan Pemerintah Pengganti Undang-Undang</i>)</li><li>Government Regulation (<b>PP</b>; <i>Peraturan Pemerintha</i>)</li></ul>
Presidential level	<ul style="list-style-type: none"><li>Presidential Regulation (<b>PERPRES</b>; <i>Peraturan Presiden</i>)</li><li>Presidential Decree (<b>KEPPRES</b>; <i>Keputusan Presiden</i>)</li><li>Presidential Instruction (<b>INPRES</b>; <i>Instruksi Presiden</i>)</li></ul>
Ministerial level	<ul style="list-style-type: none"><li>Ministerial Regulation (<b>PERMEN</b>; <i>Peraturan Menteri</i>)</li><li>Ministerial Decree (<b>KEPMEN</b>; <i>Keputusan Menteri</i>)</li><li>Ministerial Instruction (<b>INMEN</b>; <i>Instruksi Menteri</i>)</li></ul>
Directorate General Level	<ul style="list-style-type: none"><li>Directorate General Regulation (<i>Peraturan Direktur Jeneral</i>)</li><li>Directorate General Decree (<i>Keputusan Direktur Jeneral</i>)</li></ul>
Agency Level	<ul style="list-style-type: none"><li>Agency Regulation (<b>PERKA</b>; <i>Peraturan Kepala Badan</i>)</li></ul>
Regional level	<ul style="list-style-type: none"><li>Regional Regulation (<i>Peraturan Daerah</i>)</li></ul>

# ASEAN Renewable Energy Guideline on **Biomass and Biogas Power Project Development in Indonesia**

2<sup>nd</sup> Edition, February 2015



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Zusammenarbeit (GIZ) GmbH

