0120/00026787/en
Other Announcements
C.O. CYPRUS OPPORTUNITY ENERGY PUBLIC COMPANY LTD
GAS

Reserves & Contingent Resources Report

Please find attached announcement regarding a new Reserves and Contingent Resources Report on the North Dakota Project prepared by NSAI

Attachments:

1. **GAS - Announcement Reserves & Contingent Resources Report**
2. **GAS - Reserves & Contingent Resources Report**

Non Regulated
Publication Date: 14/03/2019

14th March 2019

Cyprus Stock Exchange
Nicosia

ANNOUNCEMENT

Re: Holder of the Majority Working Interest (the "Major Partner") in North Dakota, USA Project Published a New Reserves and Contingent Resources Report

C.O. CYPRUS OPPORTUNITY ENERGY PUBLIC COMPANY LIMITED (the "Company") would like to inform the investing public, further to the announcement dated 27 June 2017 regarding entering into a Farmout Agreement for the participation and acquisition of rights in oil and gas assets in North Dakota, USA (the "Project"), that the Major Partner[1] in the Project had received a new Reserves and Contingent Resources Report (the "Report") which had been prepared by Netherland, Sewell & Associates, Inc., an independent expert to Reserve estimation ("NSAI").

The Report was prepared according to the guidelines of the Society Petroleum Engineer's Petroleum Resources Management System ("PRMS") and is attached to this announcement.

The Report is attached to this announcement, for the review of the investing public.

Warning – Possible Reserves are those additional reserves that are not expected to be recovered at the same certainty of the Probable reserves; there is a 10% probability that the quantities actually recovered will equal or exceed the sum of Proved Plus Probable Plus Possible Reserves.

Warning – NSAI's estimates regarding oil and gas Reserves in the project area are "forward-looking information". The above estimates are based, inter alia, on geological, geophysical, engineering and other data, received through the activities made in the Project area and by the operator in the Project's assets, and constitute professional estimates and assumptions only of NSAI, for which there is no certainty. The quantities of oil and gas actually produced may differ from these estimates and assumptions, inter alia, as a result of operational and technical conditions and / or regulatory changes and / or supply and demand conditions in the oil market and / or commercial conditions and / or actual performance of the wells. The above may be updated as additional data accumulates.

Warning - there is no certainty that it will be commercially possible to produce any percentage of the contingent resources.

Warning - NSAI's estimates regarding contingent resources in the project area are "forward-looking information". The above estimates are based, inter alia, on completion techniques which have recently been used for drilling to the same reservoir in areas outside the project area and for an analogy to reservoirs with geological characteristics and similar reservoir characteristics that are adjacent to the project area, and are professional estimates and assumptions only of NSAI, for which there is no certainty. The quantities of oil and gas produced may differ from these estimates and assumptions, inter alia, as a result of

[1] Israel Opportunity – Energy Resources, LP. A public Israeli partnership, which its General Partner is a substantial shareholder in the Company.

operational and technical conditions and / or regulatory changes and / or supply and demand conditions in the oil market and / or actual performance of the reservoir. The above may be updated as additional information accumulates and / or results from a range of factors related to oil exploration and production projects and as a result of operational and / or market conditions and / or regulatory conditions.

The partners to the Project and their work interest (on average[2]) are as follows:
The Company – about 2.82%
Israel Opportunity – Energy Resources, LP – about 58.28%
Radian Partnership, LP – about 9.4%
Thurston Energy Investment 2, LLC – about 23.5%
A number of different holders, combined – about 6%

Kind regards,

Rony Halman
Chairman of C.O. CYPRUS OPPORTUNITY ENERGY PUBLIC COMPANY LIMITED

[2] The Work Interest in the 10 sections that comprise the Project differs between one section to another. Therefore, the overall work interest dispersion is displayed as average.

NETHERLAND, SEWELL & ASSOCIATES, INC.
WORLDWIDE PETROLEUM CONSULTANTS
ENGINEERING • GEOLOGY • GEOPHYSICS • PETROPHYSICS

EXECUTIVE COMMITTEE
ROBERT C. BARG
P. SCOTT FROST
JOHN G. HATTNER
J. CARTER HENSON, JR.
MIKE K. NORTON
DAN PAUL SMITH
JOSEPH J. SPELLMAN
DANIEL T. WALKER

CHAIRMAN & CEO
C.H. (SCOTT) REES III
PRESIDENT & COO
DANNY D. SIMMONS
EXECUTIVE VP
G. LANCE BINDER

March 13, 2019

Mr. Eyal Shuker
Israel Opportunity - Energy Resources, Limited Partnership
2 Ben Gurion Road
Ramat Gan 52573
Israel

Dear Mr. Shuker:

In accordance with your request, we have estimated the proved, probable, and possible reserves and future revenue, as of December 31, 2018, to the Israel Opportunity - Energy Resources, Limited Partnership (IOER) working interest in certain oil and gas properties located in Burke County, North Dakota. Also as requested, we have estimated the contingent resources to the IOER working interest, as of December 31, 2018, for these properties. It is our understanding that IOER owns a direct interest in these properties. We completed our evaluation on or about the date of this letter. For the reserves, this report has been prepared using price and cost parameters specified by IOER, as discussed in subsequent paragraphs of this letter.

The estimates in this report have been prepared in accordance with the definitions and guidelines set forth in the 2018 Petroleum Resources Management System (PRMS) approved by the Society of Petroleum Engineers (SPE) and in accordance with internationally recognized standards, as stipulated by the Israel Securities Authority (ISA). As presented in the 2018 PRMS, petroleum accumulations can be classified, in decreasing order of likelihood of commerciality, as reserves, contingent resources, or prospective resources. Different classifications of petroleum accumulations have varying degrees of technical and commercial risk that are difficult to quantify; thus reserves, contingent resources, and prospective resources should not be aggregated without extensive consideration of these factors. Definitions are presented immediately following this letter. This report has been prepared for IOER's use in filing with the ISA; in our opinion the assumptions, data, methods, and procedures used in the preparation of this report are appropriate for such purpose.

RESERVES

Reserves are those quantities of petroleum anticipated to be commercially recoverable from known accumulations by application of development projects from a given date forward under defined conditions. Reserves must be discovered, recoverable, commercial, and remaining as of the evaluation date based on the planned development projects to be applied. Proved reserves are those quantities of oil and gas which, by analysis of engineering and geoscience data, can be estimated with reasonable certainty to be commercially recoverable; probable and possible reserves are those additional reserves which are sequentially less certain to be recovered than proved reserves.

We estimate the gross (100 percent) reserves and the working interest reserves to the IOER interest in these properties, as of December 31, 2018, to be:

Category	Gross (100%) Reserves Oil (MBBL)	Gross (100%) Reserves Gas[1] (MMCF)	Working Interest Reserves Oil (MBBL)	Working Interest Reserves NGL (MBBL)	Working Interest Reserves Gas (MMCF)
Proved (1P)	154.7	618.3	91.5	40.2	205.0
Probable	39.9	161.2	23.5	10.4	53.2
Proved + Probable (2P)	194.6	779.5	115.1	50.6	258.2
Possible	182.9	287.6	101.5	17.8	90.9
Proved + Probable + Possible (3P)	377.4	1,067.1	216.6	68.4	349.1

Totals may not add because of rounding.

[1] The gross (100 percent) gas volumes shown in this report are prior to the processing of natural gas liquids (NGL).

We estimate the future net revenue after corporate income taxes, discounted at 0, 5, 10, 15, and 20 percent, to the IOER interest in these properties, as of December 31, 2018, to be:

Category	Future Net Revenue After Corporate Income Taxes (M$) Discounted at 0%	Discounted at 5%	Discounted at 10%	Discounted at 15%	Discounted at 20%
Proved (1P)	786.4	840.8	861.9	863.4	853.6
Probable	297.0	285.9	263.2	237.6	213.0
Proved + Probable (2P)	1,083.4	1,126.7	1,125.0	1,101.0	1,066.6
Possible	630.7	536.3	436.4	347.9	274.3
Proved + Probable + Possible (3P)	1,714.1	1,663.0	1,561.4	1,448.9	1,341.0

Totals may not add because of rounding.

The oil volumes shown include light and medium crude oil only. Oil and NGL volumes are expressed in thousands of barrels (MBBL); a barrel is equivalent to 42 United States gallons. Gas volumes are expressed in millions of cubic feet (MMCF) at standard temperature and pressure bases. Oil equivalent volumes are expressed in barrels of oil equivalent (BOE), determined using the ratio of 6 MCF of gas to 1 barrel of oil. Monetary values shown in this report are expressed in United States dollars ($) or thousands of United States dollars (M$). For reference, the March 12, 2019, exchange rate was 3.62 Israeli New Shekels per United States dollar.

Reserves categorization conveys the relative degree of certainty; reserves subcategorization is based on development and production status. The 1P reserves are inclusive of proved developed producing reserves only. There are no proved developed non-producing reserves at the price and cost parameters used in this report. Our study indicates that as of December 31, 2018, there are no proved undeveloped reserves for these properties. The project maturity subclass for these reserves is on production. The reserves shown in this report have been estimated using deterministic methods. The probability that the quantities of oil and gas actually recovered will equal or exceed the estimated amounts is 90 percent for the 1P reserves, 50 percent for the 2P reserves, and 10

percent for the 3P reserves. The estimates of reserves and future revenue included herein have not been adjusted for risk.

Working interest revenue for the reserves shown in this report is IOER's share of the gross (100 percent) revenue from the properties prior to any deductions. Future net revenue is after deductions for royalties, capital costs, abandonment costs, operating expenses, general partner expenses paid by IOER, production taxes, and IOER's estimates of its corporate income taxes. The future net revenue has been discounted at annual rates of 0, 5, 10, 15, and 20 percent to determine its present worth, which is shown to indicate the effect of time on the value of money. Future net revenue presented in this report, whether discounted or undiscounted, should not be construed as being the fair market value of the properties. Tables I through V present revenue, costs, and taxes by reserves category. Table VI presents IOER's historical production and operating expense data.

As requested, this report has been prepared using oil, NGL, and gas price parameters specified by IOER. Oil and NGL prices for January 2019 are based on a NYMEX West Texas Intermediate average near-month price. The gas price for January 2019 is based on a NYMEX Henry Hub last trade day settlement price. Prices starting in February 2019 are based on January 2, 2019, NYMEX West Texas Intermediate and NYMEX Henry Hub prices. Oil and NGL prices are adjusted for quality, transportation fees, and market differentials. Gas prices are adjusted for energy content, transportation fees, and market differentials. All prices, before adjustments, are shown in the following table:

Period Ending	Oil/NGL Price ($/Barrel)	Gas Price ($/MMBTU)	Period Ending	Oil/NGL Price ($/Barrel)	Gas Price ($/MMBTU)
1-31-2019	51.57	3.642	10-31-2019	49.31	2.680
2-28-2019	46.54	2.958	11-30-2019	49.50	2.728
3-31-2019	46.86	2.829	12-31-2019	49.66	2.877
4-30-2019	47.24	2.627	12-31-2020	50.33	2.623
5-31-2019	47.70	2.605	12-31-2021	51.37	2.594
6-30-2019	48.15	2.645	12-31-2022	52.22	2.645
7-31-2019	48.54	2.684	12-31-2023	53.06	2.704
8-31-2019	48.85	2.679	Thereafter	53.65	2.796
9-30-2019	49.11	2.652			

Operating costs used in this report are based on operating expense records of IOER. These costs include the per-well overhead expenses allowed under joint operating agreements along with estimates of costs to be incurred at and below the district and field levels. Since all properties are nonoperated, headquarters general and administrative overhead expenses are not included. As requested, these costs also include expenses paid to the general partner of IOER. Also as requested, operating costs are not escalated for inflation.

Capital costs used in this report were provided by IOER and are based on authorizations for expenditure and actual costs from recent activity. Capital costs are included as required for workovers and production equipment. Based on our understanding of future development plans, a review of the records provided to us, and our knowledge of similar properties, we regard these estimated capital costs to be reasonable. Abandonment costs used in this report are IOER's estimates of the costs to abandon the wells and production facilities; these estimates do not include any salvage value for the lease and well equipment. As requested, capital costs and abandonment costs are not escalated for inflation.

We have made no investigation of potential volume and value imbalances resulting from overdelivery or underdelivery to the IOER interest. Therefore, our estimates of reserves and future revenue do not include adjustments for the settlement of any such imbalances; our projections are based on IOER receiving its net revenue interest share of estimated future gross production. Additionally, we have made no specific investigation of any firm transportation contracts that may be in place for these properties; our estimates of future revenue include the effects of such contracts only to the extent that the associated fees are accounted for in the historical field- and lease-level accounting statements.

CONTINGENT RESOURCES

Contingent resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by the application of development project(s) not currently considered to be commercial owing to one or more contingencies. The contingent resources shown in this report are contingent upon the acquisition of additional technical data that demonstrate an increase in producing rates and volumes from improved drilling and completion techniques and commitment to develop the resources. If these contingencies are successfully addressed, some portion of the contingent resources estimated in this report may be reclassified as reserves; our estimates have not been risked to account for the possibility that the contingencies are not successfully addressed. This report does not include economic analysis for these properties. Based on analogous field developments, it appears that the best estimate contingent resources in this report have a reasonable chance of being economically viable. There is no certainty that it will be commercially viable to produce any portion of the contingent resources. The project maturity subclass for these contingent resources is development pending.

We estimate the gross (100 percent) contingent resources and the working interest contingent resources to the IOER interest in these properties, as of December 31, 2018, to be:

	Gross (100%) Contingent Resources		Working Interest Contingent Resources	
Category	Oil (MBBL)	Gas (MMCF)	Oil (MBBL)	Gas (MMCF)
Low Estimate (1C)	5,365.0	8,047.5	3,139.5	4,709.3
Best Estimate (2C)	8,513.7	23,412.6	4,982.1	13,700.8
High Estimate (3C)	11,662.4	46,649.4	6,824.7	27,298.8

The oil volumes shown include light and medium crude oil only.

The contingent resources shown in this report have been estimated using deterministic methods. Once all contingencies have been successfully addressed, the approximate probability that the quantities of contingent resources actually recovered will equal or exceed the estimated amounts is generally inferred to be 90 percent for the low estimate, 50 percent for the best estimate, and 10 percent for the high estimate. The estimates of contingent resources included herein have not been adjusted for development risk.

GENERAL INFORMATION

This report does not include any value that could be attributed to interests in undeveloped acreage. For the purposes of this report, we did not perform any field inspection of the properties, nor did we examine the mechanical operation or condition of the wells and facilities. We have not investigated possible environmental liability related to the properties; however, we are not currently aware of any possible environmental liability that would have any material effect on the reserves or resources quantities estimated in this report or the commerciality of such estimates. Therefore, our estimates do not include any costs due to such possible liability.

The reserves and contingent resources shown in this report are estimates only and should not be construed as exact quantities. Estimates may increase or decrease as a result of market conditions, future operations, changes in regulations, or actual reservoir performance. In addition to the primary economic assumptions discussed herein, our estimates are based on certain assumptions including, but not limited to, that the properties will be developed consistent with current development plans as provided to us by IOER, that the properties will be operated in a prudent manner, that no governmental regulations or controls will be put in place that would impact the ability of the interest owner to recover the volumes, and that our projections of future production will prove consistent with actual performance. If these volumes are recovered, the revenues therefrom and the costs related thereto could be more or less than the estimated amounts. Because of governmental policies and uncertainties of supply and demand, the sales rates, prices received, and costs incurred may vary from assumptions made while preparing this report. It should be noted that the actual production profile for each category may be lower or higher than the production profile used to calculate the estimates of future net revenue used in this report, and no sensitivity analysis was performed with respect to the production profile of the wells. Such sensitivity analysis could lead to the conclusion that the reserves are not economic.

For the purposes of this report, we used technical and economic data including, but not limited to, well logs, well test data, production data, historical price and cost information, and property ownership interests. We were provided with all the necessary data to prepare the estimates for these properties, and we were not limited from access to any material we believe may be relevant. The reserves and contingent resources in this report have been estimated using deterministic methods; these estimates have been prepared in accordance with generally accepted petroleum engineering and evaluation principles set forth in the Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information promulgated by the SPE (SPE Standards). We used standard engineering and geoscience methods, or a combination of methods, including performance analysis and analogy, that we considered to be appropriate and necessary to classify, categorize, and estimate volumes in accordance with the 2018 PRMS definitions and guidelines. The contingent resources shown in this report are for undeveloped locations; such volumes are based on analogy to properties with similar geologic and reservoir characteristics. As in all aspects of oil and gas evaluation, there are uncertainties inherent in the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

Netherland, Sewell & Associates, Inc. (NSAI) was engaged on November 26, 2018, by Mr. Eyal Shuker, Chief Executive Officer of IOER, to perform this assessment. The data used in our estimates were obtained from IOER, public data sources, and the nonconfidential files of NSAI and were accepted as accurate. Supporting work data are on file in our office. We have not examined the titles to the properties or independently confirmed the actual degree or type of interest owned. We are independent petroleum engineers, geologists, geophysicists, and petrophysicists; we do not own an interest in these properties nor are we employed on a contingent basis. Furthermore, no limitations or restrictions were placed upon NSAI by officials of IOER.

QUALIFICATIONS

NSAI performs consulting petroleum engineering services under Texas Board of Professional Engineers Registration No. F-2699. We provide a complete range of geological, geophysical, petrophysical, and engineering services, and we have the technical expertise and ability to perform these services in any oil and gas producing area in the world. The staff are familiar with the recognized industry reserves and resources definitions, specifically those promulgated by the U.S. Securities and Exchange Commission, by the Alberta Securities Commission, and by the SPE, Society of Petroleum Evaluation Engineers, World Petroleum Council, and American Association of Petroleum Geologists. The technical persons responsible for preparing the estimates presented herein meet the requirements regarding qualifications, independence, objectivity, and confidentiality set forth in the SPE Standards.

This assessment has been led by Mr. Richard B. Talley, Jr. and Mr. Zachary R. Long. Mr. Talley is a Senior Vice President and Mr. Long is a Vice President in the firm's Houston office at 1301 McKinney Street, Suite 3200, Houston, Texas 77010, USA. Mr. Talley is a Licensed Professional Engineer (Texas Registration No. 102425). He has been practicing petroleum engineering consulting at NSAI since 2004 and has over 5 years prior industry experience. Mr. Long is a Licensed Professional Geoscientist (Texas Registration No. 11792). He has been practicing petroleum geoscience consulting at NSAI since 2007 and has over 2 years prior industry experience.

Sincerely,

NETHERLAND, SEWELL & ASSOCIATES, INC.
Texas Registered Engineering Firm F-2699

By: _____
C.H. (Scott) Rees III, P.E.
Chairman and Chief Executive Officer

By: _____
Richard B. Talley, Jr., P.E. 102425
Senior Vice President

STATE OF TEXAS
R. B. TALLEY, JR.
102425
LICENSED
PROFESSIONAL ENGINEER

Date Signed: March 13, 2019

By: _____
Zachary R. Long, P.G. 11792
Vice President

STATE OF TEXAS
Z. R. LONG
GEOLOGY
11792
LICENSED
PROFESSIONAL GEOSCIENTIST

Date Signed: March 13, 2019

WKB:BAC

NETHERLAND, SEWELL & ASSOCIATES, INC.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

This document contains information excerpted from definitions and guidelines prepared by the Oil and Gas Reserves Committee of the Society of Petroleum Engineers (SPE) and reviewed and jointly sponsored by the SPE, World Petroleum Council, American Association of Petroleum Geologists, Society of Petroleum Evaluation Engineers, Society of Exploration Geophysicists, Society of Petrophysicists and Well Log Analysts, and European Association of Geoscientists & Engineers.

Preamble

Petroleum resources are the quantities of hydrocarbons naturally occurring on or within the Earth's crust. Resources assessments estimate quantities in known and yet-to-be-discovered accumulations. Resources evaluations are focused on those quantities that can potentially be recovered and marketed by commercial projects. A petroleum resources management system provides a consistent approach to estimating petroleum quantities, evaluating projects, and presenting results within a comprehensive classification framework.

This updated PRMS provides fundamental principles for the evaluation and classification of petroleum reserves and resources. If there is any conflict with prior SPE and PRMS guidance, approved training, or the Application Guidelines, the current PRMS shall prevail. It is understood that these definitions and guidelines allow flexibility for entities, governments, and regulatory agencies to tailor application for their particular needs; however, any modifications to the guidance contained herein must be clearly identified. The terms "shall" or "must" indicate that a provision herein is mandatory for PRMS compliance, while "should" indicates a recommended practice and "may" indicates that a course of action is permissible. The definitions and guidelines contained in this document must not be construed as modifying the interpretation or application of any existing regulatory reporting requirements.

1.0 Basic Principles and Definitions

1.0.0.1 A classification system of petroleum resources is a fundamental element that provides a common language for communicating both the confidence of a project's resources maturation status and the range of potential outcomes to the various entities. The PRMS provides transparency by requiring the assessment of various criteria that allow for the classification and categorization of a project's resources. The evaluation elements consider the risk of geologic discovery and the technical uncertainties together with a determination of the chance of achieving the commercial maturation status of a petroleum project.

1.0.0.2 The technical estimation of petroleum resources quantities involves the assessment of quantities and values that have an inherent degree of uncertainty. These quantities are associated with exploration, appraisal, and development projects at various stages of design and implementation. The commercial aspects considered will relate the project's maturity status (e.g., technical, economical, regulatory, and legal) to the chance of project implementation.

1.0.0.3 The use of a consistent classification system enhances comparisons between projects, groups of projects, and total company portfolios. The application of PRMS must consider both technical and commercial factors that impact the project's feasibility, its productive life, and its related cash flows.

1.1 Petroleum Resources Classification Framework

1.1.0.1 Petroleum is defined as a naturally occurring mixture consisting of hydrocarbons in the gaseous, liquid, or solid state. Petroleum may also contain non-hydrocarbons, common examples of which are carbon dioxide, nitrogen, hydrogen sulfide, and sulfur. In rare cases, non-hydrocarbon content can be greater than 50%.

1.1.0.2 The term resources as used herein is intended to encompass all quantities of petroleum naturally occurring within the Earth's crust, both discovered and undiscovered (whether recoverable or unrecoverable), plus those quantities already produced. Further, it includes all types of petroleum whether currently considered as conventional or unconventional resources.

1.1.0.3 Figure 1.1 graphically represents the PRMS resources classification system. The system classifies resources into discovered and undiscovered and defines the recoverable resources classes: Production, Reserves, Contingent Resources, and Prospective Resources, as well as Unrecoverable Petroleum.

1.1.0.4 The horizontal axis reflects the range of uncertainty of estimated quantities potentially recoverable from an accumulation by a project, while the vertical axis represents the chance of commerciality, P_c, which is the chance that a project will be committed for development and reach commercial producing status.

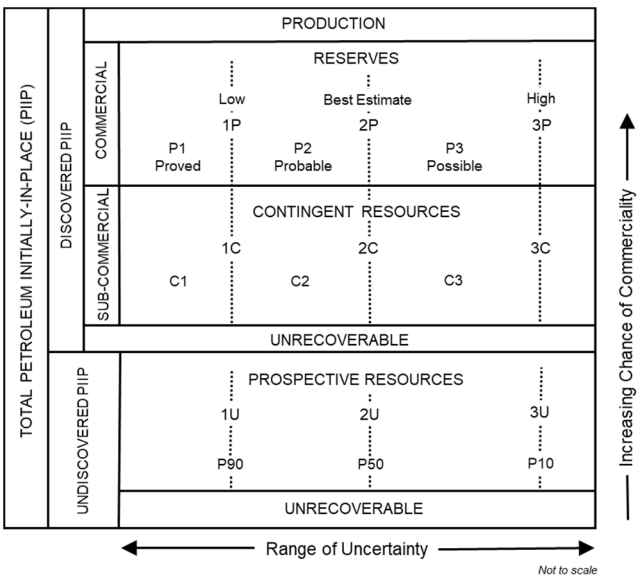

Figure 1.1—Resources classification framework

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

1.1.0.5 The following definitions apply to the major subdivisions within the resources classification:

A. **Total Petroleum Initially-In-Place** (PIIP) is all quantities of petroleum that are estimated to exist originally in naturally occurring accumulations, discovered and undiscovered, before production.

B. **Discovered PIIP** is the quantity of petroleum that is estimated, as of a given date, to be contained in known accumulations before production.

C. **Production** is the cumulative quantities of petroleum that have been recovered at a given date. While all recoverable resources are estimated, and production is measured in terms of the sales product specifications, raw production (sales plus non-sales) quantities are also measured and required to support engineering analyses based on reservoir voidage (see Section 3.2, Production Measurement).

1.1.0.6 Multiple development projects may be applied to each known or unknown accumulation, and each project will be forecast to recover an estimated portion of the initially-in-place quantities. The projects shall be subdivided into commercial, sub-commercial, and undiscovered, with the estimated recoverable quantities being classified as Reserves, Contingent Resources, or Prospective Resources respectively, as defined below.

A. 1. **Reserves** are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must satisfy four criteria: discovered, recoverable, commercial, and remaining (as of the evaluation's effective date) based on the development project(s) applied.

2. Reserves are recommended as sales quantities as metered at the reference point. Where the entity also recognizes quantities consumed in operations (CiO) (see Section 3.2.2), as Reserves these quantities must be recorded separately. Non-hydrocarbon quantities are recognized as Reserves only when sold together with hydrocarbons or CiO associated with petroleum production. If the non-hydrocarbon is separated before sales, it is excluded from Reserves.

3. Reserves are further categorized in accordance with the range of uncertainty and should be sub-classified based on project maturity and/or characterized by development and production status.

B. **Contingent Resources** are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, by the application of development project(s) not currently considered to be commercial owing to one or more contingencies. Contingent Resources have an associated chance of development. Contingent Resources may include, for example, projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorized in accordance with the range of uncertainty associated with the estimates and should be sub-classified based on project maturity and/or economic status.

C. **Undiscovered PIIP** is that quantity of petroleum estimated, as of a given date, to be contained within accumulations yet to be discovered.

D. **Prospective Resources** are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by application of future development projects. Prospective Resources have both an associated chance of geologic discovery and a chance of development. Prospective Resources are further categorized in accordance with the range of uncertainty associated with recoverable estimates, assuming discovery and development, and may be sub-classified based on project maturity.

E. **Unrecoverable Resources** are that portion of either discovered or undiscovered PIIP evaluated, as of a given date, to be unrecoverable by the currently defined project(s). A portion of these quantities may become recoverable in the future as commercial circumstances change, technology is developed, or additional data are acquired. The remaining portion may never be recovered because of physical/chemical constraints represented by subsurface interaction of fluids and reservoir rocks.

1.1.0.7 The sum of Reserves, Contingent Resources, and Prospective Resources may be referred to as "remaining recoverable resources." Importantly, these quantities should not be aggregated without due consideration of the technical and commercial risk involved with their classification. When such terms are used, each classification component of the summation must be provided.

1.1.0.8 Other terms used in resource assessments include the following:

A. **Estimated Ultimate Recovery (EUR)** is not a resources category or class, but a term that can be applied to an accumulation or group of accumulations (discovered or undiscovered) to define those quantities of petroleum estimated, as of a given date, to be potentially recoverable plus those quantities already produced from the accumulation or group of accumulations. For clarity, EUR must reference the associated technical and commercial conditions for the resources; for example, proved EUR is Proved Reserves plus prior production.

B. **Technically Recoverable Resources (TRR)** are those quantities of petroleum producible using currently available technology and industry practices, regardless of commercial considerations. TRR may be used for specific Projects or for groups of Projects, or, can be an undifferentiated estimate within an area (often basin-wide) of recovery potential.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

1.2 Project-Based Resources Evaluations

1.2.0.1 The resources evaluation process consists of identifying a recovery project or projects associated with one or more petroleum accumulations, estimating the quantities of PIIP, estimating that portion of those in-place quantities that can be recovered by each project, and classifying the project(s) based on maturity status or chance of commerciality.

1.2.0.2 The concept of a project-based classification system is further clarified by examining the elements contributing to an evaluation of net recoverable resources (see Figure 1.2).

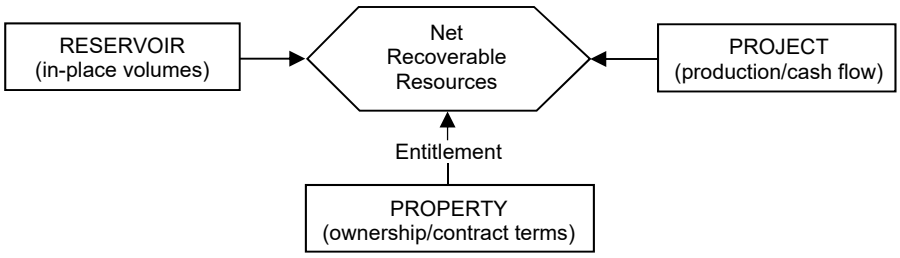

Figure 1.2—Resources evaluation

1.2.0.3 **The reservoir** (contains the petroleum accumulation): Key attributes include the types and quantities of PIIP and the fluid and rock properties that affect petroleum recovery.

1.2.0.4 **The project:** A project may constitute the development of a well, a single reservoir, or a small field; an incremental development in a producing field; or the integrated development of a field or several fields together with the associated processing facilities (e.g., compression). Within a project, a specific reservoir's development generates a unique production and cash-flow schedule at each level of certainty. The integration of these schedules taken to the project's earliest truncation caused by technical, economic, or the contractual limit defines the estimated recoverable resources and associated future net cash flow projections for each project. The ratio of EUR to total PIIP quantities defines the project's recovery efficiency. Each project should have an associated recoverable resources range (low, best, and high estimate).

1.2.0.5 **The property** (lease or license area): Each property may have unique associated contractual rights and obligations, including the fiscal terms. This information allows definition of each participating entity's share of produced quantities (entitlement) and share of investments, expenses, and revenues for each recovery project and the reservoir to which it is applied. One property may encompass many reservoirs, or one reservoir may span several different properties. A property may contain both discovered and undiscovered accumulations that may be spatially unrelated to a potential single field designation.

1.2.0.6 An entity's net recoverable resources are the entitlement share of future production legally accruing under the terms of the development and production contract or license.

1.2.0.7 In the context of this relationship, the project is the primary element considered in the resources classification, and the net recoverable resources are the quantities derived from each project. A project represents a defined activity or set of activities to develop the petroleum accumulation(s) and the decisions taken to mature the resources to reserves. In general, it is recommended that an individual project has assigned to it a specific maturity level sub-class (See Section 2.1.3.5, Project Maturity Sub-Classes) at which a decision is made whether or not to proceed (i.e., spend more money) and there should be an associated range of estimated recoverable quantities for the project (See Section 2.2.1, Range of Uncertainty). For completeness, a developed field is also considered to be a project.

1.2.0.8 An accumulation or potential accumulation of petroleum is often subject to several separate and distinct projects that are at different stages of exploration or development. Thus, an accumulation may have recoverable quantities in several resources classes simultaneously.

1.2.0.10 Not all technically feasible development projects will be commercial. The commercial viability of a development project within a field's development plan is dependent on a forecast of the conditions that will exist during the time period encompassed by the project (see Section 3.1, Assessment of Commerciality). Conditions include technical, economic (e.g., hurdle rates, commodity prices), operating and capital costs, marketing, sales route(s), and legal, environmental, social, and governmental factors forecast to exist and impact the project during the time period being evaluated. While economic factors can be summarized as forecast costs and product prices, the underlying influences include, but are not limited to, market conditions (e.g., inflation, market factors, and contingencies), exchange rates, transportation and processing infrastructure, fiscal terms, and taxes.

1.2.0.11 The resources being estimated are those quantities producible from a project as measured according to delivery specifications at the point of sale or custody transfer (see Section 3.2.1, Reference Point) and may permit forecasts of CiO quantities (see Section 3.2.2., Consumed in Operations). The cumulative production forecast from the effective date forward to cessation of production is the remaining recoverable resources quantity (see Section 3.1.1, Net Cash-Flow Evaluation).

1.2.0.12 The supporting data, analytical processes, and assumptions describing the technical and commercial basis used in an evaluation must be documented in sufficient detail to allow, as needed, a qualified reserves evaluator or qualified reserves auditor to clearly understand each project's basis for the estimation, categorization, and classification of recoverable resources quantities and, if appropriate, associated commercial assessment.

2.0 Classification and Categorization Guidelines

2.1 Resources Classification

2.1.0.1 The PRMS classification establishes criteria for the classification of the total PIIP. A determination of a discovery differentiates between discovered and undiscovered PIIP. The application of a project further differentiates the recoverable from unrecoverable resources. The project is then evaluated to determine its maturity status to allow the classification distinction between commercial and sub-commercial projects. PRMS requires the project's recoverable resources quantities to be classified as either Reserves, Contingent Resources, or Prospective Resources.

2.1.1 Determination of Discovery Status

2.1.1.1 A discovered petroleum accumulation is determined to exist when one or more exploratory wells have established through testing, sampling, and/or logging the existence of a significant quantity of potentially recoverable hydrocarbons and thus have established a known accumulation. In the absence of a flow test or sampling, the discovery determination requires confidence in the presence of hydrocarbons and evidence of producibility, which may be supported by suitable producing analogs (see Section 4.1.1, Analogs). In this context, "significant" implies that there is evidence of a sufficient quantity of petroleum to justify estimating the in-place quantity demonstrated by the well(s) and for evaluating the potential for commercial recovery.

2.1.1.2 Where a discovery has identified potentially recoverable hydrocarbons, but it is not considered viable to apply a project with established technology or with technology under development, such quantities may be classified as Discovered Unrecoverable with no Contingent Resources. In future evaluations, as appropriate for petroleum resources management purposes, a portion of these unrecoverable quantities may become recoverable resources as either commercial circumstances change or technological developments occur.

2.1.2 Determination of Commerciality

2.1.2.1 Discovered recoverable quantities (Contingent Resources) may be considered commercially mature, and thus attain Reserves classification, if the entity claiming commerciality has demonstrated a firm intention to proceed with development. This means the entity has satisfied the internal decision criteria (typically rate of return at or above the weighted average cost-of-capital or the hurdle rate). Commerciality is achieved with the entity's commitment to the project and all of the following criteria:

A. Evidence of a technically mature, feasible development plan.
B. Evidence of financial appropriations either being in place or having a high likelihood of being secured to implement the project.
C. Evidence to support a reasonable time-frame for development.
D. A reasonable assessment that the development projects will have positive economics and meet defined investment and operating criteria. This assessment is performed on the estimated entitlement forecast quantities and associated cash flow on which the investment decision is made (see Section 3.1.1, Net Cash-Flow Evaluation).
E. A reasonable expectation that there will be a market for forecast sales quantities of the production required to justify development. There should also be similar confidence that all produced streams (e.g., oil, gas, water, CO2) can be sold, stored, re-injected, or otherwise appropriately disposed.
F. Evidence that the necessary production and transportation facilities are available or can be made available.
G. Evidence that legal, contractual, environmental, regulatory, and government approvals are in place or will be forthcoming, together with resolving any social and economic concerns.

2.1.2.2 The commerciality test for Reserves determination is applied to the best estimate (P50) forecast quantities, which upon qualifying all commercial and technical maturity criteria and constraints become the 2P Reserves. Stricter cases [e.g., low estimate (P90)] may be used for decision purposes or to investigate the range of commerciality (see Section 3.1.2, Economic Criteria). Typically, the low- and high-case project scenarios may be evaluated for sensitivities when considering project risk and upside opportunity.

2.1.2.3 To be included in the Reserves class, a project must be sufficiently defined to establish both its technical and commercial viability as noted in Section 2.1.2.1. There must be a reasonable expectation that all required internal and external approvals will be forthcoming and evidence of firm intention to proceed with development within a reasonable time-frame. A reasonable time-frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a benchmark, a longer time-frame could be applied where justifiable; for example, development of economic projects that take longer than five years to be developed or are deferred to meet contractual or strategic objectives. In all cases, the justification for classification as Reserves should be clearly documented.

2.1.2.4 While PRMS guidelines require financial appropriations evidence, they do not require that project financing be confirmed before classifying projects as Reserves. However, this may be another external reporting requirement. In many cases, financing is conditional upon the same criteria as above. In general, if there is not a reasonable expectation that financing or other forms of commitment (e.g., farm-outs) can be arranged so that the development will be initiated within a reasonable time-frame, then the project should be classified as Contingent Resources. If financing is reasonably expected to be in place at the time of the final investment decision (FID), the project's resources may be classified as Reserves.

2.2 Resources Categorization

2.2.0.1 The horizontal axis in the resources classification in Figure 1.1 defines the range of uncertainty in estimates of the quantities of recoverable, or potentially recoverable, petroleum associated with a project or group of projects. These estimates include the uncertainty components as follows:

A. The total petroleum remaining within the accumulation (in-place resources).
B. The technical uncertainty in the portion of the total petroleum that can be recovered by applying a defined development project or projects (i.e., the technology applied).
C. Known variations in the commercial terms that may impact the quantities recovered and sold (e.g., market availability; contractual changes, such as production rate tiers or product quality specifications) are part of project's scope and are included in the horizontal axis, while the chance of satisfying the commercial terms is reflected in the classification (vertical axis).

2.2.0.2 The uncertainty in a project's recoverable quantities is reflected by the 1P, 2P, 3P, Proved (P1), Probable (P2), Possible (P3), 1C, 2C, 3C, C1, C2, and C3; or 1U, 2U, and 3U resources categories. The commercial chance of success is associated with resources classes or sub-classes and not with the resources categories reflecting the range of recoverable quantities.

2.2.1 Range of Uncertainty

2.2.1.1 Uncertainty is inherent in a project's resources estimation and is communicated in PRMS by reporting a range of category outcomes. The range of uncertainty of the recoverable and/or potentially recoverable quantities may be represented by either deterministic scenarios or by a probability distribution (see Section 4.2, Resources Assessment Methods).

2.2.1.2 When the range of uncertainty is represented by a probability distribution, a low, best, and high estimate shall be provided such that:

A. There should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the low estimate.
B. There should be at least a 50% probability (P50) that the quantities actually recovered will equal or exceed the best estimate.
C. There should be at least a 10% probability (P10) that the quantities actually recovered will equal or exceed the high estimate.

2.2.1.3 In some projects, the range of uncertainty may be limited, and the three scenarios may result in resources estimates that are not significantly different. In these situations, a single value estimate may be appropriate to describe the expected result.

2.2.1.4 When using the deterministic scenario method, typically there should also be low, best, and high estimates, where such estimates are based on qualitative assessments of relative uncertainty using consistent interpretation guidelines. Under the deterministic incremental method, quantities for each confidence segment are estimated discretely (see Section 2.2.2, Category Definitions and Guidelines).

2.2.1.5 Project resources are initially estimated using the above uncertainty range forecasts that incorporate the subsurface elements together with technical constraints related to wells and facilities. The technical forecasts then have additional commercial criteria applied (e.g., economics and license cutoffs are the most common) to estimate the entitlement quantities attributed and the resources classification status: Reserves, Contingent Resources, and Prospective Resources.

2.2.2 Category Definitions and Guidelines

2.2.2.1 Evaluators may assess recoverable quantities and categorize results by uncertainty using the deterministic incremental method, the deterministic scenario (cumulative) method, geostatistical methods, or probabilistic methods (see Section 4.2, Resources Assessment Methods). Also, combinations of these methods may be used.

2.2.2.2 Use of consistent terminology (Figures 1.1 and 2.1) promotes clarity in communication of evaluation results. For Reserves, the general cumulative terms low/best/high forecasts are used to estimate the resulting 1P/2P/3P quantities, respectively. The associated incremental quantities are termed Proved (P1), Probable (P2) and Possible (P3). Reserves are a subset of, and must be viewed within the context of, the complete resources classification system. While the categorization criteria are proposed specifically for Reserves, in most cases, the criteria can be equally applied to Contingent and Prospective Resources. Upon satisfying the commercial maturity criteria for discovery and/or development, the project quantities will then move to the appropriate resources sub-class. Table 3 provides criteria for the Reserves categories determination.

2.2.2.3 For Contingent Resources, the general cumulative terms low/best/high estimates are used to estimate the resulting 1C/2C/3C quantities, respectively. The terms C1, C2, and C3 are defined for incremental quantities of Contingent Resources.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

2.2.2.4 For Prospective Resources, the general cumulative terms low/best/high estimates also apply and are used to estimate the resulting 1U/2U/3U quantities. No specific terms are defined for incremental quantities within Prospective Resources.

2.2.2.5 Quantities in different classes and sub-classes cannot be aggregated without considering the varying degrees of technical uncertainty and commercial likelihood involved with the classification(s) and without considering the degree of dependency between them (see Section 4.2.1, Aggregating Resources Classes).

2.2.2.6 Without new technical information, there should be no change in the distribution of technically recoverable resources and the categorization boundaries when conditions are satisfied to reclassify a project from Contingent Resources to Reserves.

2.2.2.7 All evaluations require application of a consistent set of forecast conditions, including assumed future costs and prices, for both classification of projects and categorization of estimated quantities recovered by each project (see Section 3.1, Assessment of Commerciality).

Table 1—Recoverable Resources Classes and Sub-Classes

Class/Sub-Class	Definition	Guidelines
Reserves	Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions.	Reserves must satisfy four criteria: discovered, recoverable, commercial, and remaining based on the development project(s) applied. Reserves are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by the development and production status. To be included in the Reserves class, a project must be sufficiently defined to establish its commercial viability (see Section 2.1.2, Determination of Commerciality). This includes the requirement that there is evidence of firm intention to proceed with development within a reasonable time-frame. A reasonable time-frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. While five years is recommended as a benchmark, a longer time-frame could be applied where, for example, development of an economic project is deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives. In all cases, the justification for classification as Reserves should be clearly documented. To be included in the Reserves class, there must be a high confidence in the commercial maturity and economic producibility of the reservoir as supported by actual production or formation tests. In certain cases, Reserves may be assigned on the basis of well logs and/or core analysis that indicate that the subject reservoir is hydrocarbon-bearing and is analogous to reservoirs in the same area that are producing or have demonstrated the ability to produce on formation tests.
On Production	The development project is currently producing or capable of producing and selling petroleum to market.	The key criterion is that the project is receiving income from sales, rather than that the approved development project is necessarily complete. Includes Developed Producing Reserves. The project decision gate is the decision to initiate or continue economic production from the project.
Approved for Development	All necessary approvals have been obtained, capital funds have been committed, and implementation of the development project is ready to begin or is under way.	At this point, it must be certain that the development project is going ahead. The project must not be subject to any contingencies, such as outstanding regulatory approvals or sales contracts. Forecast capital expenditures should be included in the reporting entity's current or following year's approved budget. The project decision gate is the decision to start investing capital in the construction of production facilities and/or drilling development wells.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Class/Sub-Class	Definition	Guidelines
Justified for Development	Implementation of the development project is justified on the basis of reasonable forecast commercial conditions at the time of reporting, and there are reasonable expectations that all necessary approvals/contracts will be obtained.	To move to this level of project maturity, and hence have Reserves associated with it, the development project must be commercially viable at the time of reporting (see Section 2.1.2, Determination of Commerciality) and the specific circumstances of the project. All participating entities have agreed and there is evidence of a committed project (firm intention to proceed with development within a reasonable time-frame). There must be no known contingencies that could preclude the development from proceeding (see Reserves class). The project decision gate is the decision by the reporting entity and its partners, if any, that the project has reached a level of technical and commercial maturity sufficient to justify proceeding with development at that point in time.
Contingent Resources	Those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations by application of development projects, but which are not currently considered to be commercially recoverable owing to one or more contingencies.	Contingent Resources may include, for example, projects for which there are currently no viable markets, where commercial recovery is dependent on technology under development, where evaluation of the accumulation is insufficient to clearly assess commerciality, where the development plan is not yet approved, or where regulatory or social acceptance issues may exist. Contingent Resources are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by the economic status.
Development Pending	A discovered accumulation where project activities are ongoing to justify commercial development in the foreseeable future.	The project is seen to have reasonable potential for eventual commercial development, to the extent that further data acquisition (e.g., drilling, seismic data) and/or evaluations are currently ongoing with a view to confirming that the project is commercially viable and providing the basis for selection of an appropriate development plan. The critical contingencies have been identified and are reasonably expected to be resolved within a reasonable time-frame. Note that disappointing appraisal/evaluation results could lead to a reclassification of the project to On Hold or Not Viable status. The project decision gate is the decision to undertake further data acquisition and/or studies designed to move the project to a level of technical and commercial maturity at which a decision can be made to proceed with development and production.
Development on Hold	A discovered accumulation where project activities are on hold and/or where justification as a commercial development may be subject to significant delay.	The project is seen to have potential for commercial development. Development may be subject to a significant time delay. Note that a change in circumstances, such that there is no longer a probable chance that a critical contingency can be removed in the foreseeable future, could lead to a reclassification of the project to Not Viable status. The project decision gate is the decision to either proceed with additional evaluation designed to clarify the potential for eventual commercial development or to temporarily suspend or delay further activities pending resolution of external contingencies.
Development Unclarified	A discovered accumulation where project activities are under evaluation and where justification as a commercial development is unknown based on available information.	The project is seen to have potential for eventual commercial development, but further appraisal/evaluation activities are ongoing to clarify the potential for eventual commercial development. This sub-class requires active appraisal or evaluation and should not be maintained without a plan for future evaluation. The sub-class should reflect the actions required to move a project toward commercial maturity and economic production.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Class/Sub-Class	Definition	Guidelines
Development Not Viable	A discovered accumulation for which there are no current plans to develop or to acquire additional data at the time because of limited production potential.	The project is not seen to have potential for eventual commercial development at the time of reporting, but the theoretically recoverable quantities are recorded so that the potential opportunity will be recognized in the event of a major change in technology or commercial conditions. The project decision gate is the decision not to undertake further data acquisition or studies on the project for the foreseeable future.
Prospective Resources	Those quantities of petroleum that are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.	Potential accumulations are evaluated according to the chance of geologic discovery and, assuming a discovery, the estimated quantities that would be recoverable under defined development projects. It is recognized that the development programs will be of significantly less detail and depend more heavily on analog developments in the earlier phases of exploration.
Prospect	A project associated with a potential accumulation that is sufficiently well defined to represent a viable drilling target.	Project activities are focused on assessing the chance of geologic discovery and, assuming discovery, the range of potential recoverable quantities under a commercial development program.
Lead	A project associated with a potential accumulation that is currently poorly defined and requires more data acquisition and/or evaluation to be classified as a Prospect.	Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to confirm whether or not the Lead can be matured into a Prospect. Such evaluation includes the assessment of the chance of geologic discovery and, assuming discovery, the range of potential recovery under feasible development scenarios.
Play	A project associated with a prospective trend of potential prospects, but that requires more data acquisition and/or evaluation to define specific Leads or Prospects.	Project activities are focused on acquiring additional data and/or undertaking further evaluation designed to define specific Leads or Prospects for more detailed analysis of their chance of geologic discovery and, assuming discovery, the range of potential recovery under hypothetical development scenarios.

Table 2—Reserves Status Definitions and Guidelines

Status	Definition	Guidelines
Developed Reserves	Expected quantities to be recovered from existing wells and facilities.	Reserves are considered developed only after the necessary equipment has been installed, or when the costs to do so are relatively minor compared to the cost of a well. Where required facilities become unavailable, it may be necessary to reclassify Developed Reserves as Undeveloped. Developed Reserves may be further sub-classified as Producing or Non-producing.
Developed Producing Reserves	Expected quantities to be recovered from completion intervals that are open and producing at the effective date of the estimate.	Improved recovery Reserves are considered producing only after the improved recovery project is in operation.
Developed Non-Producing Reserves	Shut-in and behind-pipe Reserves.	Shut-in Reserves are expected to be recovered from (1) completion intervals that are open at the time of the estimate but which have not yet started producing, (2) wells which were shut-in for market conditions or pipeline connections, or (3) wells not capable of production for mechanical reasons. Behind-pipe Reserves are expected to be recovered from zones in existing wells that will require additional completion work or future re-completion before start of production with minor cost to access these reserves. In all cases, production can be initiated or restored with relatively low expenditure compared to the cost of drilling a new well.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Status	Definition	Guidelines
Undeveloped Reserves	Quantities expected to be recovered through future significant investments.	Undeveloped Reserves are to be produced (1) from new wells on undrilled acreage in known accumulations, (2) from deepening existing wells to a different (but known) reservoir, (3) from infill wells that will increase recovery, or (4) where a relatively large expenditure (e.g., when compared to the cost of drilling a new well) is required to (a) recomplete an existing well or (b) install production or transportation facilities for primary or improved recovery projects.

Table 3—Reserves Category Definitions and Guidelines

Category	Definition	Guidelines
Proved Reserves	Those quantities of petroleum that, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable from a given date forward from known reservoirs and under defined economic conditions, operating methods, and government regulations.	If deterministic methods are used, the term "reasonable certainty" is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the estimate. The area of the reservoir considered as Proved includes (1) the area delineated by drilling and defined by fluid contacts, if any, and (2) adjacent undrilled portions of the reservoir that can reasonably be judged as continuous with it and commercially productive on the basis of available geoscience and engineering data. In the absence of data on fluid contacts, Proved quantities in a reservoir are limited by the LKH as seen in a well penetration unless otherwise indicated by definitive geoscience, engineering, or performance data. Such definitive information may include pressure gradient analysis and seismic indicators. Seismic data alone may not be sufficient to define fluid contacts for Proved reserves. Reserves in undeveloped locations may be classified as Proved provided that: A. The locations are in undrilled areas of the reservoir that can be judged with reasonable certainty to be commercially mature and economically productive. B. Interpretations of available geoscience and engineering data indicate with reasonable certainty that the objective formation is laterally continuous with drilled Proved locations. For Proved Reserves, the recovery efficiency applied to these reservoirs should be defined based on a range of possibilities supported by analogs and sound engineering judgment considering the characteristics of the Proved area and the applied development program.
Probable Reserves	Those additional Reserves that analysis of geoscience and engineering data indicates are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves.	It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the 2P estimate. Probable Reserves may be assigned to areas of a reservoir adjacent to Proved where data control or interpretations of available data are less certain. The interpreted reservoir continuity may not meet the reasonable certainty criteria. Probable estimates also include incremental recoveries associated with project recovery efficiencies beyond that assumed for Proved.

PETROLEUM RESERVES AND RESOURCES CLASSIFICATION AND DEFINITIONS

Excerpted from the Petroleum Resources Management System Approved by
the Society of Petroleum Engineers (SPE) Board of Directors, June 2018

Category	Definition	Guidelines
Possible Reserves	Those additional reserves that analysis of geoscience and engineering data indicates are less likely to be recoverable than Probable Reserves.	The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high-estimate scenario. When probabilistic methods are used, there should be at least a 10% probability (P10) that the actual quantities recovered will equal or exceed the 3P estimate. Possible Reserves may be assigned to areas of a reservoir adjacent to Probable where data control and interpretations of available data are progressively less certain. Frequently, this may be in areas where geoscience and engineering data are unable to clearly define the area and vertical reservoir limits of economic production from the reservoir by a defined, commercially mature project. Possible estimates also include incremental quantities associated with project recovery efficiencies beyond that assumed for Probable.
Probable and Possible Reserves	See above for separate criteria for Probable Reserves and Possible Reserves.	The 2P and 3P estimates may be based on reasonable alternative technical interpretations within the reservoir and/or subject project that are clearly documented, including comparisons to results in successful similar projects. In conventional accumulations, Probable and/or Possible Reserves may be assigned where geoscience and engineering data identify directly adjacent portions of a reservoir within the same accumulation that may be separated from Proved areas by minor faulting or other geological discontinuities and have not been penetrated by a wellbore but are interpreted to be in communication with the known (Proved) reservoir. Probable or Possible Reserves may be assigned to areas that are structurally higher than the Proved area. Possible (and in some cases, Probable) Reserves may be assigned to areas that are structurally lower than the adjacent Proved or 2P area. Caution should be exercised in assigning Reserves to adjacent reservoirs isolated by major, potentially sealing faults until this reservoir is penetrated and evaluated as commercially mature and economically productive. Justification for assigning Reserves in such cases should be clearly documented. Reserves should not be assigned to areas that are clearly separated from a known accumulation by non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results); such areas may contain Prospective Resources. In conventional accumulations, where drilling has defined a highest known oil elevation and there exists the potential for an associated gas cap, Proved Reserves of oil should only be assigned in the structurally higher portions of the reservoir if there is reasonable certainty that such portions are initially above bubble point pressure based on documented engineering analyses. Reservoir portions that do not meet this certainty may be assigned as Probable and Possible oil and/or gas based on reservoir fluid properties and pressure gradient interpretations.

NETHERLAND, SEWELL & ASSOCIATES, INC.

REVENUE, COSTS, AND TAXES
PROVED (1P) RESERVES
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

Period Ending	Working Interest Revenue (M$)	Royalties State (M$)	Royalties General Partner (M$)	Royalties Total (M$)	Net Capital Costs[1] (M$)	Net Abandonment Costs (M$)	Net Operating Expenses (M$)	General Partner Expenses (M$)	Production Taxes (M$)
12-31-2019	1,824.1	409.6	141.5	551.0	0.0	0.0	416.3	31.2	57.4
12-31-2020	1,292.5	290.2	100.2	390.4	0.0	0.0	408.3	30.6	40.5
12-31-2021	1,010.4	226.9	78.4	305.3	0.0	0.0	408.3	30.6	31.7
12-31-2022	834.5	187.4	64.7	252.1	0.0	0.0	408.3	30.6	26.2
12-31-2023	641.0	143.6	49.7	193.3	0.0	0.0	352.0	26.4	20.1
12-31-2024	510.2	114.0	39.6	153.6	0.0	0.0	311.8	23.4	16.0
12-31-2025	448.2	100.1	34.8	134.9	0.0	0.0	311.8	23.4	14.0
12-31-2026	35.0	7.8	2.7	10.5	0.0	498.4	26.0	39.3	1.1
12-31-2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	6,595.9	1,479.6	511.6	1,991.2	0.0	498.4	2,642.6	235.6	206.8

Period Ending	Future Net Revenue Before Corporate Income Taxes Discounted at 0% (M$)	Corporate Income Tax Rate[1] (%)	Corporate Income Taxes[1] (M$)	Future Net Revenue After Corporate Income Taxes Discounted at 0% (M$)	Discounted at 5% (M$)	Discounted at 10% (M$)	Discounted at 15% (M$)	Discounted at 20% (M$)
12-31-2019	768.2	23.0	176.7	591.5	577.3	564.0	551.6	540.0
12-31-2020	422.6	23.0	97.2	325.4	302.4	282.1	263.9	247.6
12-31-2021	234.6	23.0	54.0	180.6	159.9	142.3	127.4	114.5
12-31-2022	117.3	23.0	27.0	90.3	76.2	64.7	55.4	47.7
12-31-2023	49.2	23.0	11.3	37.9	30.4	24.7	20.2	16.7
12-31-2024	5.5	23.0	1.3	4.2	3.2	2.5	2.0	1.6
12-31-2025	-35.9	23.0	-8.2	-27.6	-20.1	-14.9	-11.1	-8.4
12-31-2026	-540.3	23.0	-124.3	-416.1	-288.6	-203.6	-145.9	-106.0
12-31-2027	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2028	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2029	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,021.3		234.9	786.4	840.8	861.9	863.4	853.6

Totals may not add because of rounding.

[1] Corporate income tax rates are provided by IOER. After-tax calculations are based on expensing 100 percent of all capital expenditures in the year in which they are estimated to occur.

Table I

NETHERLAND, SEWELL & ASSOCIATES, INC.

REVENUE, COSTS, AND TAXES
PROBABLE RESERVES
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

Period Ending	Working Interest Revenue (M$)	Royalties State (M$)	Royalties General Partner (M$)	Royalties Total (M$)	Net Capital Costs (M$)	Net Abandonment Costs (M$)	Net Operating Expenses (M$)	General Partner Expenses (M$)	Production Taxes (M$)
12-31-2019	80.5	18.1	6.2	24.4	0.0	0.0	8.0	0.6	2.6
12-31-2020	104.8	23.5	8.1	31.7	0.0	0.0	0.0	0.0	3.3
12-31-2021	112.4	25.2	8.7	34.0	0.0	0.0	0.0	0.0	3.5
12-31-2022	112.5	25.3	8.7	34.0	0.0	0.0	0.0	0.0	3.5
12-31-2023	183.7	41.6	14.2	55.9	0.0	0.0	56.3	4.2	5.8
12-31-2024	147.8	33.4	11.4	44.9	0.0	0.0	40.2	3.0	4.6
12-31-2025	87.4	19.6	6.8	26.4	0.0	0.0	0.0	0.0	2.7
12-31-2026	448.0	100.1	34.8	134.9	0.0	-498.4	285.8	-15.9	14.0
12-31-2027	408.2	91.3	31.7	123.0	0.0	0.0	287.6	21.6	12.7
12-31-2028	72.9	16.4	5.7	22.1	0.0	498.4	53.8	41.4	2.2
12-31-2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,758.3	394.6	136.4	531.0	0.0	0.0	731.7	54.9	55.0

Period Ending	Future Net Revenue Before Corporate Income Taxes Discounted at 0% (M$)	Corporate Income Tax Rate[1] (%)	Corporate Income Taxes[1] (M$)	Future Net Revenue After Corporate Income Taxes Discounted at 0% (M$)	Discounted at 5% (M$)	Discounted at 10% (M$)	Discounted at 15% (M$)	Discounted at 20% (M$)
12-31-2019	45.0	23.0	10.3	34.6	33.8	33.0	32.3	31.6
12-31-2020	69.8	23.0	16.1	53.8	50.0	46.6	43.6	40.9
12-31-2021	74.9	23.0	17.2	57.7	51.1	45.5	40.7	36.6
12-31-2022	75.0	23.0	17.2	57.7	48.7	41.4	35.4	30.5
12-31-2023	61.5	23.0	14.1	47.4	38.0	30.8	25.3	20.9
12-31-2024	55.1	23.0	12.7	42.4	32.4	25.1	19.7	15.6
12-31-2025	58.4	23.0	13.4	44.9	32.7	24.2	18.1	13.7
12-31-2026	527.7	23.0	121.4	406.3	281.8	198.8	142.4	103.5
12-31-2027	-36.7	23.0	-8.4	-28.3	-18.7	-12.6	-8.6	-6.0
12-31-2028	-545.0	23.0	-125.3	-419.6	-264.0	-169.7	-111.2	-74.2
12-31-2029	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	385.7		88.7	297.0	285.9	263.2	237.6	213.0

Totals may not add because of rounding.

[1] Corporate income tax rates are provided by IOER. After-tax calculations are based on expensing 100 percent of all capital expenditures in the year in which they are estimated to occur.

Table II

NETHERLAND, SEWELL & ASSOCIATES, INC.

REVENUE, COSTS, AND TAXES
PROVED + PROBABLE (2P) RESERVES
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

Period Ending	Working Interest Revenue (M$)	Royalties State (M$)	Royalties General Partner (M$)	Royalties Total (M$)	Net Capital Costs (M$)	Net Abandonment Costs (M$)	Net Operating Expenses (M$)	General Partner Expenses (M$)	Production Taxes (M$)
12-31-2019	1,904.6	427.7	147.7	575.4	0.0	0.0	424.2	31.8	59.9
12-31-2020	1,397.3	313.7	108.4	422.1	0.0	0.0	408.3	30.6	43.8
12-31-2021	1,122.8	252.1	87.1	339.2	0.0	0.0	408.3	30.6	35.2
12-31-2022	947.0	212.7	73.4	286.1	0.0	0.0	408.3	30.6	29.7
12-31-2023	824.6	185.2	63.9	249.1	0.0	0.0	408.3	30.6	25.8
12-31-2024	658.0	147.4	51.1	198.4	0.0	0.0	352.0	26.4	20.6
12-31-2025	535.7	119.7	41.6	161.3	0.0	0.0	311.8	23.4	16.7
12-31-2026	483.0	107.9	37.5	145.4	0.0	0.0	311.8	23.4	15.1
12-31-2027	408.2	91.3	31.7	123.0	0.0	0.0	287.6	21.6	12.7
12-31-2028	72.9	16.4	5.7	22.1	0.0	498.4	53.8	41.4	2.2
12-31-2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8,354.3	1,874.2	648.0	2,522.2	0.0	498.4	3,374.4	290.5	261.8

Period Ending	Future Net Revenue Before Corporate Income Taxes Discounted at 0% (M$)	Corporate Income Tax Rate[1] (%)	Corporate Income Taxes[1] (M$)	Future Net Revenue After Corporate Income Taxes Discounted at 0% (M$)	Discounted at 5% (M$)	Discounted at 10% (M$)	Discounted at 15% (M$)	Discounted at 20% (M$)
12-31-2019	813.2	23.0	187.0	626.2	611.1	597.0	583.9	571.6
12-31-2020	492.5	23.0	113.3	379.2	352.4	328.7	307.5	288.5
12-31-2021	309.5	23.0	71.2	238.3	211.0	187.8	168.0	151.1
12-31-2022	192.3	23.0	44.2	148.1	124.8	106.1	90.8	78.2
12-31-2023	110.7	23.0	25.5	85.3	68.5	55.5	45.5	37.5
12-31-2024	60.6	23.0	13.9	46.6	35.7	27.6	21.6	17.1
12-31-2025	22.5	23.0	5.2	17.3	12.6	9.3	7.0	5.3
12-31-2026	-12.7	23.0	-2.9	-9.7	-6.8	-4.8	-3.4	-2.5
12-31-2027	-36.7	23.0	-8.4	-28.3	-18.7	-12.6	-8.6	-6.0
12-31-2028	-545.0	23.0	-125.3	-419.6	-264.0	-169.7	-111.2	-74.2
12-31-2029	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2030	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2031	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2032	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
12-31-2033	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1,407.0		323.6	1,083.4	1,126.7	1,125.0	1,101.0	1,066.6

Totals may not add because of rounding.

[1] Corporate income tax rates are provided by IOER. After-tax calculations are based on expensing 100 percent of all capital expenditures in the year in which they are estimated to occur.

Table III

NETHERLAND, SEWELL & ASSOCIATES, INC.

REVENUE, COSTS, AND TAXES
POSSIBLE RESERVES
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

Period Ending	Working Interest Revenue (M$)	Royalties State (M$)	Royalties General Partner (M$)	Royalties Total (M$)	Net Capital Costs (M$)	Net Abandonment Costs (M$)	Net Operating Expenses (M$)	General Partner Expenses (M$)	Production Taxes (M$)
12-31-2019	110.3	25.0	8.5	33.5	207.8	0.0	-6.5	15.1	3.7
12-31-2020	1,143.1	262.4	88.1	350.4	657.2	0.0	186.2	63.3	42.1
12-31-2021	1,005.4	230.6	77.5	308.1	0.0	0.0	234.4	17.6	36.8
12-31-2022	775.9	177.8	59.8	237.6	0.0	0.0	234.4	17.6	28.2
12-31-2023	642.7	147.2	49.6	196.8	0.0	0.0	234.4	17.6	23.3
12-31-2024	626.8	143.6	48.3	191.9	0.0	0.0	290.7	21.8	22.3
12-31-2025	507.3	116.1	39.1	155.2	0.0	0.0	261.5	19.6	17.9
12-31-2026	145.7	32.9	11.3	44.2	0.0	0.0	20.6	1.5	4.8
12-31-2027	117.2	26.1	9.1	35.2	0.0	0.0	4.5	0.3	3.7
12-31-2028	410.5	91.6	31.9	123.5	0.0	-498.4	238.4	-19.5	12.9
12-31-2029	381.7	85.5	29.6	115.2	0.0	0.0	243.9	18.3	11.9
12-31-2030	258.9	58.4	20.0	78.5	0.0	0.0	171.4	12.9	8.0
12-31-2031	146.4	33.7	11.3	44.9	0.0	0.0	98.7	7.4	4.6
12-31-2032	79.9	18.4	6.2	24.5	0.0	498.4	57.6	41.7	2.5
12-31-2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	6,351.9	1,449.4	490.3	1,939.7	865.0	0.0	2,270.4	235.2	222.6

Period Ending	Future Net Revenue Before Corporate Income Taxes Discounted at 0% (M$)	Corporate Income Tax Rate[1] (%)	Corporate Income Taxes[1] (M$)	Future Net Revenue After Corporate Income Taxes Discounted at 0% (M$)	Discounted at 5% (M$)	Discounted at 10% (M$)	Discounted at 15% (M$)	Discounted at 20% (M$)
12-31-2019	-143.2	23.0	-32.9	-110.3	-107.6	-105.2	-102.9	-100.7
12-31-2020	-156.1	23.0	-35.9	-120.2	-111.7	-104.2	-97.5	-91.4
12-31-2021	408.4	23.0	93.9	314.5	278.4	247.8	221.8	199.4
12-31-2022	258.0	23.0	59.3	198.6	167.5	142.3	121.8	104.9
12-31-2023	170.7	23.0	39.3	131.4	105.5	85.6	70.1	57.8
12-31-2024	100.1	23.0	23.0	77.0	58.9	45.6	35.7	28.3
12-31-2025	53.1	23.0	12.2	40.9	29.8	22.0	16.5	12.5
12-31-2026	74.4	23.0	17.1	57.3	39.8	28.0	20.1	14.6
12-31-2027	73.4	23.0	16.9	56.5	37.3	25.1	17.2	12.0
12-31-2028	553.6	23.0	127.3	426.3	268.2	172.4	113.0	75.4
12-31-2029	-7.5	23.0	-1.7	-5.8	-3.5	-2.1	-1.3	-0.9
12-31-2030	-11.8	23.0	-2.7	-9.1	-5.2	-3.0	-1.8	-1.1
12-31-2031	-9.2	23.0	-2.1	-7.1	-3.8	-2.1	-1.2	-0.7
12-31-2032	-544.7	23.0	-125.3	-419.5	-217.1	-115.8	-63.6	-35.8
12-31-2033	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	819.1		188.4	630.7	536.3	436.4	347.9	274.3

Totals may not add because of rounding.

[1] Corporate income tax rates are provided by IOER. After-tax calculations are based on expensing 100 percent of all capital expenditures in the year in which they are estimated to occur.

Table IV

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

NETHERLAND, SEWELL & ASSOCIATES, INC.

REVENUE, COSTS, AND TAXES
PROVED + PROBABLE + POSSIBLE (3P) RESERVES
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

Period Ending	Working Interest Revenue (M$)	Royalties State (M$)	Royalties General Partner (M$)	Royalties Total (M$)	Net Capital Costs (M$)	Net Abandonment Costs (M$)	Net Operating Expenses (M$)	General Partner Expenses (M$)	Production Taxes (M$)
12-31-2019	2,015.0	452.7	156.2	609.0	207.8	0.0	417.7	46.9	63.6
12-31-2020	2,540.4	576.1	196.4	772.5	657.2	0.0	594.5	93.9	85.9
12-31-2021	2,128.2	482.8	164.5	647.3	0.0	0.0	642.7	48.2	72.0
12-31-2022	1,722.9	390.5	133.2	523.7	0.0	0.0	642.7	48.2	57.9
12-31-2023	1,467.4	332.4	113.5	445.9	0.0	0.0	642.7	48.2	49.1
12-31-2024	1,284.8	290.9	99.4	390.3	0.0	0.0	642.7	48.2	42.9
12-31-2025	1,043.0	235.8	80.7	316.5	0.0	0.0	573.3	43.0	34.6
12-31-2026	628.7	140.9	48.8	189.7	0.0	0.0	332.4	24.9	19.9
12-31-2027	525.5	117.4	40.8	158.2	0.0	0.0	292.2	21.9	16.4
12-31-2028	483.4	108.0	37.5	145.6	0.0	0.0	292.2	21.9	15.1
12-31-2029	381.7	85.5	29.6	115.2	0.0	0.0	243.9	18.3	11.9
12-31-2030	258.9	58.4	20.0	78.5	0.0	0.0	171.4	12.9	8.0
12-31-2031	146.4	33.7	11.3	44.9	0.0	0.0	98.7	7.4	4.6
12-31-2032	79.9	18.4	6.2	24.5	0.0	498.4	57.6	41.7	2.5
12-31-2033	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	14,706.2	3,323.6	1,138.3	4,461.9	865.0	498.4	5,644.8	525.6	484.5

Period Ending	Future Net Revenue Before Corporate Income Taxes Discounted at 0% (M$)	Corporate Income Tax Rate[1] (%)	Corporate Income Taxes[1] (M$)	Future Net Revenue After Corporate Income Taxes Discounted at 0% (M$)	Discounted at 5% (M$)	Discounted at 10% (M$)	Discounted at 15% (M$)	Discounted at 20% (M$)
12-31-2019	670.0	23.0	154.1	515.9	503.5	491.9	481.1	470.9
12-31-2020	336.4	23.0	77.4	259.0	240.7	224.5	210.0	197.0
12-31-2021	718.0	23.0	165.1	552.8	489.4	435.6	389.8	350.5
12-31-2022	450.3	23.0	103.6	346.7	292.3	248.4	212.6	183.2
12-31-2023	281.4	23.0	64.7	216.7	174.0	141.1	115.5	95.4
12-31-2024	160.6	23.0	36.9	123.7	94.6	73.2	57.3	45.4
12-31-2025	75.6	23.0	17.4	58.2	42.4	31.3	23.5	17.8
12-31-2026	61.8	23.0	14.2	47.6	33.0	23.3	16.7	12.1
12-31-2027	36.7	23.0	8.4	28.3	18.7	12.6	8.6	6.0
12-31-2028	8.6	23.0	2.0	6.7	4.2	2.7	1.8	1.2
12-31-2029	-7.5	23.0	-1.7	-5.8	-3.5	-2.1	-1.3	-0.9
12-31-2030	-11.8	23.0	-2.7	-9.1	-5.2	-3.0	-1.8	-1.1
12-31-2031	-9.2	23.0	-2.1	-7.1	-3.8	-2.1	-1.2	-0.7
12-31-2032	-544.7	23.0	-125.3	-419.5	-217.1	-115.8	-63.6	-35.8
12-31-2033	0.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2,226.1		512.0	1,714.1	1,663.0	1,561.4	1,448.9	1,341.0

Totals may not add because of rounding.

[1] Corporate income tax rates are provided by IOER. After-tax calculations are based on expensing 100 percent of all capital expenditures in the year in which they are estimated to occur.

Table V

NETHERLAND, SEWELL & ASSOCIATES, INC.

HISTORICAL PRODUCTION AND OPERATING EXPENSE DATA
ISRAEL OPPORTUNITY - ENERGY RESOURCES, LIMITED PARTNERSHIP
BURKE COUNTY, NORTH DAKOTA
AS OF DECEMBER 31, 2018

	Gross (100%) Production		IOER Net Revenue Interest Production		Average Per Production Unit			Reserves
Year	Oil (BBL)	Gas (MCF)	Oil (BBL)	Gas (MCF)	Price Received[1] ($/BOE)	Production Costs ($/BOE)	Net Revenue ($/BOE)	Depletion Rate[2] (%)
2018	58,429	119,778	26,846	55,065	39.29	22.80	16.48	0
2017[3]	19,132	20,205	9,621	10,156	42.65	9.09	33.56	0

Note: The per-production-unit ($/BOE) estimates shown in this report are provided by IOER. These estimates are based on historical production data since July 2017 and include oil, NGL, and gas revenue and costs.

(1) Royalties paid per production unit prior to average price received were $19.54 per BOE in 2017 and $16.80 per BOE in 2018.

(2) The reserves depletion rate is the percentage of yearly gas produced to the estimated proved plus probable reserves at the beginning of the year.

(3) The properties were acquired in July 2017.

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.