

Handbook for Financial and Development Professionals

Chapter 9

Glossary

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This section contains the following:

- Technical Terms
- Financial Terms
- Abbreviations
- Conversions

TECHNICAL TERMS

Absorber: The part of the solar collector that receives radiant energy and transforms it into heat energy.

Absorptive Coating: Covers the absorber plate and improves its ability to absorb energy without reflecting it away.

Active Solar System: A system that traps the sun's energy and utilizes a mechanical subsystem to move that energy to its point of intended use for water heating, space heating and possibly space cooling.

Alternating Current (AC): An electric current that reverses direction in a circuit at regular intervals. Electrical energy usually obtained from utility grids or generators.

Ampere (Amp): Measure of electric current.

Amp-Hours: Battery storage capacity. A 100 amp-hour battery will supply a 10-amp load for 10 hrs.

Array: A group of photovoltaic modules wired together to produce a specific amount of power. Array size can range from one to hundreds of modules, depending on how much power will be needed.

Bagasse: The fibrous material remaining after the extraction of juice from sugarcane; often burned by sugar mills as a source of energy.

Balance of System (BOS): Parts of a photovoltaic system other than the photovoltaic array, such as: connectors, sockets, wires, cables, power outlets and mounting hardware.

Batch: Black tank that serves as both collector and storage tank. Can be enclosed, with one side glazed.

Battery: An energy storage device.

Bioenergy: Energy derived from plant matter, or biomass. Green plants capture solar energy and store it as chemical energy in the form of cell walls in the plants' stalks, stems and leaves and as oils or starch in the seed, fruits or roots. Both plants and the waste materials derived from them (such as sawdust, wood wastes, and agricultural wastes) are referred to as biomass. Biomass can be used directly as a solid fuel to produce heat, or it can be converted to other bioenergy carriers such as liquid and gaseous fuels.

Borehole: Synonym for water well.

Btu (British thermal unit): A unit of heat. The quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

Carbon Dioxide (CO₂): The gas formed in the ordinary combustion of carbon, given out in the breathing of animals.

Casing: Plastic or steel tube that is permanently inserted in the well after drilling. Its size is specified according to its inside diameter.

Cell (photovoltaic): A semi-conductor device that converts light directly into DC electricity.

Centrifugal Pump: A pumping mechanism that spins water by means of an "impeller". Water is pushed out by centrifugal force. See also [multi-stage](#). Centrifugal pumps have high flow rates with low suction.

Check Valve: A valve that allows water to flow one way but not the other. A foot valve is one example.

Chlorofluorocarbons: Compounds containing chlorine, fluorine, and carbon - they generally are used as propellants, refrigerants, blowing agents (for producing foam), and solvents. They are identified with numbered suffixes (e.g., CFC-11, CFC-12) which identify the ratio of these elements in each compound. They are known to deplete stratospheric ozone and also are "greenhouse" gases in that they effectively absorb certain types of radiation in the atmosphere.

Closed Loop System: System of which no part is vented to the atmosphere or fed with fresh liquid. The system liquid is re-circulated.

Cogeneration: The simultaneous generation of both electric power and heat. The heat, instead of being discharged without further use, is used in some fashion (e.g., in district heating system, steam, etc).

Collector Loop: The part of the solar system that has solar collectors. The collector loop may be piped and include other components.

Collector Tilt: The angle between the horizontal plane and the solar collector plane.

Concentrator: A photovoltaic module, which includes optical components, such as lenses, to direct and concentrate sunlight onto a solar cell of smaller areas. Most concentrator arrays must directly face or track the sun.

Controller/Regulator: A device to protect the batteries from being overcharged.

Dam: A structure for impeding and controlling the flow of water, which increases the water elevation to create the hydraulic head. The reservoir creates, in effect, stored energy.

Deforestation: The permanent clearing of forest land and its conversion to non-forest uses such as clearing land for agriculture, cutting down trees for lumber and gathering fuelwood. These activities are having devastating effects of acid rain, nuclear radiation and other pollutants.

Demand-side management: The planning, implementation and monitoring of utility activities designed to encourage customers to modify their pattern of electricity usage.

Diaphragm Pump: A type of pump in which water is drawn in and forced out of one or more chambers, by a flexible diaphragm. Check valves let water into and out of each chamber.

Differential Controller: Control, which measures the difference between the collector and the tank temperatures.

Diffuse Radiation: Solar radiation received after its direction has been changed by reflection and scattering in the atmosphere.

Diode: An electronic semiconductor device that allows current flow in only one direction. Also called a rectifier. The electrical equivalent of a check valve in water.

Direct Current (DC): A type of electricity transmission and distribution by which electricity flows in one direction through the conductor; usually relatively low voltage and high current.

Efficiency (of a solar cell or module): The ratio of electric energy produced to the amount of solar energy incident on the cell or module. Typical crystalline solar modules are about 10% efficient -- they convert about 10% of the light energy they receive into electricity.

Emissions: Flows of gases, liquid droplets, or solid particles into the atmosphere. Gross emissions from a specific source are the total quantity released. Net emissions are gross emissions *minus* flows back to the original source. Plants, for example, take carbon from the atmosphere and store it as biomass during photosynthesis, and they release it during respiration, when they decompose, or when they are burned.

Energy: The capacity for doing work.

Energy audit: A survey that shows how much energy is being used and shows ways to reduce energy usage.

Energy intensity: The amount of energy required per unit of a particular product or activity. Often used interchangeably with “energy per dollar of GNP.”

Flat-plate module or array: A photovoltaic module or array in which the incident solar radiation strikes a flat surface and no concentration of sunlight is involved.

Flat Plate Collector: Converts the sun's radiation into heat on a flat surface within a simple box. Does not use reflecting surfaces, lens arrangements to concentrate the sun's energy.

Foot Valve: A check valve placed in the water source below a surface pump. It prevents water from flowing back down the pipe and "losing prime". See check valve and priming.

Fossil fuel: Coal, petroleum or natural gas. Any fuel derived from them.

Friction Loss: The loss of pressure due to flow of water in pipe. This is determined by 3 factors: pipe size (inside diameter), flow rate, and length of pipe. It is determined by consulting a friction loss chart available in an engineering reference book or from a pipe supplier. It is expressed in PSI or Feet (equivalent additional feet of pumping).

Gasifiers: Tank for anaerobic fermentation of biomass residues from sugar cane, pulp and paper, etc., to produce biogas.

Generating capacity: The capacity of a power plant to generate electricity - typically expressed in watts-electric (e.g., kWe or Mwe).

Geothermal: Natural heat extracted from the earth's crust using its vertical thermal gradient, most readily available where there is a discontinuity in the earth's crust (e.g. where there is separation or erosion of tectonic plates).

Greenhouse effect: A popular term used to describe the heating effect due to the trapping of long wave radiation by greenhouse gases produced from natural and human sources.

Greenhouse gases: The gases such as water, vapor, carbon dioxide, methane and low level ozone that are transparent to solar radiation, but opaque to long wave radiation, and which contribute to the greenhouse effect.

Grid-connected: A photovoltaic system that is connected to a centralized electrical power network.

Gross domestic product (GDP): total value of goods and services produced by a country (residents and non-residents) per annum.

Gross national product (GNP): GDP + income residents receive from abroad for labor and investments, less similar payments made to non-residents who contributed to the domestic economy.

Head: A unit of pressure for a fluid, commonly used in water pumping and hydro power to express the height a pump must lift water or the distance water falls. Head losses are important for determining flow rates and pump sizes.

Headers: Main passages through which the heat transfer medium enters into or exits from the collector. Also called manifolds.

Heat Exchanger: A device that is used to transfer heat between fluids and gasses through an intervening metal surface.

Heat Transfer Medium: Air or liquid that is heated and used to transmit energy to its point of use.

Hybrid system: A power system consisting of two or more power generating subsystems (e.g., the combination of a wind turbine or diesel generator and a photovoltaic system).

Indirect System: A solar heating or cooling system in which the solar heat is collected outside the building and transferred inside using ducts or piping, and usually, fans or pumps.

Insolation: The amount of energy in sunlight reaching an area. Usually expressed in watts per square meter (W/m^2), but also expressed on a daily basis as watts per square meter per day ($W/m^2/day$).

Inverter: An appliance used to convert DC (battery) power into standard household (utility) AC electricity.

Jet Pump: A surface-mounted centrifugal pump that uses an "ejector" (venturi) device to augment its suction capacity. In a "deep well jet pump", the ejector is down in the well, to assist the pump in overcoming the limitations of suction. (Some water is diverted back down the well, causing an increase in energy use.)

Kilowatt (kW): 1000 watts

Kilowatt-hour (kWh): 1000 watt-hours. A typical residence in the United States consumes about 1000 kilowatt-hours each month at a price in the range of \$.06 to .15 per kilowatt-hour.

Least-cost planning: In energy planning, the practice of basing investment decisions on the least costly option for providing *energy services*. It is distinguished from the more traditional approach which focuses on the least costly way to provide specific types of energy, with little or no consideration of less costly alternatives that provide the same energy service at lower costs.

Life cycle cost (LCC) analysis: A form of economic analysis to calculate the total expected costs of ownership over the life span of the system. LCC analysis allows a direct comparison of the costs of alternative energy systems, such as photovoltaics, fossil fuel generators, or extending utility power lines.

Load: The demand on an energy producing system. The energy consumption or requirement of a piece or group of equipment.

Maintenance costs: Any costs incurred in the upkeep of a system. These costs may include replacement and repair of components.

Maximum power point tracker: An electronic device that acts as a "transmission" between the PV panels and the pump. Provides the maximum power possible out of the solar array. While an **array tracker** that follows the sun provides higher efficiency and power in the summer, a MPPT provides the highest gains in winter and/or cold weather, due to the higher PV outputs at colder cell temperatures. Where maximum efficiency is needed, both may be used.

Megawatt: One thousand kilowatts, or 1 million watts. Standard measure of electric power plant generating capacity.

Megawatt hours: One thousand-kilowatt hours or 1 million-watt hours.

Methane: A compound consisting of one carbon atom and four hydrogen atoms; it occurs naturally, often in association with coal and petroleum (see Natural gas below) and as a byproduct of the metabolic activities of some microorganisms; it also can be synthesized artificially.

Module: A number of solar electric cells wired together to form a unit, usually in a sealed frame of convenient size for handling and assembling into arrays. Also called a "panel."

Montreal Protocol: The principal international agreement under which ozone-depleting compounds are regulated. Its formal name is the "Montreal Protocol on Substances that Deplete the Ozone Layer" and was adopted in September 1987.

Multi-Stage Centrifugal: A centrifugal pump with more than one impeller and chamber stacked in a sequence to produce higher pressure. Conventional AC deep well submersible pumps and higher power solar submersibles work this way.

Natural gas: A naturally occurring mixture of hydrocarbons (principally methane) and small quantities of other gases found in porous geological formations, often in association with petroleum.

OECD: Organization for Economic Cooperation and Development, an organization that includes most of the world's industrialized, market economies. Members include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

Off-peak: The period of low energy demand, as opposed to peak demand.

Open Loop System: Some part of the system is vented to the atmosphere, or the system contains fresh or changeable water.

Operating costs: The costs of using a system. For fuel-based systems these costs include all fuel costs over the system's lifetime.

Ozone: A molecule consisting of three oxygen atoms in the atmosphere, it is found in both the stratosphere and troposphere. Ozone effectively absorbs certain forms of solar ultraviolet radiation known to damage living organisms. It also absorbs certain wavelengths of infrared radiation and therefore is a "greenhouse" gas.

Panel: A device containing solar cells encapsulated under glass and installed in an aluminum frame. Typically rated at approximately 50 watts for 12-volt DC applications.

Passive Solar Heating: Solar heating of a building accomplished by architectural design without the aid of mechanical equipment.

Peak sun hours: The equivalent number of hours per day when solar insolation averages 1000 watts per square meter. For example, six peak sun hours means that the energy received during total daylight hours equals the energy that would have been received had the insolation for six hours been 1000 watts per square meter.

Peak Watts (Wp): The maximum power (in watts) a solar array will produce on a clear, sunny day while the array is in full sunlight and operating at 25 C. Actual wattage at higher temperatures is usually somewhat lower.

Photovoltaics (PV): The direct conversion of light into electricity. "Photo" means light and "voltaic" means electric. More commonly referred to as solar electricity.

Polycrystal Silicon Cells: Pure silicon is melted and cast into bricks, then sliced into thin wafers and coated with electrical contacts. Typically 36 cells are soldered together to produce a 12 volt DC solar module.

Positive Displacement Pump: Any mechanism that seals water in a chamber then forces it out by reducing the volume of the chamber. Examples: piston (including jack), diaphragm, rotary vane. Used for low volume and high lift. Contrast with "centrifugal". Synonyms: volumetric pump, force pump.

Power: The rate at which energy is consumed or generated. Power is measured in watts or horsepower.

Pressure: The amount of force applied by water that is either forced by a pump, or by the gravity. Measured in pounds per square inch (PSI). PSI = vertical lift (or drop) in Feet / 2.31, or .43 PSI per foot.

Pressure Switch: An electrical switch actuated by the pressure in a pressure tank. When the pressure drops to a low set point (cut-in) it turns a pump on. At a high point (cutout) it turns the pump off.

Pump Controller: An electronic device, which varies the voltage and current of a PV array to match the needs of an array-direct pump. It allows the pump to start and to run under low sun conditions without stalling. Electrical analogy: variable transformer. Mechanical analogy: automatic transmission. See Linear Current Booster and Maximum Power Point Tracker.

Pump Jack: A deep well piston pump. The piston and cylinder is submerged in the well water and actuated by a rod inside the drop pipe, powered by a motor at the surface. This is an old-fashioned system still used for extremely deep wells, including solar pumps as deep as 1000 feet. In solar powered systems, a DC motor replaces the windmill.

Pump Staging: A method of placing two or more pumps together to increase flow or overcome head losses. Series-staged pumps are placed in the same line and increase the head. Parallel-staged pumps are placed in two separate lines, feeding a common line and increase the flow rate.

Renewable energy: Flows of energy that are regenerative or virtually inexhaustible. Most commonly includes solar (electricity and thermal), biomass, geothermal, wind, tidal, wave, and hydropower sources.

Retrofit: To update an existing structure or technology by modifying it, as opposed to creating something entirely new from scratch. For example, an old house can be retrofitted with advanced windows to slow the flow of energy into or from the house.

Risers: Flow passages (pipes or channels) that distribute heat transfer fluid across the absorber panel in a collector.

Sealed Piston Pump: A type of pump in which water is drawn in and forced out of a chamber by a piston mechanism. The pistons have a very short stroke, allowing the use of flexible gaskets to seal water out of the piston mechanism. Check valves let water into and out of the chamber.

Sensor: Sensing device that changes its electrical resistance according to temperature. Used in the control system to generate input data on collector and storage tank temperatures.

Silicon: A non-metallic element that, when specially treated, is sensitive to light and capable of transforming light into electricity. Silicon is the basic material of beach sand, and is the raw material used to manufacture most photovoltaic cells.

Solar Collectors: A solar collector is a device designed to absorb incident solar radiation and to transfer the energy to a fluid passing through it.

Solar Radiation: The sun's energy that comes to earth in the form of direct, diffuse and reflected rays.

Solar Storage: A water tank or rock bed that absorbs collected solar energy and holds it until needed.

Solar Thermal: Solar thermal energy systems capture the sun's free energy and convert it into heat. The most common applications in developing countries are heating water, food processing, crop drying and space heating in colder climates.

Stand-alone Photovoltaic System: A solar electric system commonly used in remote locations that are not connected to the main electric grid. Most stand-alone systems include some type of energy storage, such as batteries or pumped water.

Static Water Level: Depth to the water surface in a well under static conditions (not being pumped). May be subject to seasonal changes or lowering due to depletion.

Submergence: Applied to submersible pumps: Distance beneath the static water level, at which a pump is set. Synonym: immersion level. Total Dynamic Head - vertical lift + friction loss in piping (see friction loss).

Submersible Pump: A motor/pump combination designed to be placed entirely below the water surface.

Suction Lift: Applied to surface pumps: Vertical distance from the surface of the water in the source, to a pump located above surface pump located above. This distance is limited by physics to around 20 feet at sea level (subtract 1 ft. per 1000 ft. altitude) and should be minimized for best results.

Surface Pump: A pump that is not submersible. It must be placed no more than about 20-ft. above the surface of the water in the well.

Sustainable: A term used to characterize activities that can be undertaken in such a manner as to not adversely affect the environmental conditions (e.g., soil, water quality, climate) necessary to support those same activities in the future.

Thermostat: Temperature sensing device which is used to switch mechanical equipment on and off.

Thermosyphon: Passive solar systems that rely on the natural convection of liquids to collect energy. Designed with the tank above the collection surface.

Transfer Fluid, Heat: The heat transfer fluid is the medium, such as air, water or other fluid, which passes through the solar collector and carries the absorbed thermal energy away from the collector.

Unglazed Collector: A collector with no transparent cover plate.

Vane Pump: (Rotary Vane) A positive displacement mechanism used in low volume high lift surface pumps and booster pumps. Durable and efficient, but requires cleanly filtered water due to its mechanical precision.

Vertical Lift: The vertical distance that water is pumped. This determines the pressure that the pump pushes against. Total vertical lift = vertical lift from surface of water source up to the discharge in the tank + (in a pressure system) discharge pressure. Synonym: static head. Note: Horizontal distance does NOT add to the

vertical lift, except in terms of pipe friction loss. NOR does the volume (weight) of water contained in pipe or tank. Submergence of the pump does NOT add to the vertical lift in the case of a centrifugal type pump. In the case of a positive displacement pump, it may add to the lift somewhat.

Voltage/Volts: The amount of electricity pressure, which causes the flow of electricity through the circuit. Typically 12 volt DC for panels/batteries or 120/220 volts AC for appliances.

Watts: The measure of electrical power. Volts x amps = watts.

Watt-Hour: The quantity of electrical energy used or produced when one watt is used for one hour.

FINANCIAL TERMS

Accounting: Is the process of recording, classifying, summarizing, communicating and interpreting the economic events of a business or organization to interested users.

Accounts payable: Amounts of money owed to others. These are current liabilities incurred by a company during the normal course of business.

Accounts receivable: Amounts of money owed to a business by customers who purchase goods or services on credit. On the balance sheet, these are current assets.

Accrual basis accounting: An accounting method that recognizes expenses when incurred and revenue when earned rather than when payment is made or received.

Asset: Something of monetary value owned by a business or individual.

Balance sheet: An accounting report that summarizes a firm's financial position at a specific date by listing assets, liabilities and owner's equity.

Bonds: Long-term promissory note or debt instrument issued by public and private institutions.

Break-even: The point where the level-of-sales is such that, total revenues equal total costs. Break-even analysis serves as a guideline to determine how changes in the volume of sales affect earnings.

Budget: An estimated amount of expected income and expense for a specified future period of time. It is a formal financial summary of management plans that allows the communication of previously agreed upon objectives and once approved it is used for evaluating performance.

Budget-forecast-actual: A comparison between actual results with planned objectives.

Business cycle: The regular but recurring periods of change in economic activity over time. It is characterized by periods of expansion, abundance, contraction and recessions.

Business plan: A formal written strategy that specifies the steps to be undertaken in order to carry out a specific activity and reach the planned objectives of the organization. It is a document that details the past, present and future of a company usually designed to attract capital investment.

Cash basis accounting: An accounting method that records revenue when is received and expenses when they are paid.

Cash flow: The amount of net cash available in a firm as a result of its operations. It is calculated by adding non-cash expenses such as depreciation to net income after taxes and it helps determine a firm's level of liquidity.

Contribution (margin, percentage): The contribution margin is the amount of revenue remaining after deducting variable costs from total sales. This margin is the amount available to cover fixed costs and to contribute to profit. If you divide the contribution margin by total sales you can obtain the contribution margin ratio. This ratio helps you determine the effect of changes in sales on income.

Controller, Comptroller: An organization's chief accounting officer responsible for the establishment and maintenance of the firm's accounting system.

Corporation: A business organized as a legal entity separate from its owners, distinguished by having limited liability, easy transfer of ownership and unlimited life.

Cost of goods sold: The total cost of products sold during a specific period. It is equal to beginning inventory plus cost of goods purchased minus ending inventory.

Credit: An accounting entry that records a decrease to assets and an increase to liabilities and owner's equity. It is also the ability to borrow or purchase goods and services without having to pay on delivery.

Current ratio: A liquidity measure that helps determine a company's short-term debt paying ability. It is obtained by dividing current assets by current liabilities.

DBA, doing business as: Used to signify that a company is operating using a name other than its legally incorporated name.

Debentures: A long-term unsecured debt instrument. It usually applies to unsecured bonds of a corporation.

Debt (senior, junior): Words used to prioritize the order in which debt is going to be repaid or claimed in the event of liquidation.

Debt to equity ratio: It is computed by dividing owner's equity into long term debt and it shows the relationship between long term funds provided by creditors and funds provided by owners.

Due diligence: Pertains to the process leading up to an investment. Including among other things a review of financial statements, market assessment, economic conditions and management background.

Equity: In accounting terms is the funds contributed to the firm by stockholders through direct payment or retained earnings. Also known as owner's equity.

Exit strategy: Is a component of an investment plan that sets forth one or more mechanisms for an investor to liquidate their original investment plus earn a return. Examples of exit strategies include among others, initial public offerings and buyback agreements from other shareholders.

Financial plan: The process of determining the financing needs of a firm including a strategy for obtaining those funds.

Financial Reporting: Reports that provide financial statistics relative to an organization's operations and financial condition.

Grants: An amount of money that doesn't need to be repaid.

Gross domestic product (GDP): Total value of goods and services produced by a country (residents and non-residents) per annum.

Gross national product (GNP): GDP + income residents receive from abroad for labor and investments, less similar payments made to non-residents who contributed to the domestic economy.

Gross profit: Total sales revenue minus cost of goods sold. Gross profit does not take into account selling and administrative expenses.

Income statement: A financial statement that reports revenue and expenses and resulting net income or net loss for a specified period of time.

Insolvency: The inability to meet debt obligations.

Inventory: The amount of raw materials, work in process and finished goods owned by a company and ready for sale during the course of business.

Investor: An institution or individual who provides funds to others through risk capital (equity) by purchasing income-producing assets. (eg. shares). Someone that puts money into a project or other assets in exchange for income returns or interest.

Lenders: Institutions or individuals that provide funds (eg. Loans) with a specified interest rate and repayment period.

Limited liability companies: A business form that makes its owners responsible for no more capital than they have personally invested in the business. Thus, stockholders only lose the amount paid for the shares of ownership regardless of the firm's financial obligations.

Limited partner: A member of a limited partnership that enjoys limited liability. He or she is not liable for the debts of the partnership.

Management: The individuals directing, handling and controlling the affairs of a business.

Market analysis: A study of the economic environment including among others market structure, size, competition, barriers and, growth potential.

Market penetration: The portion of a particular market that a company has been able to acquire.

Mezzanine debt: After initial capital is raised for a company there exists a period of time when combinations of debt convertible to equity is a viable tool to finance a company. These debt instruments, which sometimes are accompanied with warrants (an option to purchase stock) and are often convertible to equity, are grouped together under the heading of mezzanine debt, meaning it is between start-up capital and conventional debt. It is also sometimes referred to as quasi equity.

Net income: The income that remains after all expenses including taxes have been deducted from revenues. Also called net profit.

Non-compete agreement: An agreement between parties under which one party promises not to engage in certain business activities in a particular region.

Non-disclosure agreement: A confidentiality agreement.

Operating costs: Expenses incurred during the normal course of business with the exception of interest expense, taxes and cost of goods sold.

Partnership: A business form owned by two or more people who agree to share both, profits and losses.

Payback strategy: The mechanism to be followed in order to fulfill a firm's corresponding debt obligations.

Per capita GNP: GNP divided by the country's population total.

Personal guarantee: A personal pledge, tangible object or formal assurance given as security for a debt obligation.

Preferred shares: A type of security that shows ownership of a company and has preference over common shares in the payment of dividends and claims of assets.

Projections: The calculation of future costs, revenues, rates of growth and the like.

Prospectus: A formal document that discloses information relating to a new securities offering including, information about the issuing company, financial data, proposed business plan, list of its officers, description of its operations and, any pending litigation.

Quick ratio: A liquidity measure computed by dividing current liabilities into all current assets with the exception of inventory. It helps determine a company's ability to meet its immediate short-term debt obligations.

Ratios (financial): A relationship between two or more sets of financial data points with the purpose of tracking the performance of a company.

Return on equity: It is calculated by dividing owner's equity into net income after taxes and it's a measure of the net income that a firm is able to earn as a percent of the stockholder's investment.

Return on investment: It is calculated by dividing total assets into net income after taxes and it measures the firm's effectiveness to generate income from available assets.

Sales: It represents revenue exclusively from the sale of goods and services.

Soft loans: A loan with below market rate and terms and even possible forgiveness.

Sole proprietor: The one and only owner of a business who is, personally liable for all the financial obligations incurred by his or her company.

Stock offering: A new issue of securities.

Stock, shares (common, preferred): Securities that show ownership in a corporation and if preferred give the holder a claim prior to the claim of common stockholders on earnings and in the event of liquidation also on assets.

Strategy, tactics: A plan, method or procedures used to obtain a specific goal or result.

Vision and mission: The goals and objectives of an organization.

Working capital: Is computed by subtracting current liabilities from current assets and it represents the amount of funds a firm needs to cover its current obligations. Thus, it also serves as a measure of liquidity.

ABBREVIATIONS

Bbl:	Barrel (of oil), 159 litres
Bcm:	Billion cubic meters (10^9 m^3)
Btu:	British thermal unit (1 Btu = 1055.06 J)
CNG:	Compressed Natural Gas
GJ:	Gigajoule
GtC:	Gigatonnes (elemented) carbon (10^9 tonnes C)
Gtoe:	Gigatonnes oil equivalent (10^9 tonnes oil equivalent)
GW:	Gigawatt (10^9 watts)
KW:	kilowatt
LPG:	Liquefied Petroleum Gas
Mtoe:	Million tonnes oil equivalent
MWh:	Megawatt hour
toe:	Tonnes oil equivalent
TWh:	Tera watt hours (10^{12} watt hours)

ENERGY EQUIVALENTS

1 million metric tonnes of oil is equivalent (toe) to:

- 1.5 million tons of coal
- 1.2 billion cubic meters of natural gas
- 2.5 million tons of fuelwood
- 4 terawatt hours of electricity
- 2 metric tons of uranium (fast reactors)

1 barrel of oil = 159 liters
 = 42 gallons (US)
 = 35 gallons (UK)

CONVERSIONS

Electrical power is measured in watts

1,000 watts (W) = 1 kilowatt (kW)
 1,000 kilowatts = 1 megawatt (MW)
 1,000 megawatts = 1 gigawatt (GW)
 1,000 gigawatts = 1 terawatt (TW)

The kilowatt-hour (kWh) measures the amount of electrical energy supplied or consumed.

1,000 kWh = 1 megawatt hour (mWh)
 1,000 mWh = 1 gigawatt hour (GWh)
 1,000 GWh = 1 terawatt hour (TWh)

1 calorie (cal) =
 4.196 Joule (J)

1 quad (quadrillion Btu) =
 1.05x10¹⁸ Joules (J)
 1.05 exajoules (EJ)
 3.60x10⁵ metric tons, coal
 1.72x10⁶ barrels, oil
 2.36x10⁵ metric tons, oil
 2.83x10¹⁰ cubic meters, gas
 1.07x10¹² cubic feet, gas
 2.93x10² terawatthours

1 kilowatt-hour =
 3.41x10³ British thermal units (Btu)
 3.6x10⁶ Joules (J)

Joule =
 9.48x10⁻⁴ British thermal units (Btu)
 2.78x10⁻⁷ kilowatt-hours (kWh)
 0.239 Calorie (cal)
 (generally thought of as the energy content of a match tip)

1 British thermal unit (Btu) =
 2.93x10⁻⁴ kilowatt-hours (kWh)
 1.05x10³ Joules (J)

1 barrel of oil =
 Approx. 0.136 tones