



PHILIPPINE DOWNSTREAM NATURAL GAS INDUSTRY: LNG INVESTORS' GUIDE

Photo taken at Energy World Corp, Pagbilao Quezon (March 2019)

GPDP Project Director | 03 September 2020



Republic of the Philippines
Department of Energy

PHILIPPINE DOWNSTREAM NATURAL GAS INDUSTRY

INVESTORS' GUIDE



Supported by  GAS POLICY
DEVELOPMENT PROJECT

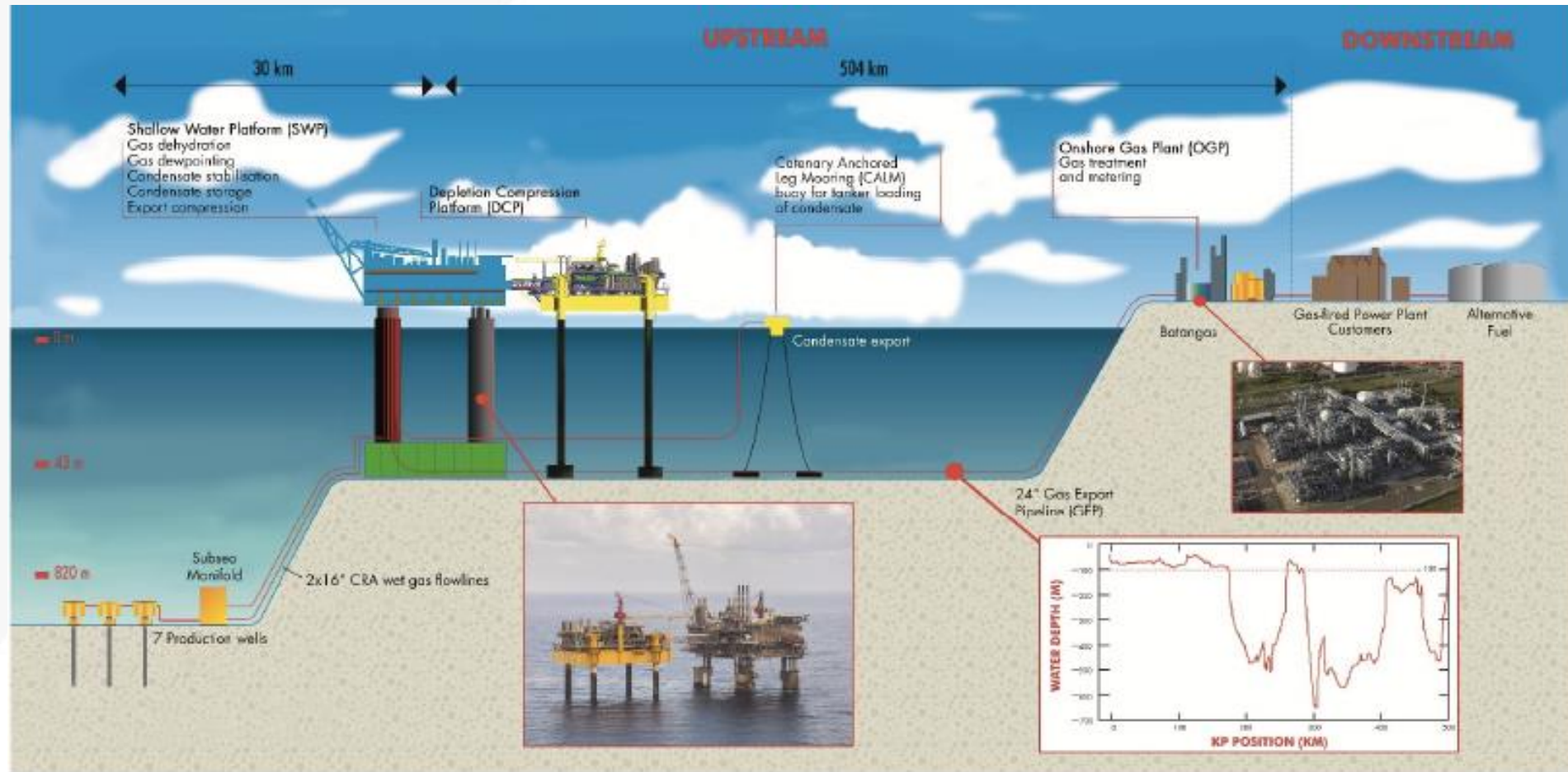
Mechanism To Guide Investors in LNG Facilities

Table of Contents

Overview

- 1. Natural Gas Industry: Outlook and Potential Investments**
2. The Philippine Downstream Natural Gas Industry Regulatory Framework
3. Incentives and Policies that Facilitate Investments
- 4. Primer for Application**

Natural Gas Supply from Malampaya, Palawan



Uses of Natural Gas

- **Power** – fuel for gas turbines or engines that drive generators
- **Industrial** – used in oil refineries; fuel for furnaces, heaters, compressors for refrigeration and air conditioning systems; raw materials to produce chemicals, fertilizers, and hydrogen.
- **Transport** – fuel for public transport or heavy ; marine fuel
- **Commercial** – operate cooling equipment; fuel in combined heat power systems; heat water, cook food, outdoor lighting, etc.
- **Residential** – fuel for cooking and heating in households, etc.

- 95% of all the indigenous gas from Malampaya is used as fuel for the gas-fired power plants in Batangas.
- Small scale LNG businesses didn't have a chance at all due to lack of gas.



• Natural Gas Industry Outlook in the Philippines

A. Anchor Investments for LNG: Power

Notice to Proceed Issued to four (4) companies with 1 PCERM Application

- 1) Tanglawan (expired)
- 2) First Gen
- 3) Excelerate
- 4) Batangas Clean Energy

Additional power capacities, 2017-2040 (in MW)

Capacity Addition in MW	Luzon	Visayas	Mindanao	Total by type
Baseload (coal, geothermal, natural gas*, nuclear*, biomass*, & hydro*)	13,635	5,330	6,300	25,265
Mid-merit (natural gas & all others)	8,300	3,000	3,200	14,500
Peaking (oil, wind** and solar PV**)	2,450	850	700	4,000
Total per grid	24,385	9,180	10,200	43,765

Notes: At 70, 20 10: Baseload, Mid-merit and peaking; *Natural gas is currently considered as baseload but belongs to mid-merit category; hydro is baseload only in rainy season; biomass is baseload only during availability of feedstock; **Wind and solar PV subject to availability

Source: DOE 2016

Potential non-power uses of LNG



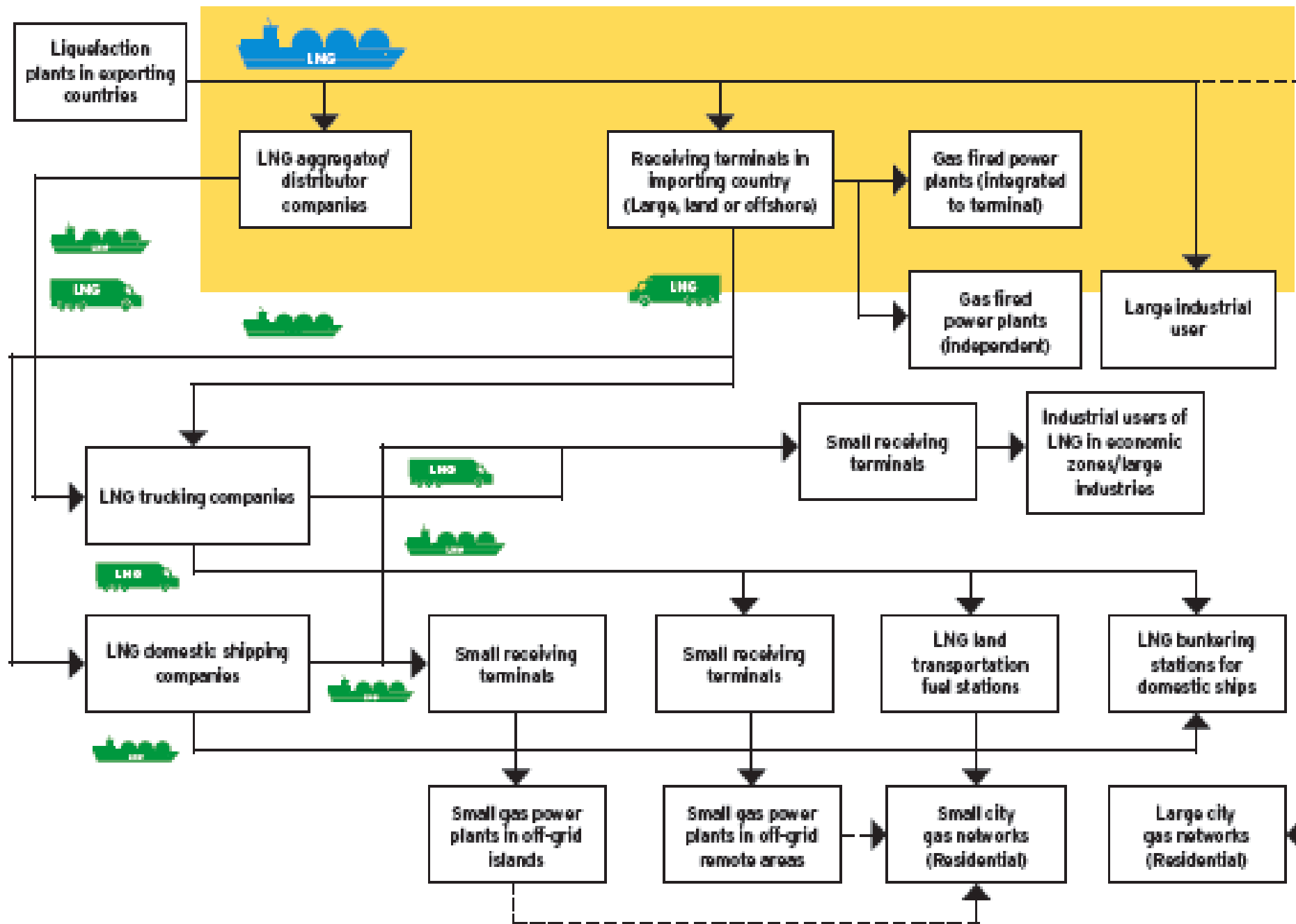
Power

Transport

Commercial

Industrial

Residential



A Functional LNG Value Chain

Natural Gas Industry Outlook in the Philippines

Potential Non-Power Businesses

- 1) Small power plants for island provinces and remote areas
- 2) Inter-island shipping
- 3) Trucking
- 4) Industrial and commercial use
- 5) Residential and other restaurants
- 6) Land-based public transport

Natural Gas Industry Outlook in the Philippines

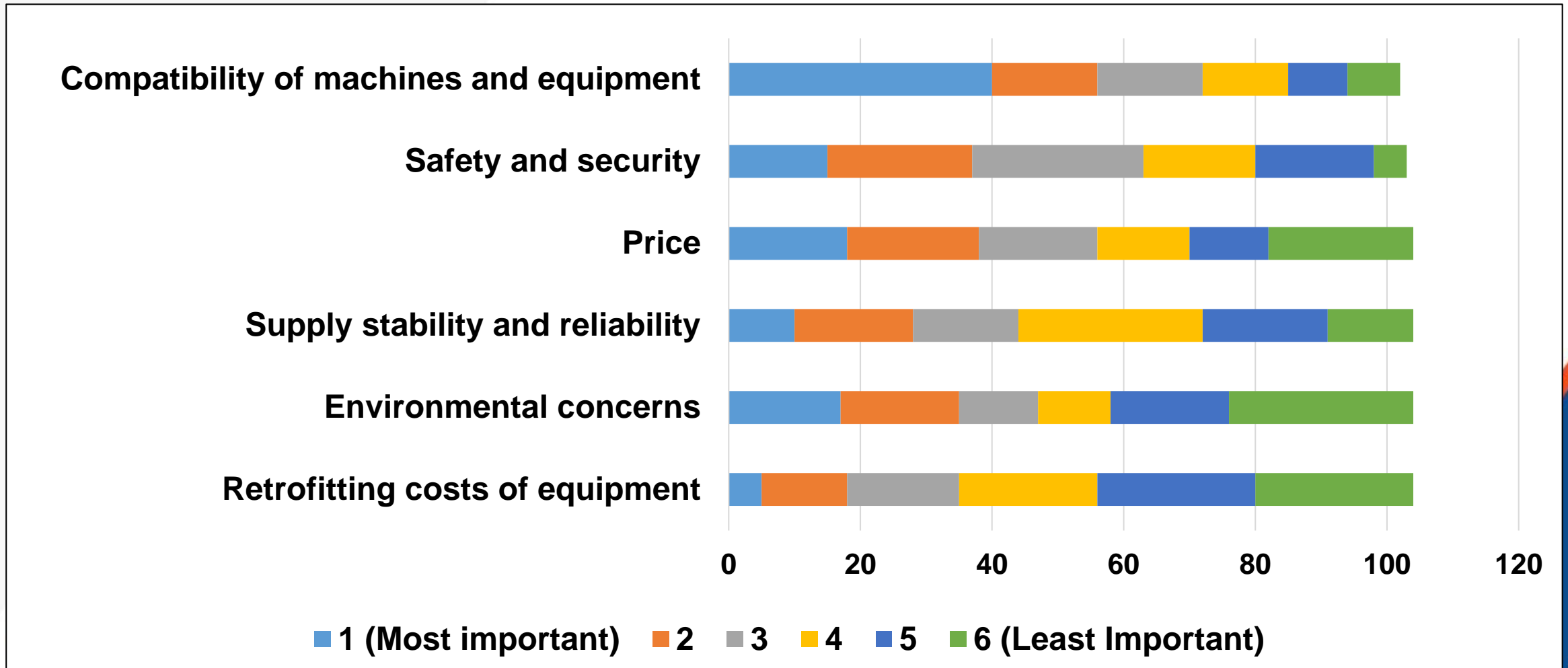
Ecozone companies: *Perception on and Openness to Natural Gas*

	Safety (1)		Cost-competitiveness (2)		Openness to switching (3)	
	%	N	%	N	%	N
Yes	57.39	66	65.22	75	63.48	73
No	42.61	49	34.78	40	36.52	42
Total	100.00	115	100.00	115	100.00	115

Source: GPDP Primary Survey on Natural Gas Profiling 2019

Natural Gas Industry Outlook in the Philippines

Top Considerations for Fuel Switching to Natural Gas



Source: GPDP Primary Survey on Natural Gas Profiling 2019

Natural Gas Industry Outlook in the Philippines

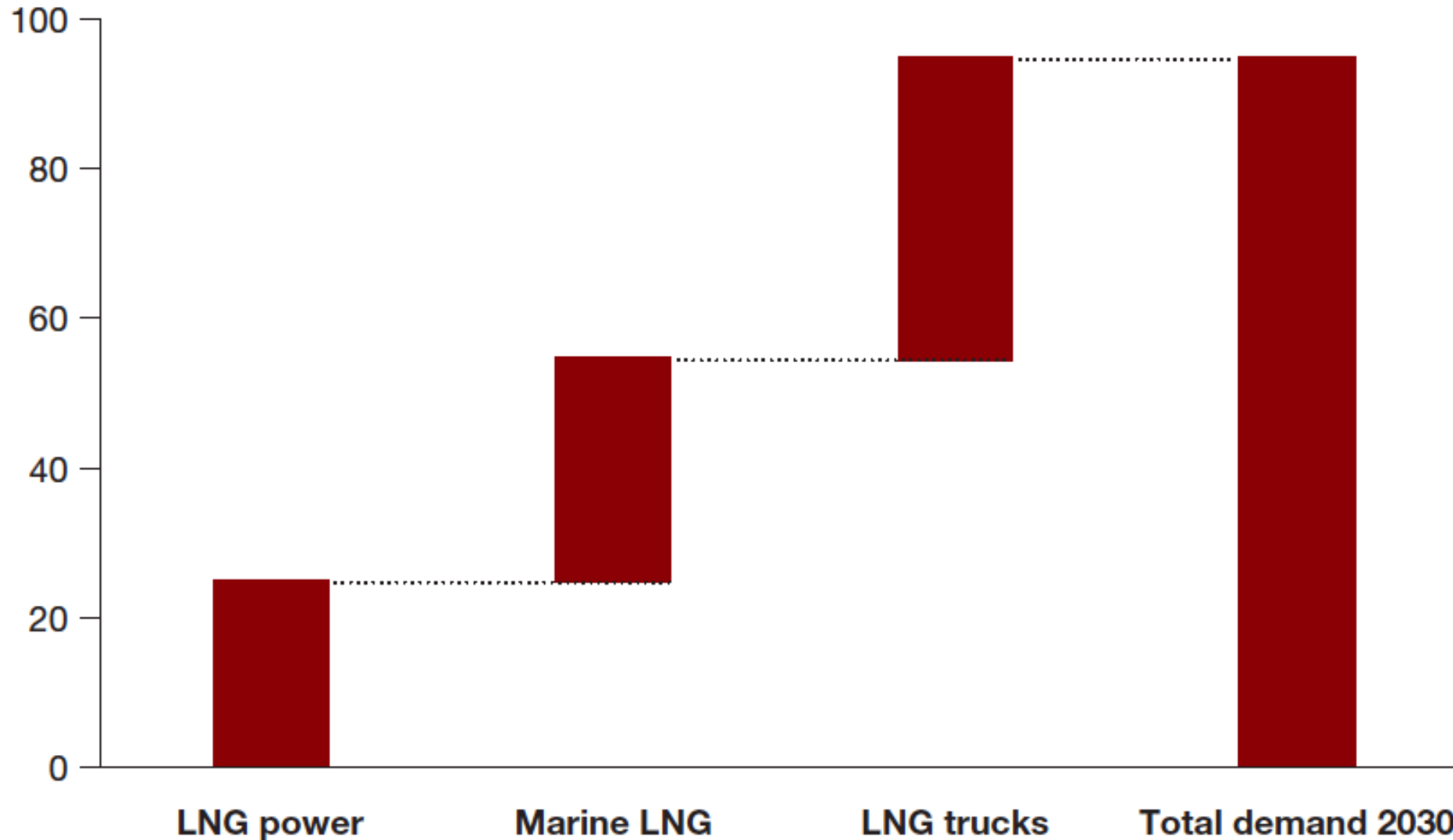
Energy Requirement for Natural Gas in Case of Switching

Units: <u>mmscfd</u>	%	N
1 to 20	69.86	51
21 to 40	10.96	8
41 to 60	9.59	7
61 to 80	5.48	4
81 to 100	4.11	3
101 and above	0.00	0
Total	100.00	73

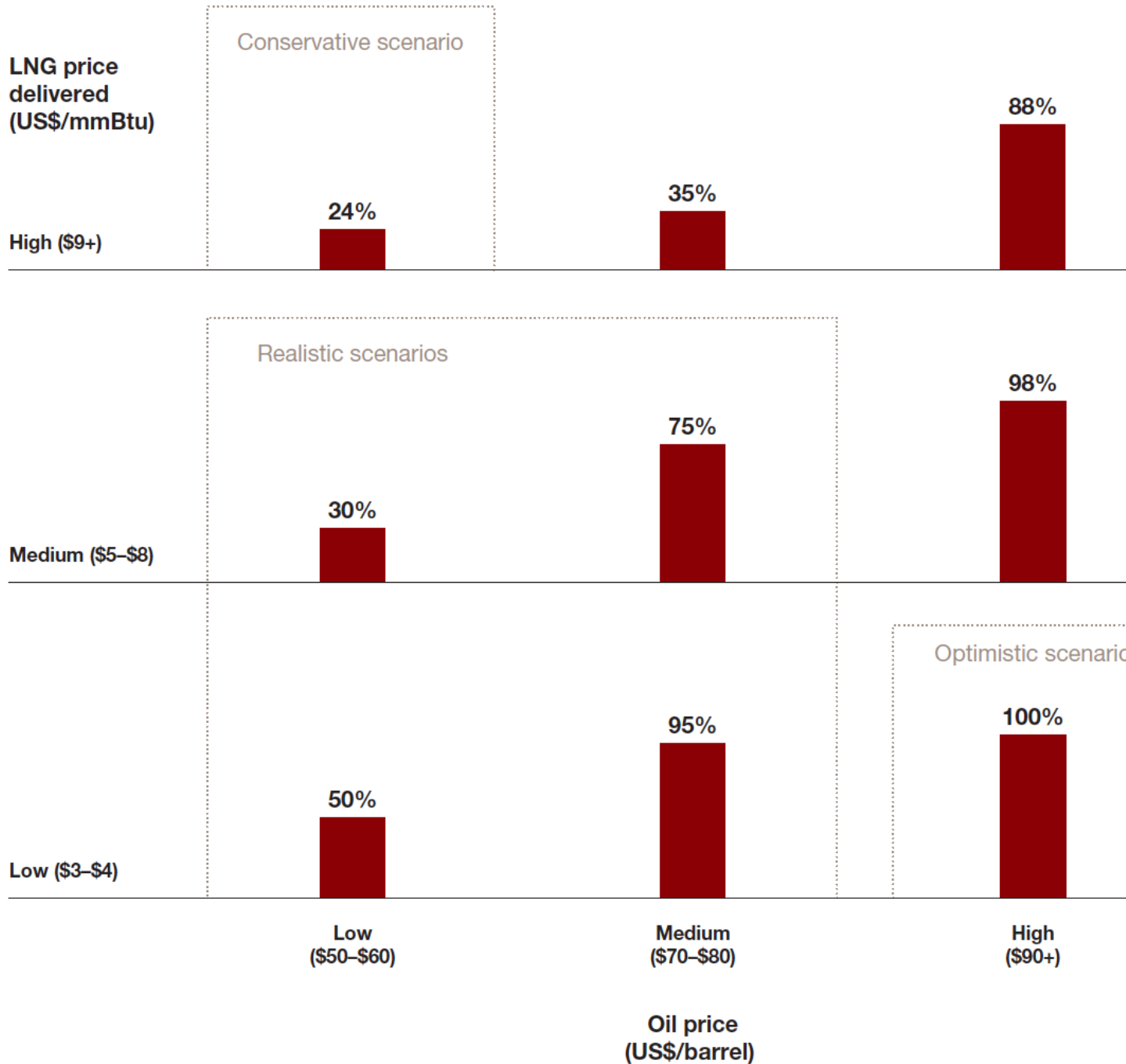
Source: GPDP Primary Survey on Natural Gas Profiling 2019

Promising ssLNG Businesses

Tons/year
(in millions)



Source: Engie; Strategy&
research



Factor
affecting
Potential
demand for
LNG by ssLNG
businesses



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Mechanism to guide investors for LNG facilities

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Over-all Permitting Process

1 Notice to Proceed (NTP)

(1-8)

1. Applicant to submit request letter for pre-application conference to DNG-REC

2. DNG-REC to send reply letter with schedule of conference to Applicant

3. Applicant to present general project concept and inquire clarification during presentation

4. Applicant to submit application and documentary requirements

5. DNG-REC to evaluate, resolve, and inform Applicant if submission is complete

6. If submission is complete, DNG-REC to conduct legal, technical, and financial evaluation and recommend for approval the issuance/non-issuance of NTP of DOE Secretary

7. DOE Secretary to review and decide on recommendation for approval/non-approval of NTP

DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation

8. Issuance of NTP

2 Permit to Construct, Expand, Rehabilitate, & Modify (PCERM)

(9-14)

9. Applicant to secure permits or clearances from other Government Agencies and Financial Closing within validity of NTP

10. Applicant to submit compliance to NTP conditions for validation of DNG-REC

11. Once validated, DNG-REC to recommend for approval of DOE Secretary the issuance of PCERM

12. DOE Secretary to review and decide for approval/non-approval of PCERM

DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation

13. Issuance of PCERM

14. Start of construction

3 Permit to Operate & Maintain (POM)

(15-20)

15. Completion of construction
Applicant to submit application for POM

16. DNG-REC and PIA-HSSE IMT to verify completion of construction and compliance

17. Upon verification, DNG-REC to recommend approval to DOE Secretary the issuance of POM

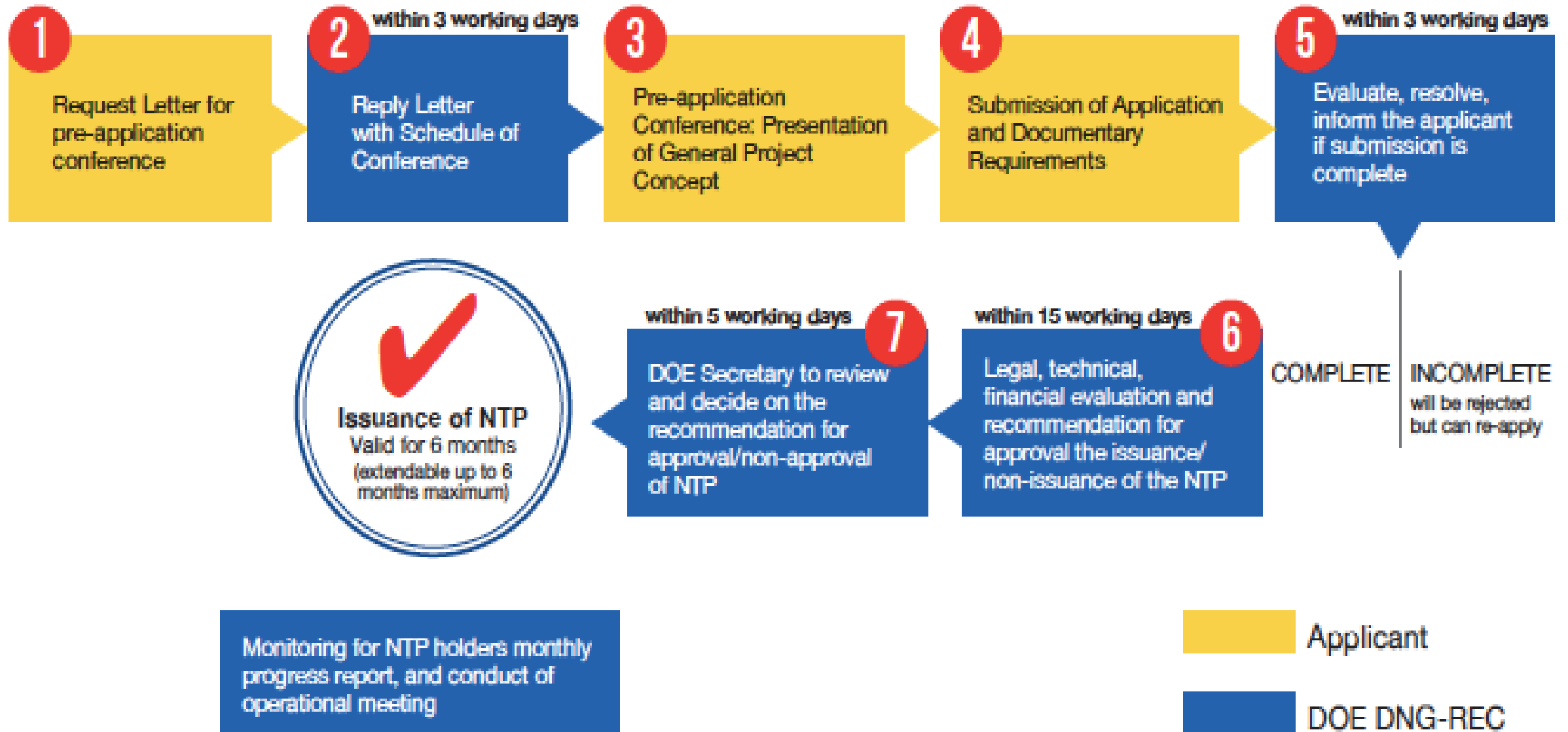
18. DOE Secretary to review and decide for approval/non-approval of POM

DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation

19. Issuance of POM

20. Commercial operation

NTP Application Process



PCERM Application Process



1 within 5 working days
from end of NTP period

Submission of
compliance to the NTP
conditions for validation
of DNG-REC

2 within 15 working days

Once validated, DNG-REC shall
recommend for approval of the
DOE Sec., the issuance/non-
issuance of the PCERM

3 within 5 working days

DOE Secretary to review and
decide for approval/non-
approval of the PCERM



5

Completion of Construction
should be within the approved
construction timeline

4

Monitoring for PCERM Holders
1. Monthly Progress Report
2. Lost-Time Incident Report

Monitoring for PCERM holders
monthly progress report, and
conduct of operational meeting

Applicant

DOE DNG-REC

POM Application Process



1 within 30 working days from construction completion

Submit application for POM

2 within 15 working days

DNG-REC and PIA-HSSE IMT to verify completion of construction and compliance. Upon verification, DNG-REC shall recommend approval to DOE Secretary the issuance of POM

3 within 15 working days from receipt of recommendation

DOE Secretary to review and decide for approval/non-approval of the POM

Monitoring for POM Holders
1. Registry
2. Reportorial Requirements
• Monthly Operation Report
• Lost-Time Incident Report



4

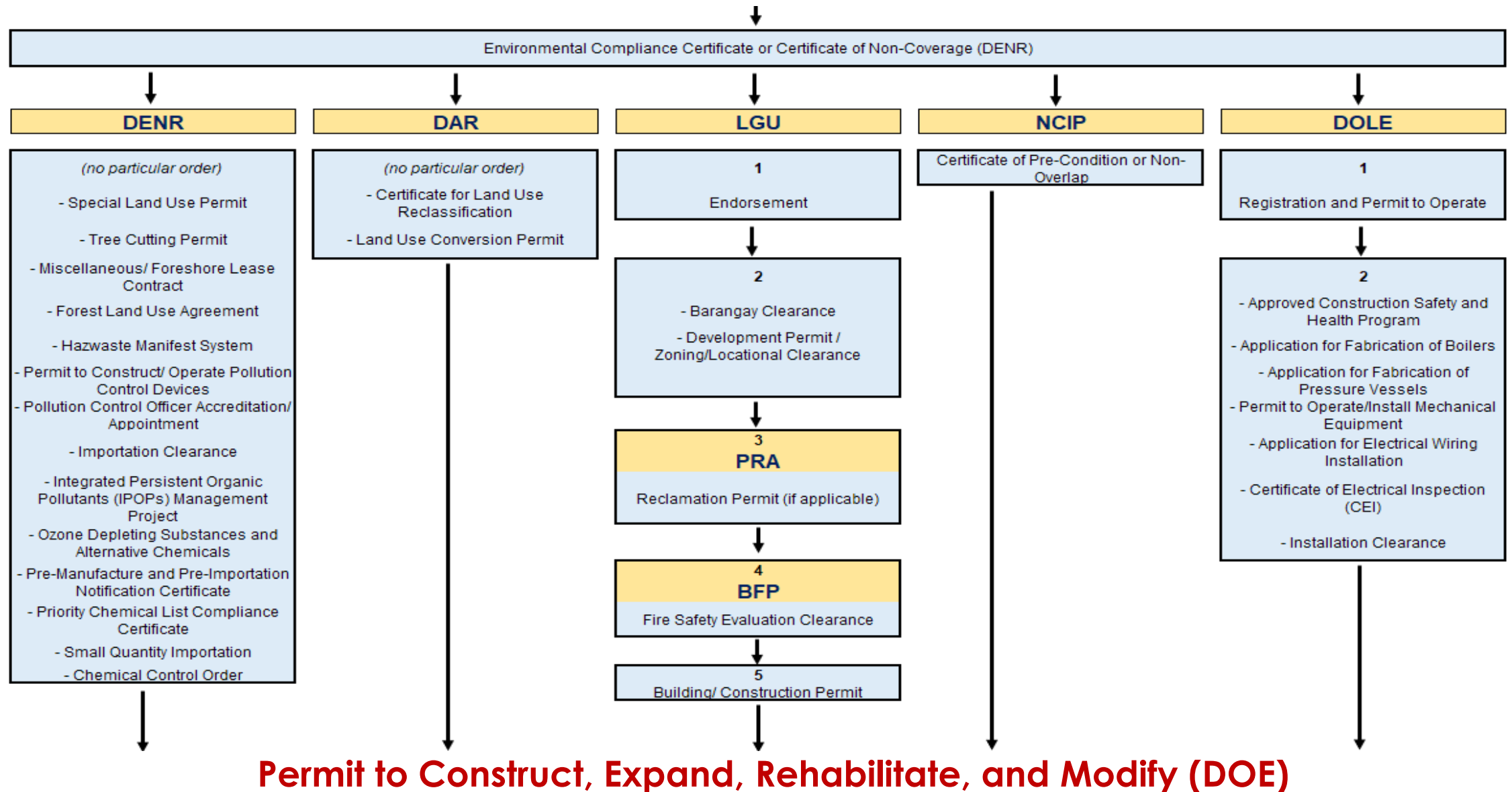
Commercial Operation for an initial period of 25 years renewable up to 25 years subject to some conditions

 Applicant

 DOE DNG-REC

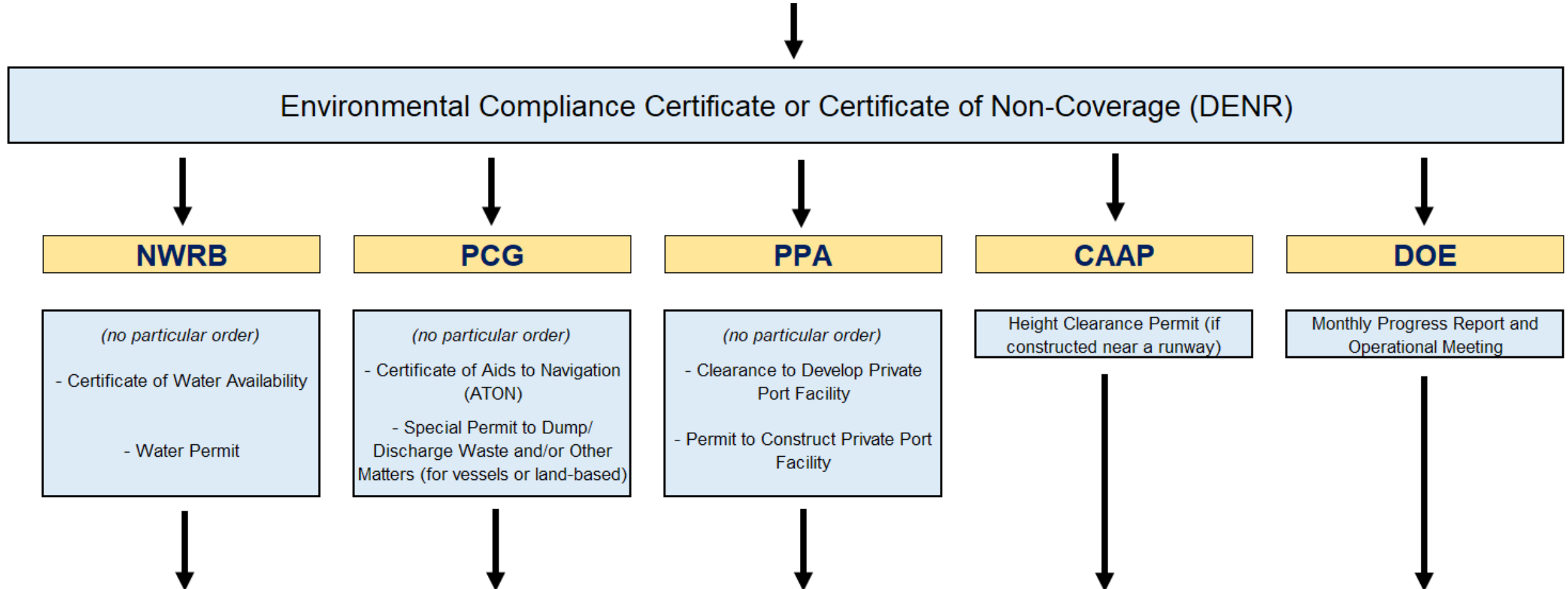
PRE-CONSTRUCTION

Notice to Proceed (DOE)



PRE-CONSTRUCTION

Notice to Proceed (DOE)



Permit to Construct, Expand, Rehabilitate, and Modify (DOE)

List of Regulatory Agencies and their Abbreviations

- Department of Energy, DOE
- Department of Agrarian Reform, DAR
- Department of Labor and Employment, DOLE
- Department of Interior and Local Government, DILG
- Department of Environment and Natural Resources-Environmental Management Bureau (DENR)
- Bureau of Fire Protection, BFP
- National Water Resource Board, NWRB
- Philippine Coast Guard, PCG
- Philippine Ports Authority, PPA
- Civil Aviation Administration of the Philippines, CAAP
- National Commission of Indigenous Peoples, NCIP
- Philippine Reclamation Authority, PRA

CONSTRUCTION

DOE

(no particular order)

- Permit to Operate and Maintain
- Monthly Progress Report and Operational Meeting

- Permit to Operate and Maintain

DOLE

(no particular order)

- Company Occupational Safety and Health (OSH) Administrative Reports

DENR

(no particular order)

- Semi-Annual Compliance Monitoring Report
- Hazardous Waste Generator's ID
- Quarterly Self-Monitoring Report
- Permit to Operate Air Pollution Source, and Control Installation
- Wastewater Discharge Permit

PPA

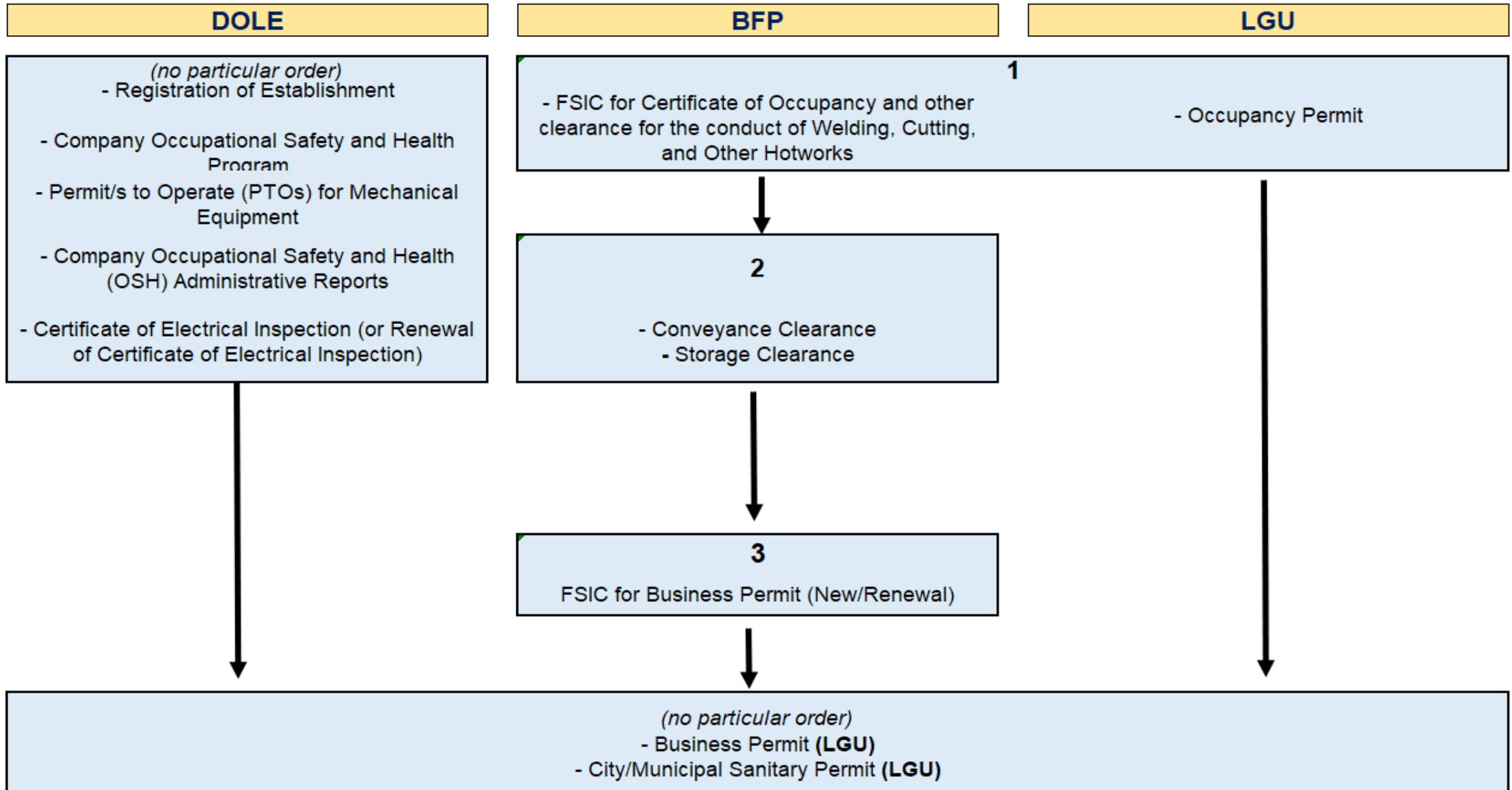
(no particular order)

- Permit to Operate
- Waste Reception Facility (segregation, sewage, etc.)

BFP

Installation Clearance

OPERATION



OPERATION

DOE

(no particular order)

- Monthly Progress Report and Operational Meeting

DENR

(no particular order)

- Semi-Annual Compliance Monitoring Report
- Quarterly Self-Monitoring Report
- Renewal of Permit to Operate Air Pollution Source, and Control Installation

MARINA

Exemption Permit



PCG

(no particular order)

- Oil Spill Contingency Plan (onshore)
- Shipboard Oil Pollution Emergency Plan (SOPEP)
- Oil Record Book
- Garbage Management Plan (GMP)
- Garbage Record Book (GRB)
- Permit to Conduct Tank Cleaning Operations
- Oil Water Separator (OWS) Certificate
- International/Oil Pollution Prevention Certificate (IOPPC/OPPC)
- International/Sewage Pollution Prevention Certificate (ISPPC/SPPC)
- Notice to Mariners (if special activities to port)

PNP

(no particular order)

- License to Possess Explosives/Explosive Ingredients/Controlled Chemicals
- Permit to Export Explosives/Explosive Ingredients and/or Controlled Chemicals
- Permit to Import Explosives/Explosive Ingredients and/or Controlled Chemicals
- Special Permit to Purchase/Transfer and Move Explosives/Explosive Ingredients and/or Controlled Chemicals
- Permit to Unload Explosives/Explosive Ingredients and/or Controlled Chemicals from Vessels/Aircrafts and Transport to Destination

Facilities covered by the PDNGR

LNG Terminal

- a. Jetty and unloading/loading arms
- b. Cryogenic pipelines
- c. Storage tanks
- d. Send out system
- e. Low and high pressure pumps
- f. Boil-off gas compressors and re-condensers
- g. Vaporizers
- h. Metering; and
- i. Other relevant components

Pipelines

- a. Transmission
- b. Distribution including spur lines
- c. Other relevant components

Transmission and distribution related facilities

- a. Processing plants
- b. Facilities for pipeline interconnections and metering
- c. Natural Gas Refilling Stations;
- d. Other relevant components

Indigenous Natural Gas Facility

- Pipelines and their related facilities used to transport natural gas after the point of sale to the last connection point to the customers

ACCREDITATION AND IMPORTATION

DOE

1

LNG Importer Accreditation Certificate

2

Acknowledgement to Import LNG

(no particular order)

- Acknowledgement to Supply and Transport Natural Gas (AST-NG)
- Natural Gas Supplier Accreditation Certificate

BIR

Importer's Tax Identification Number

MARINA

(no particular order)

- Accreditation of Domestic Shipowners/ Operators/ Companies and Maritime Enterprises/ Entities
- Acquisition of Ships for Domestic Utilization
- Permit for Permanent Conversion of Ships Trading Status from Overseas to Domestic Trade
- Special Permit for Temporary Utilization of Overseas Ships in Domestic Trade
- Transfer of Ownership Through Local Sale

PCG

(no particular order)

- Accreditation for international vessels

BOC

(no particular order)

- Certification and Official Receipt of Payment
- Registration and Accreditation as Importer

BOC, BOQ, BOI, PCG

1

Entry Inspection and Clearance (Boarding Formalities) (BOC, BOQ, BOI, PCG)

2

Exit Clearance (BOC, BOQ, BOI)

Continuing what has been started :

Focus and possible support for GPDP 2

- Delineating agency functions for LNG project monitoring and permit applications
- Policy recommendations supporting above & natural gas bill
- Continuous technical capacity development for staff and executives
- Technologies, associated hazards and figuring out what are needed for the permitting system
- Customized list of standards per agency

GPDP launched on **8 Dec 2018**



DOE and UP Statistical Center Research Foundation Inc. signed a MOA to implement the 18 – month project.

Project Activities

TECHNICAL ASSISTANCE



CAPACITY BUILDING



RESEARCH



POLICY ADVISORY



Project accomplishments (18 months)



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Click this [link](#) for the electronic copy of the document or visit our Facebook Gas Policy Development Project
<https://www.facebook.com/gaspolicydevproj/>

Supported under the



The **Gas Policy Development Project (GPDP)** is implemented by the U.P. Statistical Center Research Foundation Inc. (UPSCRFI). GPDP is funded through a cooperative agreement with the U.S. Department of State under the U.S. Asia EDGE (Enhancing Development and Growth through Energy) initiative.



The **U.S. Department of State**, Bureau of Energy Resources leads efforts to forge international energy policy, strengthen U.S. and global energy security, and respond to energy challenges from around the world that affect U.S. economic policy and energy security.



The **Asia EDGE initiative** is a U.S. whole-of-government effort to grow sustainable and secure energy markets throughout the Indo-Pacific. Asia EDGE seeks to strengthen energy security, increase energy diversification and trade, and expand energy access across the region.



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The **Department of Energy** is mandated by RA 7638 (Department of Energy Act of 1992) to prepare, integrate, coordinate, supervise and control all plans, programs, projects and activities of the Government related to energy exploration, development, utilization, distribution and conservation.

GPDP

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Thank you!