

Chapter 1 : Ungeni Chisinau Natural Gas Pipeline

Natural gas is a major source of electricity generation through the use of gas turbines and steam turbines. Natural gas burns cleaner than other hydrocarbon fuels, such as oil and coal and.

ORPTS processes and analyzes economic profiles and calculates discount rates to derive unit of production values. Commissioner establishes tentative unit of production values and notifies assessors, producers and county directors. A hearing is held to receive comments on tentative values. A review of hearing comments may revise tentative values, as necessary. Department of Environmental Conservation processes and distributes well permits and production information to county directors for future release to assessors. Commissioner certifies final unit of production values and distributes values to assessors, producers and county directors. Assessor derives the assessed value for each economic unit by multiplying the unit of production value times the production and then times equalization rate. Assessed values of all oil and gas economic units are set on the tentative assessment roll. After grievance day and after Board of Assessment Review decisions are made, the values are set as part of the final assessment roll. The schematic is a general review of the process and steps necessary to develop Oil and Gas Production Unit Values. A detailed discussion of each step follows the schematic. Administrative Process for Responsible Parties The sequential occurrences of responsibilities required for completion and filing of required data by local officials, departments of State Government, school authorities and producers are set forth in the Real Property Tax Administration. The sequence of events as outlined below is a typical representation of the assessment roll calendar year. Assessors file notice by registered mail with producers requesting oil and gas production data, prescribed by NYSDEC, and the date required for review being set forth by statute. The notice must contain the tentative roll date, the name and address of the responsible office and the person or agency to which production data should be provided. January to March Assessors receive production data including total amount of oil and gas produced in the production year from producer and identifies other parts of economic units prior to the tentative roll date. Mid-March to May Upon receipt of the unit of production values, select the appropriate value, multiply by yearly production, and then by the latest equalization rate to derive the assessed value for use on the tentative assessment roll. January to February Provide tentative unit of production values to selected assessors, producers, county directors and interested parties. Early March Revise values as needed. Commissioner certifies final unit of production values. Early to Mid-March Provide final oil and gas unit of production values to assessors, producers, county directors and interested parties before the tentative roll date. Late April to Early May Receive completed reports from producers and update database. May to November Process the economic reports for the purpose of review and analysis. As a result of this analysis, unit of production values are derived and documented. Derive discount rate and calculate unit of production values with documentation to establish tentative values. Department of Environmental Conservation: March to April NYSDEC provides a list identifying and containing all oil and gas drilling well permits issued by the department during the immediate preceding calendar year to each designated County Director of Real Property Tax Services. January to Mid-March Producers send reports to each assessor with the total amount of oil and gas produced in the production year for each oil and gas well. In addition, the physical structures and buildings that the operator considers to be part of the economic units are to be reported to the local assessor before the tentative roll date. School Authorities and Local Officials: May to July Any local officer, including school authorities, having custody and control of the assessment roll when final unit of production values are certified by Valuation Services Bureau is allowed to make any changes that may occur as a result of such certification. Summary In summary, the methodology for the valuation of producing gas and oil properties can be stated: First, attain the production decline rate of a field from past operation and the current production for the year of the appraisal to calculate the total production over the economic life of the well or property; Second, use the price per barrel of oil or thousand cubic feet MCF of gas and the expense for production of the oil and gas to project the income stream for the economic life of the well; Third, apply the rate of return or discount rate to the income stream to yield the value of the reserve. At this point, it should be

noted: The unit of production value, when multiplied by the annual production for the "economic unit", yields the full value of the "economic unit". This value is the value of the reserve, not the value of the annual production, but a function of the production. This methodology has the ability to accommodate old, new, and mature fields, and ownership by small independent or large national producers. This text offers a reasonable and concise method of the appraisal of gas and oil producing properties with emphasis toward property tax purposes. Adherence to its principles should produce equity for the assessment of petroleum properties and the distribution of property taxes. This is an income method of valuation that estimates the present worth of future income streams or earnings. Well drilled 5, feet or deeper in order to access natural gas, also referred to as a Trenton Black River well. The cost of drilling a well that turns out to be non-productive, even though the field where it is drilled is productive. This charge does not allow for the cost of non-productive wells drilled during exploration. This includes all costs associated with the drilling and completion of a well which was intended to produce oil or gas, but does not. Economic life of an oil or gas well or field can be determined by attaining the production decline rate, the price of petroleum, and the future annual operating costs. Using these three items, the economic life is equal to the economic limit of a petroleum property as a function of the production rate at the time that the operating cost per barrel becomes equal to the gross income per barrel. A net cash flow analysis of a summary of financial data of typical oil or gas economic units based on average or typical income and expense items pertaining to one or more economic units of one or more producers. Includes all real property subject to taxation and assessed pursuant to Title 5, including oil and gas reserves, oil and gas rights, all equipment, fixtures and pipeline, which is necessary to drill, mine, operate, develop, extract, produce, sell or deliver the oil or gas to a point of sale to a commercial purchaser or the pipeline or equipment of a user, including wells, well-head equipment, pipes, compressor stations, related equipment and buildings used to store equipment. Each economic unit may include either a single well and the associated property, or a group of wells and the associated property under common ownership and operated as a unit. Physical structures and buildings designated by the producer and accepted by the assessor to be part of the economic unit shall be assessed within the economic unit and not separately. In the event that an oil or gas economic unit is located within two or more assessing units, the appropriate county directors shall certify to the assessors the percentage of capital investment in property located within each assessing unit. The assessor apportions the assessment of economic unit among school districts based upon the percentage of capital investment located in each district. Oil wells using secondary recovery methods including the fluid injection process. The operating expenses for this process are significantly higher than the operating expenses for the primary recovery method. Exercise of Oil and Gas Rights: An act of drilling, mining, operating, developing, extracting, producing, collecting, delivering or selling oil or gas located on or below real property and other acts for the proper operation and development of oil and gas wells. Pipes used to transport oil or gas from the producing area to the main pipeline in the area. When oil is used, the lines run from holding tanks to a central pumping station at the beginning of the main pipeline. If gas is used, the flow is continuous from the wellhead to the ultimate consumer or point of purchase. Revenue generated by selling the gas and oil at the well or field. The gross income is related to the price per barrel of oil or per thousand cubic feet of gas. These prices are the actual prices paid to the producers. Income Taxes and Property Taxes: Income taxes and property taxes are dealt with separately as a rate and function within the net cash flow analysis. In the previous calendar quarter a taxpayer is neither 1 a retail seller of oil or natural gas nor 2 a refiner of crude oil and 3 does not exceed the production of 1, barrels per day. Integrated Oil Producing Company: A taxpayer that produces oil and is either a "retailer" or "refiner". This stands for one thousand cubic feet of gas. Oil and Gas Producing Property: Oil and gas wells, pipelines, reserves, etc. See definition of economic unit. Oil and Gas Rights: These rights include any right to drill, mine, operate, develop, extract, produce, collect, deliver or sell oil or gas located on or below real property. Oil and Gas Rights Identification Code: This code is a number which uniquely identifies oil and gas rights not capable of being identified by a tax map land parcel number as defined in Section Annual costs incurred at the well or cost related to running the field and necessary to maintain the production of income from operation of the oil or gas property. These costs may include the following: These expenses may vary due to pressure and depth of well. The initial drilling and developmental costs are not a part of the operating

expenses because they are considered a one-time capital cost and not an annual cost like operating expenses. Wells utilizing only pumping equipment to recover the oil. The annual production of the field is typically more than 3, barrels per year. This is defined as a fractional interest in the gross production of oil and gas under a lease, in addition to the usual royalties paid to the lessor, free of any expense for exploration, drilling, development, operating, marketing and other costs incident to the production and sale of oil and gas produced from the lease. While usage varies, any royalty created out of the working interest in a lease is overriding royalty. Many people also refer to any royalty reserved by the lessor in addition to the usual one-eighth royalty as overriding royalty. This is any person, partnership, corporation or other association or entity owning or operating the working interest in any oil or gas property. The extraction of oil or gas from the land in commercially marketable quantities for commercial and industrial purposes. Production of oil and gas is unique in the fact that productive ability of an oil and gas field begins to decline from the time that it is first put on production. As a result, the prospective gross income is immediately in a declining position. Oil and gas productivity and production decline are directly related to its pressure. As the petroleum is extracted, reservoir pressure is constantly reduced and, therefore, the production is reduced proportionately. An oil reserve can be repressurized by applying gas, water, or steam into the oil field to maintain adequate pressure. So, petroleum reservoirs are unique with their inability to resist the decline of gross or net income due to decrease in production. Once the oil or gas well has been producing for a few years, a production decline rate can be established for a well or proven reserve. For valuation purposes, the definition of the American Petroleum Institute for "Proved Reserves" is used: They represent strictly technical judgments and are not knowingly influenced by policies of construction or optimism. However, establishing production decline rates is still the most practical method of predicting proved reserves. The calendar year immediately preceding the applicable taxable status date, except for final city assessment rolls required to be filed between January first and May first, and for all final village assessment rolls, production year means the second calendar year preceding the applicable taxable status date. A reservation to the lessor landowner of a certain portion of the oil or gas found and extracted, or of the proceeds from the sale, at no cost to the lessor. Until oil and gas extraction begins, a small or minimal yearly rent is paid to the landowner for the land under lease.

The Economic Appraisal of Natural Gas Projects Developing countries will make increasing use of their natural gas reserves in the future. Yet in order to obtain full value from the resource, crucial decisions have to be made.

Normally, only very large acquisitions are evaluated by examining the impact of the acquisition on the financial net income. The tax model is used only if an after-tax analysis is done. Cash flows for the project are forecast for each year or each month until the well or project is no longer economical. Because of the ready availability of powerful computers, evaluations are usually done on a monthly basis, and the results are reported on an annual basis. Monthly calculations are more detailed but not necessarily more accurate. There is often a tendency to consider more detailed calculations as being more accurate. The use of finer time increments does not necessarily lead to projections that are more in conformity with truth. Whether the calculations are done on a monthly or yearly basis, the same process is followed. The profit for each period is defined as net cash flow and, for a Royalty-Tax system such as that used in the U. A sample calculation is shown in Table The values in this table were calculated monthly and then accumulated on an annual basis. Gross production is one of the most important numbers entering the net cash flow calculation and, simultaneously, one of the most difficult to determine accurately. Much of the science and art of petroleum engineering is involved in estimating these numbers for future time periods. Shrinkage In the model defined in Fig. Usually the decline curves that are used to forecast future revenues are based on production rather than sales. If there is significant shrinkage, that should be taken into account before calculating the cash flows. Typical causes of shrinkage include lease use of gas for heater treaters or compressor fuel. If shrinkage is negligible, gross sales will equal gross production. Typically, the people who drill and operate a well do not own the minerals they are extracting. For example, the U. Government, state governments, Indian tribes, or private citizens usually own minerals in the United States. In most other countries, the state usually owns the minerals. The producers lease the right to develop the minerals from the mineral owners. This leads to various kinds of interests in the property. Working Interest Working interest is a share of the costs. The total of all the working interests in a well must be equal to one. Along with the share of the costs comes a reduced usually share of the revenue. Working interest may also change over time as a result of "oil field deals. As deals become more and more complex, it becomes very difficult to determine ownership. One method of answering the "who, what, when" question is discussed in Thompson and Wright [1]. Royalty Royalty is a share of the revenue free and clear of all costs of development and production. The royalty is paid to the owner of the mineral interest under the land associated with the well. In the United States, the mineral interest can be "severed" from the surface ownership so that the person who owns the surface may not have any interest in the minerals and may not receive any income from a well. In rare cases the owners of the working interest will own the minerals and, in that case, there is no royalty. Typical royalty rates in the U. Overriding Royalty Overriding royalty is the same as a royalty, except it does not come about because of ownership of the mineral interest. An "override" is a classic way for a lease broker or geologist to be compensated for buying leases or putting a deal together. Net Revenue Interest For net revenue interest, the working interest owners pay all of the costs. The share of the gross production from the well is referred to as "net revenue interest. Net Sales Net sales is the product of gross sales and net revenue interest. It is your share of the production after accounting for shrinkage, royalties, and splitting the proceeds with other working interest owners. Price Oil is usually priced in U. Be careful to use the same volume units on the sales forecast and the price forecast. There are several "benchmark" crudes in the world, for which the price is reported on a daily basis. The most commonly quoted number in the U. Because of its excellent liquidity and price transparency, the contract is used as a principal international pricing benchmark. The actual price received by a producer is usually set for several days or one month at a time and may include a transportation charge, which reduces the effective price, or a bonus depending upon the supply and demand conditions in the local area. Many refiners are posting prices online, and these postings change rapidly. Conoco, for example, posted different prices between January 1, and August 31, , while Enron had different prices in the same period. When this chapter was first drafted in

September , the links to the postings were Conoco, Enron, Tosco, and Phillips. Since then, Enron went out of business, while Phillips purchased Tosco and then merged with Conoco. Websites that have crude oil price bulletins for various companies are [http: Projecting the future price of oil to use in an evaluation is quite difficult, and unfortunately, oil price is usually one of the most important factors in the evaluation. One popular, although not necessarily accurate, way of projecting future prices is to use a forward "strip" either from the NYMEX or from other crude oil traders. A differential between the property being evaluated and the NYMEX is then applied to estimate prices at the property. Natural gas prices are also quoted at more than 50 market centers throughout the United States. In October , the NYMEX began trading options on natural gas futures, which allowed traders and speculators to "play" the market. Future gas prices for use in an economic evaluation are often forecast in the same manner as previously described for oil. The NYMEX trades in "paper barrels," in which the seller of a contract either has to purchase an offsetting contract or deliver a specified volume of a specified quality of hydrocarbon at a specified location. The forward strip shows the month when the crude or natural gas will have to be delivered; the prices at which the contract traded during the day; the number of contracts "open" open interest where the obligation to deliver the commodity still exists; and the number of contracts traded during the previous day. This volume represents more than one-half the crude oil produced in the United States during October

State and Local Taxes In the U. This tax may range from 3 to 10%. This tax is often referred to as an ad valorem tax from the Latin for "according to value. The method of calculating assessed value varies considerably from state to state. The two most common methods of calculating assessed value are to use some fraction of the revenue received and to use some fraction of the calculated net present value of the projected production. In most cases, each party pays their own severance and ad valorem taxes. In other words, the working interest owners only pay state and local taxes on their share of the production, and the royalty owners pay the tax on their share of the production. In countries other than the U. In most cases there are numerous other taxes that may need to be taken into account such as road taxes, airport taxes, or stamp duties. The oil company usually attempts to negotiate an agreement that exempts them from all these taxes in return for a royalty or a share of the production. These negotiations are sometimes successful and sometimes not.

Operating Costs Operating costs are those costs that are necessary to maintain production from the well. Offshore wells can have even higher operating costs. These discussions frequently have resulted in the creation of guideline documents and educational materials. You can find these materials in the Products section of this site. Operating costs in other countries can vary dramatically. In most cases the operating costs will include facilities to house expatriate workers and their dependents as well as other normal operating expenses. Depending on the situation, these costs can be very significant in the cash flow calculations.

Net Operating Income Sometimes called "cash generated from operations" or other names, net operating income is the cash flow to the working interest owner after operating costs and state and local taxes have been paid, but before investments have been made. This represents the cash generated during the period that is available for investment.

Income Tax Almost all federal governments including the United States Government and most state governments levy a tax on income. The calculation of these taxes can be fairly straightforward in countries such as Indonesia or extremely difficult, especially when a single project is being evaluated for a reasonably large company in the U. Even when the appropriate software is available to aid in the evaluation, the input data necessary to accurately calculate income tax is often hard to obtain. For this reason and because income tax often has a relatively low impact on the final decision, it is common practice to calculate before federal income tax BFIT net cash flows when evaluating U. Major oil companies are more likely to attempt to include the effects of income tax in their calculations, while independents seldom include it. The effect of using BFIT numbers on the ultimate decision is highly dependent on the individual case, but experience indicates that in the U.

Investment Investments are costs that benefit future periods as opposed to operating costs that only benefit the current period. Examples include buying a lease, drilling a well, buying and installing a pumping unit, and building tank batteries. In all of these cases, the goods purchased are expected to help produce money far into the future.

Net Cash Flow Net cash flow is the amount of money that flows into or out of the treasury during any one period. It is equal to the net operating income either before or after income taxes less the investments. Each of these items is estimated for every future time period until the

net operating income is no longer positive. At that time the wells are usually assumed to be plugged and abandoned. There may be an additional expense at that time for abandonment costs, or the salvage value of the equipment may be equal to or greater than the abandonment costs. Time Value of Money Money has a time value. This means a dollar received today has more value to us than a dollar received far in the future. Other than a desire for instant gratification, there is a very rational reason for this phenomenon. If we have a dollar today, we can put it to work by making an investment and have more than a dollar at some future date.

Chapter 3 : PEH:Petroleum Economics -

*The Economic Appraisal of Natural Gas Projects (Oxford Institute for Energy Studies) [Willem J.H. Van Groenendaal] on calendrierdelascience.com *FREE* shipping on qualifying offers. This book is a comprehensive examination of how to conduct investment appraisals of natural gas projects.*

Translated version of this PSD: The new km pipeline will have a diameter of mm with a capacity of 1. The project will also include a gas sector reform action plan with the objective to liberalise and reform the Moldovan gas sector. Transition Impact Transition impact of the project derives from the following: For the project implementation purposes, the financing will be on-lent by the government of Moldova to VestMoldTransgaz "VMTG" , a fully stateowned transmission system operator of Ungheni-Chisinau gas pipeline and Romania-Moldova interconnector. This project was initiated in and therefore the applicable Environmental and Social Policy ESP is the version, although the project is also compliant with the ESP. The proposed pipeline is approximately km in length and mm diameter. The environmental and social appraisal of this project included several site visits including various meetings and field visits by EBRD staff. The ESIA utilised existing environmental and social baseline data. These data were augmented by socio-economic baseline data gathered for this project during numerous local meetings, interviews and through the use of questionnaires. Public meetings were held for this project, as part of project scoping process, and a series of public meetings were held along the route of the pipeline as part of the local ESIA disclosure and consultation process. This project extends over approximately km from Chisinau to the west-northwest border with Romania in the area of Ungheni. Here the pipeline will connect to the Romanian gas distribution system. The pipeline crosses areas of relatively low population density, and the land is mainly in private agricultural use, including pastures, orchards and some forest. A large portion of the pipeline parallels an existing utility corridor and is adjacent to an existing road. This approach has been adopted to avoid and minimise environmental and social sensitivities. Further, a robust review of alternative alignments was completed to ensure that the final route was selected to avoid as many impacts as possible. Upon review of the alternatives, alignment 1b was selected. It should also be recognised that the pipeline can accommodate micro-realignments of up to 1, meters based on any sensitivities or conditions that may be encountered during the construction phase. Any deviations outside this zone will require prior approval by the Bank. While the alignment will approach some inhabited areas, there is no physical displacement required for this project. A framework document was prepared to address land acquisition and potential economic displacement in accordance with national law and EBRD requirements. This project has applied the mitigation hierarchy, and as such, has avoided most significant impacts. The main remaining impacts will be associated with the actual construction activities and adequate control over the contractors. The project has been designed and will be constructed and operated in accordance with national legislation Law No. The government of Moldova informed the government of Romania about this project, and the ESIA activities, inviting Romania to participate in the process. These documents rely on a series of management plans including erosion control, waste management, stakeholder engagement and grievance management, water crossings management, spill prevention and traffic management to outline specific mitigation and monitoring measures. As the main issues are related to construction activities, the ESAP call for items including limiting amount of open trench, securing any open trench near populates areas and locating worker camps outside of existing communities to minimise disturbance on the existing population. Further, careful coordination of project traffic will be required to ensure project traffic does not increase traffic risks around schools or during busy times. The ESAP also requires close interaction with local communities to ensure local population are aware of project activities, and that they know how to raise a grievance, without fear of retribution. The requirements of these plans will be a commitment by all contractors working on this project, and the owners will monitor conformance with these plans. The Bank hired Fichtner GmbH to perform an extensive technical, regulatory, financial, environmental and social assessment of the project. The assessment was financed by SIDA. Other assignments for engineering and regulatory assistance are considered and may be advertised in the future.

Chapter 4 : NATURAL GAS TURBINES | Appraisal Economics

The economic appraisal of natural gas projects, , pages, Willem Van Groenendaal, , , Published by the Oxford University.

Chapter 5 : CiteSeerX " Citation Query The Economic Appraisal of Natural Gas Projects

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Chapter 6 : Overview Manual For Valuation And Assessment of Oil and Gas Producing Property In New York

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