



List

Quality Management Engineering Glossary

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1. INTRODUCTION

The APA Technical Practices (ATP) aim to achieve good engineering and design practice through standardisation. We endeavour to make the ATP sufficiently flexible to allow engineers to adapt the information in the ATP to project, asset, or customer conditions and requirements. This is of particular importance where the ATP may not cover all conditions or requirements of use.

APA staff and its Contractors shall be solely responsible for applying ATP in the context of legal, statutory and approvals requirements to achieve the required engineering design, and quality of work. For those requirements not specifically covered, the designer shall use a recognised engineering practice or standard to achieve as a minimum the same level of integrity as reflected in the ATP. If in doubt, the Contractor shall, without detracting from his responsibility, consult APA.

1.1 CONFLICTS AND WAIVERS

Conflicts between this standard and other applicable ATP or international standards, national standards, codes and industry practices shall be resolved in writing by the APA Standards and Assurance team.

Requests for waivers from this Practice shall follow the Waiver Process [\[Ref.1\]](#).

1.2 ORDER OF PRECEDENCE

Refer to the order of precedence in the ATP Development, Use and Management [\[Ref.2\]](#).

2. PURPOSE AND SCOPE

This list provides unique and clear definitions of the terms and abbreviations used for engineering design in APA. This is to ensure that terms and abbreviations are not misinterpreted, and consistency is kept across all APA Technical Practices (ATP) and associated Design or Project documents.

It is recognised that the various APA business units and engineering areas sometimes use different terms to convey the same meaning. Those terms would be placed in business or application-specific glossaries.

As much as possible unique terms and abbreviations are being promoted; however, due to existing uses of some terms, multiple terms for similar purposes exist and these are cross referenced in the glossary.

The glossary contains terms and abbreviations to use with and develop engineering practices and engineering design documents. It also contains references to other glossaries relevant to engineering in APA.

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2.1 PREFERENCES

In developing this glossary, the preferred spelling is that of the Macquarie Dictionary.

Where there are several definitions for a term, the definition most relevant to engineering design has been selected.

If a term is not contained in this or another relevant glossary and if it is a term in common use, then the relevant definition from the Macquarie Dictionary should be used.

Further sources for definitions are recognised technical dictionaries and glossaries, preferably specialising in the specific area of interest.

2.2 GENERAL RULES & CONVENTIONS

Terms selected for this glossary have relevance to engineering design.

Where a definition is sourced from another document, the original text shall be retained.

Terms, values, and abbreviations of physical quantities related to SI Units have purposely been omitted from this document (refer to ISO 80000 [\[Ref. 3\]](#)).

3. GLOSSARY

The APA Terms and Acronyms used in Infrastructure Engineering documents are listed in the table below.

Term	Acronym	Definition
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NUMERIC

3 Monthly Project Review	3MPR	Deep dive into a project - look at the financials and see how the project is tracking.
3D Model		A model with objects having three-dimensional properties. Such models are always to be dynamic, as they will be made up of “model files” that are “x-ref” or “reference” files. (HDR Concetre Consulting, 2019)
3D Visualisation		3D images from the 3D CAD model, or a virtual representation of the asset or facility to be constructed; used for visualising the project.

A

Abandonment		The process of changing a once active asset, to a state where it can be left indefinitely. All asset equipment is removed and work is completed on the site to ensure that it will not cause harm to any environmental or human surroundings. (CAPP, 2021)
Above Ground	AG	Located or occurring on or above the surface of the ground.

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Above Ground Installation	AGI	
Absolute Zero		The zero point on the absolute temperature scale. It is equal to -273.16 degrees C, or 0 degrees K (Kelvin), or -459.69 degrees F, or 0 degrees R (Rankine).
Abrasive Blasting		Propelling a stream of abrasive material at high speed against a surface using compressed air, liquid, steam, centrifugal wheels or paddles to clean, abrade, etch or otherwise change the original appearance or condition of the surface. (Safe Work Australia, 2021)
Acceptance		In reference to the “Handover Process”, where the pipeline or facility is deemed fit for operation by APA Group by verification that all checks and performance tests have been performed in accordance with the “Approved Commissioning Plan” and the outcome of the “Accepted by” for deliverables.
Acceptance Criteria		A list of criteria that defines the quality, functionality and/or scope that project deliverables must meet before the sponsor (customer) will accept them; a measurable definition of what the project, or parts thereof, must achieve to be accepted.
Acceptance Test		An investigation performed on an individual lot of a previously qualified product by, or under the observation of, the purchaser to establish conformity with a purchase agreement stipulating specified requirements. (AGA, 2021)
Accepted by		Person(s) with the authority to accept the release of a Document to/by the Customer/Recipient. “Accepted by” does not constitute approval of design details, calculations, analyses, test methods or materials developed or selected by the Originator. Acceptance shall not relieve the Vendor of its obligations under the Contract.
Access Agreement		A negotiated agreement between a resource company and landholder relating to the rights over designated ‘access land.’ (Energy Information Australia, 2020)
Accuracy		The closeness of the agreement between the result of the measurement and the conventional true value of the quantity. Accuracy should not be confused with precision. (ISO) Core measurements have well-defined calibration techniques and standards. Logging measurements are characterised during tool design and construction and calibrated regularly to some standard. The quoted accuracy of a log then depends on the initial characterisation, the reproducibility of the standard, and the stability of the measurement between calibrations and under downhole conditions. The actual accuracy also depends on the equipment performing and being operated to specification. (Schlumberger Ltd., 2021)

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ADG Code	ADG	Australian Code for the Transport of Dangerous Goods by Road and Rail; also referred to as the Australian Dangerous Goods Code (Safe Work Australia, 2021)
Adiabatic		A term indicating that no heat is lost or gained by a material being subjected to a thermodynamic process. An adiabatic process is one in which there is no exchange of heat with the surroundings.
Aerobic		Referring to a condition or a situation in which free oxygen exists in an environment. (Schlumberger Ltd., 2021)
Air Insulated Switchgear	AIS	
Airborne Contaminant		A contaminant in the form of a fume, mist, gas, vapour or dust, and includes micro-organisms. (Safe Work Australia, 2021)
Alkaline Electrolyser	AE	
Alternating Current	AC	Electricity flowing in two directions (Renew Economy, 2021)
Ambient Temperature		Environmental temperature.
American Gas Association	AGA	
American National Standards Institute	ANSI	
American Petroleum Institute	API	
American Society of Mechanical Engineers	ASME	
American Society of Testing of Materials	ASTM	
Ampere (Amp)	A	Is the base unit of electric current. Also see Current.
Anaerobic		The condition of an environment in which free oxygen is lacking or absent. (Schlumberger Ltd., 2021)
Anchor Pin		A pin welded to the body of a ball valve. This pin aligns the adapter plate and keeps the plate and gear operator from moving while the valve is being operated. (Schlumberger Ltd., 2021)
Ancillary Services		The market operator AEMO uses these so-called services to control the wellbeing of the grid. They are very well explained in their publication “Guide to Ancillary Services in the National Electricity Market”. (Renew Economy, 2021)
Anode		A positively charge electrode. (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Anomaly		An entity or property that differs from what is typical or expected, or which differs from that predicted by a theoretical model. May be the measurement of the difference between an observed or

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		measured value and the expected values of a physical property. (Schlumberger Ltd., 2021)
Anthropogenic		Man-made (as in global warming). (Renew Economy, 2021)
APA Group	APA	APA Group (ASX:APA) is listed on the ASX and is included in the S&P ASX 50 Index. APA Group comprises two registered investment schemes - Australian Pipeline Trust (APT) and APT Investment Trust (APTIT) - and their controlled entities. (APA Group, 2021)
APA Technical Practices	ATP	As of 2023, APA Technical Practices include what was formerly known as APA Engineering Standards. See Engineering Standards.
Approval for Expenditure	AFE	The AFE, clearly defines the project scope, budget and outlines any financial risk. The AFE is submitted by the project requestor and is approved by the relevant DLA to create an project ¹ code and release the approved budget to progress with commitment of project spend.
Approved	APPD	
Approver		The Representative authorised to sign a document/design package when it has reached the final validation stage at every formal issue. The Approver signs to signify the company's commitment to the contents of the document/design package and that the company has fulfilled its professional obligations. The Approver must be satisfied that the document has been prepared and reviewed following the relevant plans, procedures, and standards requirements.
As Low as Reasonably Practicable	ALARP	The point where risk has been reduced to a level where further risk reduction through added controls can only be achieved at a cost grossly disproportionate to the benefits that would be obtained. ALARP is hazard based.
Asbestos Containing Material	ACM	ACM is any material, object, product or debris that contains asbestos. (Dept. of Mines, Industry Regulation and Safety, 2021)
Asbestos-contaminated Dust or Debris	ACD	Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or is assumed to be) contaminated with asbestos. (Lawinsider, 2021)
As-built Survey		Refers to the detailed site survey to be provided to APA under the terms of the contract of agreement. These surveys should accurately record the details of completed works.
Asset		System including the personnel, property, plant, and equipment.

¹ Provided by Finance and lodged in Oracle

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		Item, thing, or entity that has potential or actual value to an organisation.
Asset Integrity		The ability of an asset to perform its required functions effectively and efficiently whilst safeguarding life and the environment.
Asset Management	AM	A coordinated set of activities and processes to manage assets through their life cycle to achieve specified performance and corporate objectives at least cost of ownership.
Asset Management Plan	AMP	A long-term plan (typically 5, 10 or 15 years) to guide the investment in asset procurement, operation, maintenance, and disposal to achieve the corporate objectives and business operational performance requirements.
Atmospheric Pressure		The pressure due to the weight of the atmosphere (air and water vapor) on the earth's surface. The average atmospheric pressure at sea level (for scientific purposes) has been defined at 730K (0°C) and is 1.01325 bar or 101325 Pa absolute.
Audit		Systematic assessment of the adequacy of a system.
Australia, New Zealand	ANZ	
Australian Carbon Credit units	ACCUs	(Renew Economy, 2021)
Australian Competition and Consumer Commission	ACCC	
Australian Energy Market Commission	AEMC	Makes the rules for the electricity and gas markets. (Renew Economy, 2021)
Australian Energy Market Operator. Manages the NEM	AEMO	Manages the NEM. (Renew Economy, 2021)
Australian Energy Regulator	AER	Enforces the rules of the NEM. (Renew Economy, 2021)
Australian Height Datum	AHD	
Australian Industry Group	AIG	
Australian Institute for Non-Destructive Testing	AINDT	
Australian Pipeline Industry Association	APIA	
Australian Renewable Energy Agency	ARENA	A government body who are a major funder of emerging renewable projects.
Australian Standard	AS	

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Authorisation to Work	ATW	Authorisation to Work ²
Authorised Activity		An activity permitted for the resource authority by the particular Act under which it is granted. (Energy Information Australia, 2020)
Authorised Person		Person, appointed in writing by the responsible engineer who has been properly instructed in his or her duties and deemed competent.
Authority (Regulatory)		A government agency responsible for relevant legislation and its application [AS/NZS 3000] (Standards Australia, 2021)
Automated Ultrasonic Testing	AUT	A generic term which relates to the computerised collection of ultrasonic data, although, the three-letter acronym AUT is now used to refer specifically to the automated ultrasonic inspection of pipe girth welds.
Automatic Voltage Regulator	AVR	An automatic voltage regulator is used to regulate the voltage. It takes the fluctuate voltage and changes them into a constant voltage. (Circuit Globe, 2021)
Availability		The Availability of the plant shall be calculated as the time the plant is ready for use and is able to meet the required performance guarantee levels (known as Plant Available Time), divided by calendar time, and is expressed as a percentage. Measure of the percentage of time that an item or system is available to perform its designated function.
Average Recurrence Interval	ARI	Average recurrence interval (typ. Inundation).

B

Back Pressure		Pressure against which a fluid is flowing. May be composed of friction in pipes, restrictions in pipes, valves, pressure in vessels to which fluid is flowing, hydrostatic head, or other resistance to fluid flow. (AGA, 2021)
Back-Fill		Earth or other material which has been used to refill a trench. Back-filling, the act of refilling a ditch or trench.
Baffles		Plates, louvers, or screens placed in the path of fluid flow to cause change in the direction of flow; these are used to promote mixing of gases or to eliminate undesirable solid or liquid particles in the fluid stream. Sometimes baffles are inserted in a flue to lengthen the travel of flue gases and increase efficiency of operation. (AGA, 2021)
Balance of Plant	BOP	Electrical - means all subsystems for operation and generation of electrical power by DFC's MCFs in one or more stacks and including, but not limited to, auxiliary transformers, power

² Authorisation to work is the Power Industry equivalent or APA's Permit to work System.

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		transformers, switchgear, inverters, control system, utility interface and start-up and stand-by equipment. Mechanical - everything related to a plant's facilities and internal structural elements, apart from the major production facilities, such as but not limited to, fuel gas conditioning systems, pressure reduction systems, fire protection systems, compressed air systems etc.
Barred Tee		Tee-piece provided with bars across the internal bore of the branch pipe to prevent entry of a pig.
Base Conditions		Standard conditions of temperature, pressure, and compressibility, to which gas is converted to account for the measurement conditions of those values.
Base Estimate	BE	The Base Estimate (including sunk costs) is the sum of two key components; the Client Costs and Construction Costs as at the applicable base date and which should cover all phases of the project.
Baseline Drawings		A set of drawings which identifies and describes the configuration of a product at a specific point in time and serves as a reference for further activities.
Baseload Power		In the traditional model a level of generation that runs all the time supplemented by peaking power. (Renew Economy, 2021)
Battery Energy Storage System	BESS	A Battery Energy Storage System (BESS) is a type of energy storage device the uses batteries as its underlying storage technology. A battery energy storage system is more than just a battery, and requires additional components that allow the battery to be connected to an electrical network. (Haines, 2018)
Battery Management System	BMS	Such systems encompass not only the monitoring and protection of the battery but also methods for keeping it ready to deliver full power when called upon and methods for prolonging its life. (Electropedia, 2005)
Below Ground	BG	Installed or located beneath the surface of the ground.
Benchmark (Survey)	BM	A fixed point of reference having a known elevation above (or below) a particular datum. TBM is a temporary bench mark, a bench mark that may be used for a specific task and then discarded. (Dept of Training and Workforce Development WA, 2016)
Benzene Toluene Ethylbenzene Xylenes	BTEX	Fluid used in Fracking. (banned in several Australia states)
Best and Final Offer	BAFO	A revision to an Offer submitted after negotiations are completed that contains the Offeror's most favorable terms for price, service, and products to be delivered. (Law Insider - www.lawinsider.com)
Bevel		Beveled pipe ends are for welding purposes. Pipe which is cut at an inclination so that two ends form an angle other than a right angle. (AGA, 2021)

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Bevel Both Ends	BBE	
Bid and Study Agreement		An agreement between two or more parties to review technical data prior to deciding whether to bid on a concession. The agreement also specifies the interests and the procedure for bidding between the parties in the event that the parties decide to bid on the concession. (Schlumberger Ltd., 2021)
Bill of Materials	BoM	A bill of material is a document or table on a drawing that shows detailed descriptions of materials used for construction of fabrication i.e. type of material, specification, part number etc. A MTO is required to produce a BOM. (Oil and Gas Industry, 2021)
Black Start		Full grid reboot.
Black System (System Black)		Major failure of the grid to deliver electricity.
Blanket Gas		A gas phase maintained above a liquid in a vessel to protect the liquid against air contamination, to reduce the hazard of detonation or to pressurize the liquid. The gas source is located outside the vessel. (Schlumberger Ltd., 2021)
Bleed Ring	BDR	
Bleed / Bleed-off		To equalise or relieve pressure from a vessel or system. At the conclusion of high-pressure tests or treatments, the pressure within the treatment lines and associated systems must be bled off safely to enable subsequent phases of the operation to continue. The bleed off process must be conducted with a high degree of control to avoid the effect of sudden depressurisation, which may create shock forces and fluid-disposal hazards. (Schlumberger Ltd., 2021)
Blind Flange	BLD	
Block-and-bleed		The capability of obtaining a seal across the upstream and downstream seat rings of a valve when the body pressure is bled off to the atmosphere through blowdown valves or vent plugs. Useful in testing the integrity of seat seals and performing minor repairs under pressure. (Schlumberger Ltd., 2021)
Bottle		A gas-tight container fabricated from pipe or plate with integral drawn, forged, or spun end closures, tested in the manufacturer's plant, used for storing or transporting gas. (AGA, 2021)
Bourdon Tube		An arc-shaped, spiral, or helical metal tube that is approximately elliptical in cross-section and has one end attached to a pressure indicating, controlling, or recording device, while the other end is fixed. Pressure changes inside the tube affect its shape and actuate the device to which it is attached. (AGA, 2021)
Boyle's Law		A principle of physics stating that the product of pressure and volume divided by the temperature is a constant for an ideal gas. It is a good

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		approximation for many real gases, such as helium, over reasonable ranges of temperature and pressure.
Brine		Water containing more dissolved inorganic salt than typical seawater. (Schlumberger Ltd., 2021)
British Approval Service for Electrical Equipment in Flammable Atmospheres	BASEEFA	
British Thermal Unit	BTU	A measure of heat energy required to raise the temperature of one pound of water by one degree Fahrenheit.
British Thermal Unit	Btu	The quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit from 58.5 to 59.5 degrees Fahrenheit under standard pressure of 30 inches of mercury at or near its point of maximum density. One Btu equals 252 calories, (gram), 778 foot-pounds, 1,055 joules or 0.293 watt hours.
Brown Coal		The Lowest rank of coal unsuitable for export.
Brownfield		Brownfield projects are projects where some work has already occurred. The site is already partly developed with infrastructure.
Buffer Solution		Any aqueous solution that contains a buffer mixture (weak acid or weak base and salt of the weak acid or base) to maintain constant or almost constant pH of the system. (Schlumberger Ltd., 2021)
Build Own and Operate	BOO	A Build-Own-Operate contract to build, operate, and maintain a facility; after the completion of the facility, the investor shall own and have the right to commercially operate such facility in perpetuity unless by mutual agreement the Government [or other entity] decides to purchase the asset at the end of a specified period of time. (Law Insider - www.lawinsider.com)
Building	BLD	
Building Code of Australia	BCA	Obsolete acronym – See NCC
Building Information Modelling	BIM	Is a collaborative way of working underpinned by digital technologies, which allow for more efficient methods of designing, delivering and maintaining physical built assets throughout their entire lifecycle. [ISO 19650]
Bureau of Meteorology	BOM	Australia's national weather, climate and water agency.
Burner Management System	BMS	Is a safety system used to assure safe start-up, operation and shut down of process burners.
Business as Usual	BAU	
Business Process		A business process is a collection of related activities that produce something of value to the organisation, its stakeholders or its clients. Management processes are those activities undertaken to operate an organisation. Typical management processes include corporate governance and strategic management. Operational processes are those activities that deliver value to a client and are typically

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		characterised as the core business activities, such as service delivery or product assembly. (Government of Canada - Project Management, 2013)
Butt Weld		A welding technique used to join two tubes in which the squared and prepared ends are butted together in preparation for welding. The resulting circumferential weld has relatively good strength characteristics but has limitations where the tube is to be plastically deformed or bent, such as occurs on a coiled tubing string. Consequently, butt welds performed on a coiled tubing string should be checked carefully using hardness and radiographic testing methods and their locations detailed in the string record. The anticipated fatigue life in the butt-weld area must also be reduced to compensate for the weakness of the weld. (Schlumberger Ltd., 2021)
By-Pass		An auxiliary piping arrangement, generally to carry gas around specific equipment or an integral section of a piping system. A by-pass is usually installed to permit passage through the line while adjustments or repairs are made on the section which is by-passed. (AGA, 2021)
Bystander		A person injured or killed as a result of someone else's work activity, while not engaged in a work activity of their own. (Safe Work Australia, 2021)

C

Cable Installation System		A cable tray, cable ladder, duct or conduit and includes fasteners brackets and supporting structure(s) erected specifically for the cable installation system. Any cable restraints used to attach the cable to a cable ladder or similar shall be part of the cable installation system.
Calibrate		To ascertain, usually by comparison with a standard, the locations at which scale or chart graduations should be placed to correspond to a series of values of the quantity which the instrument is to measure, receive or transmit. Also, to adjust the output of a device, to bring it to a desired value, within a specified tolerance for a particular value of the input. Also, to ascertain the error in the output of a device by checking it against a standard. (AGA, 2021)
Capacity (electrical)		The capacity of a solar power system is commonly its output in optimal circumstances. Capacity is measured in Watts (W) or kilowatts (kW). 1kW = 1000W. Capacity can be referred to as the size of a system, e.g. 3 kW. (AGL, 2021)
Capacity Factor		The ratio of the net electricity generated, for the time considered, to the energy that could have been generated at continuous full-power operation during the same period. (U.S.NRC, 2021)
Capital Expenditure	CAPEX	Capital expenditures (Capex) are funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment. Capex is often used to

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		undertake new projects or investments by a company. (Invetopedia, 2021)
Carbon Black		Almost pure amorphous carbon consisting of extremely fine particles, usually produced from gaseous or liquid hydrocarbons by controlled combustion with a restricted air supply or by thermal decomposition.
Carbon Capture and Storage	CCS	CCS is technology used to stop large amounts of carbon dioxide from being released into the atmosphere, by separating the carbon dioxide from emissions and injecting it into geological formations.
Carbon Capture and Utilisation	CCU	Carbon capture and utilisation (CCU) is the process of capturing carbon dioxide (CO ₂) to be recycled for further usage. CCU aims to convert the captured carbon dioxide into more valuable substances or products; such as plastics, concrete or biofuel; while retaining the carbon neutrality of the production processes.
Carbon Dioxide	CO ₂ (CO2)	Carbon dioxide is a chemical compound composed of one carbon and two oxygen atoms. It is often referred to by its formula CO ₂ .
Carbon Monoxide	CO	A poisonous, combustible gas formed by incomplete combustion of carbon, or reduction of carbon dioxide.
Carcinogen		A substance or mixture that causes or is suspected of causing cancer. (Safe Work Australia, 2021)
Cathodic Protection	CP	A technique to prevent the corrosion of a metal surface by making that surface the cathode of an electrochemical cell. (AGA, 2021)
Cause		An event, situation or plant condition that could result directly or indirectly in an incident with the potential to cause harm.
Checked	CHK	The document or drawing has been reviewed for clarity, accuracy, consistency, and against the parameters of the basis of design for accuracy, correctness, function, and feasibility.
Chlorofluorocarbon	CFC	Any of several simple gaseous compounds that contain carbon, chlorine, fluorine, and sometimes hydrogen, that are used as refrigerants, cleaning solvents, and aerosol propellants and in the manufacture of plastic foams.
Circuit Breaker	CB	A switch suitable for opening a circuit automatically, as a result of predetermined conditions, such as those of overcurrent or undervoltage, or by some form of external control. [AS3000] (Safe Work Australia, 2021)
Clean Coal		A marketing term used to describe new coal technologies that are slightly less polluting (20%) than the current coal generators but still worse than the dirtiest gas plant. (Renew Economy, 2021)
Clean Energy Council	CEC	Is the peak body (non-profit) for the clean energy industry in Australia.
Clean Energy Finance Corporation	CEFC	

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Closed Drain		A drain system that is connected directly to pressure vessels is called a “pressure” or “closed” drain system. (Oil & Gas Process Engineering, 2021)
Coal Seam Gas	CSG	Coal seam gas is natural gas that is contained within coal seams. (Energy Information Australia, 2020)
Code of Practice		Codes of practice are practical guides to achieving the standards of health, safety and welfare required under the WHS Act and the WHS Regulations in a jurisdiction. (Safe Work Australia, 2021)
Commercial Readiness Index	CRI	
Commissioning		Commissioning is the activities performed in getting processes running to establish normal operation. These activities include the process verification and documenting that the facility and all its system components and assemblies are designed, installed, tested, and operated to meet the design requirement of individual units and systems. Additionally, the activity consists of checking and testing all functions according to their design parameters in conditions as close as possible to the design conditions and includes performance tests.
Commissioning Process		A quality focused process for enhancing the delivery of a project. The process focusses on verifying and documenting that the facility and all its systems and assemblies are planned, designed, installed, tested, operated, and maintained to meet the Owner’s Project Requirements.
Competent Person		A person who has acquired through training, qualification or experience the knowledge and skills to carry out specific tasks.
Compressed Natural Gas	CNG	CNG fuel means compressed natural gas, which is primarily methane. (Type +20Mpag) Chemical formula of CNG is CH ₄
Compressor		A device that raises the pressure of air or natural gas. A compressor normally uses positive displacement to compress the gas to higher pressures so that the gas can flow into pipelines and other facilities. (Petroleum Engineering Handbook, 2015)
Compressor Station	CS	A facility consisting of one or more compressors, support equipment and pipeline installations to pump natural gas under pressure over long distances.
Computer Aided Design	CAD (CADD)	The use of computers to aid in the creation, modification, analysis, or optimisation of a design.
Concentrated Solar Thermal	CST	
Conceptual Model		A way of representing a particular concept, or set of concepts, that helps people understand or simulate the subject of that model. Often

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		drawn as diagrams, conceptual models show relationships between factors and the flow of data or processes.
Condensate		Hydrocarbons, usually produced with natural gas, which are liquid at normal pressure and temperature. (CAPP, 2021)
Confined Space Entry	CSE	
Consent to Operate	CTO	Consent to provide gas to the customer.
Consequence		Direct, undesirable result of an incident, usually involving health, safety, environmental harm or damage to assets, business continuity or company reputation. Consequence is scalable to indicate severity of outcome.
Consultant		A party typically performing a service such as design.
Contingency Reserve		Money added to the project cost estimates by the project manager to manage uncertainty / risks that might happen
Contractor		A party typically performing the construction of works.
Control Hazard & Operability	CHAZOP	CHAZOPs are a part of the safety management process that focuses on the potential hazards associated with the operations of the control system exclusive from the function of the underlying processes that they manipulate and maintain.
Control Measure		An action taken to eliminate or minimise health and safety risks so far as is reasonably practicable. A hierarchy of control measures is set out in the WHS Regulations to assist duty holders to select the highest control measures reasonably practicable. (Safe Work Australia, 2021)
Control Measure		An action taken to eliminate or minimise health and safety risks so far as is reasonably practicable. A hierarchy of control measures is set out in the WHS Regulations to assist duty holders to select the highest control measures reasonably practicable. (Safe Work Australia, 2021)
Cost Benefit Analysis		Analysis of the relationship between the costs of undertaking a project (initial and recurrent), and the ongoing benefits likely to arise from the project outcomes.
Cost Time Resource	CTR	Is a document that describes each major element in the work breakdown structure, including a statement of work (SOW) describing the work content, resources required, the time frame of the work element and a cost estimate.
Cross-linked Polyethylene	XLPE	Cross-linked polyethylene (XLPE) is a thermosetting resin with three types of cross-linking: peroxide cross-linking, radiation cross-linking, and silane cross-linking. (S.Hedenqvist, 2012)
Cryogen		A material that is a gas at ambient conditions but can be liquefied at below-ambient temperatures. This includes all of the ambient temperature gases.

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Cryogenic		The science of producing very low temperatures such as natural gas liquefaction.
Current	A	Current is the measure of the flow of electrons in an electrical circuit. Current is usually measured in engineering units called amperes, which indicate how much electrical energy is flowing through the circuit. Also see Ampere.
Current Density		The flow of electrical charge higher current densities mean smaller footprints. (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Current Transformer	CT	A current transformer is a device that is used for the transformation of current from a higher value into a proportionate current to a lower value.
Custody Transfer Measurement	CTM	The process which measures the quantity of natural gas (in terms of volume and energy) for transfer of custody from one entity to another.
Customer Relationship Management	CRM	Customer relationship management (CRM) refers to the principles, practices, and guidelines that an organisation follows when interacting with its customers.

D

Danger	DGR	Is a signal word on a label or safety data sheet that is used to indicate the relative level of severity of a hazard; Danger is used for more severe or significant hazards. (Safe Work Australia, 2021)
Dangerous Goods	DG	
Datum (Level Datum)	DAT	A reference level to which the elevation of other points may be referred. In Australia, the Australian Height Datum is the commonly adopted reference level. The AHD is an adjusted value of Mean Sea Level throughout Australia. A level datum may also be assigned an arbitrary value (Arbitrary Datum). (Dept of Training and Workforce Development WA, 2016)
Decibel	dB	The unit for measuring sound levels.
Declared Wholesale Gas Market	DWGM	
Decommission		To remove from service.
Decommissioning and Abandonment Management Plan	DAMP	
Defect		Any fault or failure to a component requiring corrective maintenance, or any unsatisfactory condition which has the potential to develop into eventual component failure.

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Delegation of Authority	DLA	Means division of authority and powers downwards to the subordinate.
Delegation of Authority	DOA	
Deliverable(s)		Quantifiable goods or services that will be provided upon completion of a project.
Density		The weight of a unit of volume, usually expressed as pounds per cubic foot. (AGA, 2021)
Density, Bulk		The weight per unit volume of a material including voids inherent in the material as tested. (AGA, 2021)
Depth of Discharge	DOD	
Design (noun)		The product of the process of designing that describes the solution (conceptual, preliminary, or detailed) of the system, system elements or system end items. ³
Design (verb)		The process of defining, synthesising, selecting, and describing solutions to requirements in terms of products and processes.
Design Acceptance		Accepting a design as having achieved the stated technical requirements of APA.
Design Approval		Process whereby an authorised person certifies that design outputs have been verified as meeting design input specifications and requirements and that the design has been completed in accordance with relevant regulations and standards, prior to the release of the design for construction or use.
Design Approver		Authorised person who certifies the design has followed authorised processes and meets requirements and is ready for acceptance.
Design Basis Manual (Basis of Design)	DBM (BOD)	A document that records the concepts, calculations, decisions, and product selection used to meet the Owner's Project Requirements and to satisfy applicable regulatory requirements, standards, and guidelines. Includes narrative descriptions and list of individual items that support the design process. Also known as: Design Basis Memorandum or Basis of Design.
Design Change	DCN	Anything having the potential to alter the scope, schedule, operability/maintainability, function or functional performance, hazards or the risk level of a facility or process.
Design Factor		Stress safety factor used in pipe wall thickness calculations. Ratio between the rated strength of the material over the estimated load.
Design Flow Rate		Maximum flow rate that can occur over any continuous six-minute period, expressed as an hourly rate.

³ Engineering design involves all the processes to produce a design, including detailed design, verification, validation, requirements analysis, allocation and traceability, and approval.

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Design Intent		The way a process or system is intended to function.
Design Interface Agreement		An agreement detailing the roles and responsibilities of multiple parties required to work together to achieve complete and accurate update of drawings which reflect the changes associated in multiple simultaneous works.
Design Personnel		Those involved in the design process making decisions affecting the design, includes Designers, Checkers, Verifiers and Acceptors of designs, and others that provide information and recommendations on which designs are based. ⁴
Design Phase		Design phases are aligned to the APA PPOM Project Stages as follows: Pre-FEED phase occurs during Develop Stage; FEED during Plan Stage and Detail Design during Deliver Stage.
Design Pressure		The pressure nominated in the Design Basis for the purpose of performing calculations on the mechanical and process design of the pipeline.
Design Record		Provides traceability of the evolution of the approved design, including design changes, from the specification to approved configuration documentation. ⁵
Design Review		The design review process comprises a series of reviews carried out at designated points in the development of a project. The process provides progressive evaluation of the direction and progress of the design towards meeting the design output requirements for the project. ⁶
Design Temperature		The design temperature is defined as the most severe (maximum) condition of coincidental temperature and pressure that will occur.
Design Validation		Represents the final stage in the process of ensuring that new designs, systems, and equipment are fit for the intended purpose before release of the item or system for use. In most disciplines this is finalised during the commissioning phase. Also see Validation
Design Verification		The part of the process whereby designs outputs (including staged outputs where applicable) are progressively checked to confirm that they meet the design input requirements. Also see Verification

⁴ Design personnel who sign off on “Designed” on APA drawings are referred to as “Designers”.

⁵ Design records include, but are not limited to, assumptions and calculations, investigations, and reports (such as hazard analyses or reliability models), test and commissioning records, modelling results and any other data that supports the final design solution.

⁶ A review does not systematically include a dimensional check and does not relieve a Supplier/Vendor/Contractor/ Service Provider from full compliance with its contractual obligations.

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Destructive Testing		Testing of a specimen in which the specimen is rendered unusable (i.e., destroyed) for its intended or practical use. Destructive tests are typically conducted on representative specimens to prove the strength or chemical characteristics of the sample piece.
Development Agreement	DA	A development agreement is a contract between two parties establishing an agreement over development of a product or service.
Deviation		Departure from the design intent. Also see Waiver.
Dewpoint		The pressure at which the first condensate liquid comes out of solution in a gas condensate. Many gas condensate reservoirs are saturated at initial conditions, meaning that the dewpoint is equal to the initial reservoir pressure. Condensate dissolution is called retrograde condensation because this is counter to the behavior of pure substances, which vaporize when the pressure drops below the saturation pressure under isothermal (constant temperature) conditions. (Schlumberger Ltd., 2021)
Dial Before You Dig	DBYD	National not-for-profit group of State Associations made up of member organisations that own Australia's underground assets. Each state's Association is governed by a Board of Directors made up of representatives from these organisations.
Diameter Nominal	DN	
Dibenzyl toluene	DBT C ₂₁ H ₂₀	
Diesel Engine Alternator	DEA	
Diesel Generator	DG	Is the combination of a diesel engine with an electric generator (often an alternator) to generate electrical energy.
Dimethyl ether	DME C ₂ H ₆ O	Synthetically produced alternative to diesel for use in specially designed compression ignition diesel engines.
Direct Current	DC	An electric current flowing in one direction only and substantially constant in value.
Disbonded Coating		Refers to any loss of bond or adhesion between the protective coating applied to the outside of a steel pipe and the pipe itself. Disbondment can result from adhesive failure, chemical attack, mechanical damage, hydrogen concentrations or other causes.
Disconnect	DIS	Electrical – A switching device used to open an electric circuit when there is no current through it.
Dispatchable Power		Power available at short notice.
Distributed Control System	DCS	Electrical – Is a specially designed automated control system that consists of geographically distributed control elements over the plant or control area.

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Distribution Board	DB	Electrical – A distribution board is an electrical system component that is used to divide an electrical power signal into multiple branch circuits. The distribution board should also be equipped with circuit breakers or other forms of fault protection to protect the circuits and the environment to which power is supplied. (EngNet, 2021)
Document Distribution Matrix		A matrix showing which recipient shall receive which documents, how many and which format (electronic or hard copy). This to ensure consistent transmittal of Documents for each revision.
Dosing Pump		A low-volume fluid pump with controllable discharge rate used to inject chemical additives to the mixing or pumping system. Dosing pumps frequently are used to inject fluids that may be difficult to mix efficiently in batch-tank systems because of their low volume. (Schlumberger Ltd., 2021)
Dossier		All inspections and test certificates and all other documents that record the 'System' and/or 'Unit' completion status following the terms of 'Contract'. The Dossier will be prepared individually for each 'System' and/or 'Unit'.
Double Block-and-bleed	DBB	A valve arrangement that ensures no flow in a line, although the valve may leak. It consists of two block valves in the main line with a small bleeder valve draining the line between the block valves. (Petroleum Engineering Handbook, 2015)
Downstream Pipeline		A pipeline that receives natural gas or oil from another pipeline at some specific connection point.
Drawings	DWG	Drawings shall be defined in this context as site specific or standard documented layouts, plans, diagrams, tables, schematics and the like that set out the design and/or configuration of infrastructure assets (e.g. physical dimensions and composition, temporal and/or spatial arrangements, physical and/or logical interconnections) either existing, pre-existing, or proposed.
Drop-in fuels		A synthetic fuel that is compatible and interchangeable with a conventional fuel, e.g. synthetic diesel. (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Dry Gas		Natural gas that occurs in the absence of condensate or liquid hydrocarbons, or gas that has had condensable hydrocarbons removed.
Dry Gas Seal	DGS	
Due Diligence		In the context of work health and safety—means taking every precaution that is reasonable in the circumstances to protect the health, safety and welfare of all workers and others who could be put at risk from work carried out as part of the business or undertaking. (Comcare, 2021) In the legal context – is the process you should go through prior to purchasing a business by assessing all relevant factors affecting the

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		business and its future success and assessing the risks. (Legalvision, 2021)
Durability		Durability refers to the ability of a material to resist wear and tear. ⁷
Duty Holder		A duty holder refers to any person who owes a work health and safety duty under the WHS Act including a person conducting a business or undertaking (PCBU), designer, manufacturer, importer, supplier, installer of products or plant used at work (upstream duty holders), an officer and workers. More than one person can concurrently have the same duty in which case the duty is shared. Duties cannot be transferred. (Safe Work Australia, 2021)
Dye Penetrant Inspection		A method for inspecting for surface defects of welds or casings by using a dye and developer applied to the weld. (AGA, 2021)

E

Early Contractor Involvement	ECI	Is a procurement model that allows the contractor of a project to be involved in the early phases of design between parties such as the Principal and designers.
Early Works Agreement	EWA	The early stages of a project which can include tasks such as e.g. getting ready to start with the approvals process, documentation of management plans, applying for access agreements, engineering starts to design facilities and continue to mature these facilities up to the point where it can be included for tender, procurement goes out and creates tenders to organise the construction of it.
Earned Value	EV	The measure of work performed expressed in terms of the budget authorised for that work.
Earned Value Analysis	EVA	Is a method that allows the project manager to measure the amount of work actually performed on a project beyond the basic review of cost and schedule reports. EVA provides a method that permits the project to be measured by progress achieved. (Project Management Institute, n.d.)
Earth Switch	ES	
Easement		An acquired privilege or right, distinct from ownership of the soil, to use a specified area for certain specified uses. (AGA, 2021)
Ecologically Sustainable Development	ESD	ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations. (Dept of Agriculture, Water and the Environment, 2014)

⁷ Durability is the ability of a material to resist fatigue, which is a weakening of the material resulting from the repeated application and removal of stress. Pipelines experience fatigue because of periodic increases (application of stress) and decreases (removal of stress) in operating pressures. Durability refers to the pipe's ability to resist fatigue and continue to perform its required function.

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Efficiency		Relating to heat, a percentage indicating the available Btu input to combustion equipment that is converted to useful purposes. (AGA, 2021)
Effort		The number of labour units required to complete a schedule activity or work breakdown structure component, often expressed in hours, days, or weeks.
Electric Resistance Welded	ERW	Is a welding process where metal parts in contact are permanently joined by heating them with an electric current, melting the metal at the joint.
Electrical Change Over	ECO	
Electrical Equipment for Hazardous Areas	EEHA	
Electrical Maximum Demand	EMD	
Electrical Potential Rise	EPR	
Electrical Safety Act	ESA	
Electrical Safety Regulations	ESR	
Electrical, Instrumentation & Control	EIC	
Electrical-Power	EP	
Electricity Grid		The electrical grid is an interlocked network, delivering electricity from suppliers to customers. Generating stations within the grid produce electricity, while high-voltage transmission lines carry power from sources to request centres and delivery lines connect individual customers. (AGL, 2021)
Electrolysis		In a pipeline, the decomposition or destruction of the pipe wall by stray electrical currents. The chemical decomposition of a substance when electricity is passed through it in solution or in the molten state. When the process is applied to water or hydrogen, a potential energy source is formed. (AGA, 2021)
Electromagnetic Force	EMF	The force arising from the attractions and repulsions associated with electric and magnetic fields.
Electro-mechanical Drive	EMS	
Elevated Work Platform	EWP	Hydraulically, electrically or mechanically controlled devices used to elevate workers or materials.
Emergency Flow Restricting Device	EFRD	An EFRD is defined as either a check valve or remote control valve.
Emergency Response Plan	ERP	A written plan that sets out requirements and instructions for workers and others in the case of an emergency. (Safe Work Australia, 2021)

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Emergency Shut Down	ESD	Interfaced into the main electrical instrumentation that allows for manual shut down of the system.
Emergency Shut Down valve	ESDV	A valve or a system of valves that, when activated, initiate a shutdown of the plant or process they are associated to.
Energy Audit		A review of a customer's energy usage, often including recommendations to alter the customer's demand or reduce energy usage. An audit normally involves a visit to the customer's facility. (AGA, 2021)
Energy Components (APA System)	EC	
Energy Distributor		Electricity distributors own and conserve the distribution networks, including power lines and poles, plus the natural gas pipelines carrying electricity and natural gas to residential and commercial addresses. (AGL, 2021)
Energy Factor		A measure of the overall efficiency of a water heater, based on its recovery efficiency, standby loss and energy input as set out in standardized Department of Energy test procedures. (AGA, 2021)
Energy Network Association	ENA	
Energy Reserves		Refers to the bank of natural resources, such as natural gas, natural gas liquids, petroleum, coal, lignite, energy available from water power, and solar and geothermal energy.
Engine Management System	EMS	A type of electronic control unit that controls the running of an engine by monitoring the engine speed and ensure optimal engine performance.
Engineering Approval		The process of approval of a broad range of engineering decisions and documentation including maintenance, support, and related decisions. ⁸
Engineering Controls		Controls that use engineering measures to change the physical characteristics of plant to eliminate or reduce risk.
Engineering Drawing Office	EDO	APA Term
Engineering Instructions		Identification of actions to be performed. These may be one off instruction or standing instructions until Standards or Procedures are updated.
Engineering Procurement Construction	EPC	Project delivery through engineering, procurement and construction contracts.

⁸ Design approval is a subset of engineering approval.

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Engineering, Procurement and Construction contracts	EPC	EPC contracts are the most common form of contract used to undertake construction works by the private sector on large-scale and complex infrastructure projects. Note: there is also EPCI (I for Installation); EPCM (M for Management)
Engineering Standards	ES	APA approved document that dictates the nature and specification of the engineering design. ⁹
Enterprise Content Management	ECM	Term used for the OpenText document repository used by APA.
Environment Protection Act	EPA	State base Environmental Act. Also see Environment Protection and Biodiversity Conservation Act.
Environment Protection and Biodiversity Conservation Act	EPBC	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
Environmental Design Criteria		The range of operating conditions related to either the natural or built environment under which the item or system is designed to operate.
Environmental Effects Statement ¹⁰	EES	An EES is a document that examines the possible affects a proposed development may have on the environment. It aims to support the transparent, integrated and timely assessment of the environmental effects of projects capable of having a significant impact on the environment.
Environmental Impact Assessment	EIA	An EIA is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
Environmental Management Plan	EMP	Environmental management plans describe how an action might impact on the natural environment in which it occurs and set out clear commitments from the person taking the action on how those impacts will be avoided, minimised and managed so that they are environmentally acceptable. (Dept of Agriculture, Water and the Environment, 2014)
Environmental Protection Authority	EPA	The primary environmental regulator for each State and Territory.
Environmentally Relevant Activities	ERA	Are industrial, resource or intensive agricultural activities with the potential to release contaminants into the environment. They include a wide range of activities such as aquaculture, sewage treatment, cattle feedlotting, mining and resource activities such as petroleum

⁹ In engineering standards documents, “standard” can also refer to “engineering standard”.

¹⁰ In Victoria, environment assessment of the potential environmental impacts or effects of a proposed development may be required

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		(which includes coal seam gas), geothermal and greenhouse gas storage activities. (Energy Information Australia, 2020)
Environmentally Sensitive Area	ESA	An area where the natural environment can easily be harmed
Environmental, Social, and Governance	ESG	ESG criteria are a set of standards for a company's operations that socially conscious investors use to screen potential investments.
Equipotential Bond		Electrical connection maintaining various exposed conductive and extraneous conductive parts at the same potential.
Escape, Evacuation and Rescue Analysis	EERA	
European Committee for Electro Technical Standardisation	CENELEC	
European Pipeline Research Group	EPRG	
European Standard	EN	
Expression of Interest	EOI	An EOI is a term used to invite potential bidders to express an interest in a future ITT (Invitation to Tender), so that early discussions can take place.
External Interference Protection	EIP	
Extra Low Voltage	ELV	Extra low voltage means an operating voltage not exceeding 50 V a.c. or 120 V ripple free d.c., as defined in AS/NZS 3000.

F

Facility		A system of infrastructure components designed to work together and controlled as a single entity. Facilities have all components located on the same site.
Factory Acceptance Test	FAT	Is a process that evaluates the equipment during and after the assembly process by verifying that it is built and operating in accordance with design specifications. Also see Functional Acceptance Test.
Failed Closed	FC	
Failed Last	FL	
Failed Open	FO	

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Failure		Failure is a condition in which a human, structure, component, device, or system fails to adequately perform its intended purpose. ¹¹
Failure Frequency		The number of failure events that occur divided by the total elapsed calendar time during which those events occur or by the total number of demands, as applicable. Also see Failure Rate.
Failure Mode		The way a process, system, equipment item or machine failure can occur.
Failure Mode and Effects Analysis	FMEA	Identifying and analysing systems/sub-systems functions to ascertain failures, causes and effects.
Failure Mode Effects and Criticality Analysis	FMECA	Is a bottom-up, inductive analytical method which may be performed at either the functional or piece-part level.
Failure Probability		The probability that a structure, device, equipment, system, etc. will fail on demand or will fail in each time interval, expressed as a value from 0 to 1.
Failure Rate		The number of failure events that occur divided by the total elapsed operating time during which those events occur or by the total number of demands, as applicable. Also see Failure Frequency.
Fatigue		Fatigue is the weakening of a material caused by the repeated application and removal of stress. ¹²
Fault		The cause of an error is a fault (e.g. hardware defect, software defect) which exists, temporarily or permanently in the system.
Fault Ride Through	FRT	In electrical power engineering, fault ride through (FRT), sometimes under-voltage ride through (UVRT), or low voltage ride through (LVRT), is the capability of electric generators to stay connected in short periods of lower electric network voltage (cf. voltage dip).
Feed-In Tariff	FiT	A Feed-in Tariff is an agreed amount paid to customers for any unused electricity produced by their solar power system and fed back to the electricity grid. (AGL, 2021)
Fibre Optic Break-Out Terminal	FOBOT	Is a Fibre Optic Patch Panel, or an enclosure that provides a strong and secure environment to contain the fragile cores of a stripped optical fibre at a splice point or termination.

¹¹ While a pipeline that is leaking product is the most obvious indication of failure, failure is often also defined as the point at which the pipe material is stressed beyond its elastic or yield point. At that point the material is deformed and does not return to its original shape. A pipeline rupture is an example of this type of failure.

¹² Pipelines experience fatigue because of periodic increases (application of stress) and decreases (removal of stress) in operating pressures. Because fatigue can cause a failure to occur at stress levels well below those that a material can withstand in a single, non-repetitive loading, materials that must resist repeated stress cycles must be specially designed for this service. Durability is the ability of the material to resist fatigue.

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Fibre Reinforced Plastic	FRP	Is a composite material made of a polymer matrix reinforced with fibres.
Fibre-optic Cables	FOC	An optical fibre cable is a type of cable that has a number of optical fibres bundled together, which are normally covered in their individual protective plastic covers.
Field Fit Welds	FFW	A field-fit weld indicates that the designer has foreseen that the piping may need adjustment in the field so has added an extra length of pipe at a butt weld fitting or flange.
Final Investment Decision	FID	This is the point in an energy project in which the company or companies owning and/or operating the project approve—or sanction—the project’s future development. FID follows the feasibility study stage, the pre-FEED stage, and the FEED stage. (OILPRICE.com, 2020)
Fire and Explosion Risk Analysis	FERA	Encompasses quantification of the probability of fire & explosion accidental events, and their consequences. The main objective of FERA is: To identify and quantitatively evaluate all credible fire and explosion events associated with flammable inventories that could have an impact on the facilities.
Fire and Gas System	FGS	Fire and Gas System or portion of a combination system that consists of components and circuits arranged to monitor and annunciate the status of fire or presence of gas alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.
Fire Detection Control and Indicating Equipment	FDCIE	Component conforming to AS 7240.2. (Standards Australia, 2021)
Fire Indicator Panel	FIP	Is the controlling component of a fire alarm system.
Fitting		Any device used for connecting elements in fluid lines, including elbows, tees, nipples, unions and flanges.
Flammability Category		A chemicals flammability category is based on how easily under normal conditions that the chemical will ignite. (Safe Work Australia, 2021)
Flange		A connection profile used in pipe work and associated equipment to provide a means of assembling and disassembling components. Most oilfield flanges feature a bolt-hole pattern to allow the joint to be secured and a gasket profile to ensure a pressure-tight seal. The design and specification of a flange relates to the size and pressure capacity of the equipment to which it is fitted. (Schlumberger Ltd., 2021)
Flange Insulating Kit	FIK	
Flare		The burning of unwanted gas through a pipe (also called a flare). Flaring is a means of disposal used when there is no way to transport the gas to market and the operator cannot use the gas for another

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		purpose. Flaring is not allowed because of the high value of gas and environmental concern. (Schlumberger Ltd., 2021)
Flare Gas		A vapor or gas that is burned through a pipe or burners.
Flaring/Venting		The controlled burning (flare) or release (vent) of natural gas that can't be processed for sale or use because of technical or economic reasons. (CAPP, 2021)
Flash Point	FI.P	The lowest temperature at which the vapours arising from a liquid surface can be ignited by an open flame.
Flow Element	FE	
Flowline		A pipeline transporting untreated hydrocarbons and other reservoir fluids.
Fluid		A substance which is transported through a pipeline in liquid or gaseous phase, or a combination of these.
Fly-in Fly-out	FIFO	Is a method of employing people in remote areas by flying them temporarily to the work site instead of relocating employees and their families permanently.
Force Majeure		A superior force, "act of God" or unexpected and disruptive event, which may serve to relieve a party from a contract or obligation.
Four Letter Acronym	FLA	APA – Used for creating a unique identifier for an APA owned or operated asset. Also see Three Letter Acronym .
Fracking (Hydraulic fracturing)	FRAC	Industry term used to refer to the method used to increase the deliverability of a production or underground storage well by pumping a liquid or other substance into a well under pressure to crack (fracture) and prop open the gas-bearing formation. (AGA, 2021)
Frequency	Hz	Refers to number of cycles per second: The target grid frequency in Australia is 50 cycles per second or 50 Hz. (US – 60 Hz)
Front-End Engineering Design	FEED	Front-end engineering design refers to the engineering and design work completed as part of pre-project planning, done before more detailed design. The initial stage of detailed project planning is known as front-end engineering design (FEED). Front-end engineering design is early and basic design, to accurately discover what resources will be needed. (Collins English Dictionary, 2021)
Front-End Loading	FEL	Front-end Loading (FEL) is a process by which a company translates its business and technology opportunities into capital projects. The objective of FEL is to gain a detailed understanding of the project to minimise the number of changes during later project execution phases. FEL proceeds until the "right" project is selected and is not finished until a full design basis package has been completed. The

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		quality of FEL is a key indicator of project outcomes. (Independent Project Analysis)
Fugitive Emissions		Small leaks, primarily of methane, from valves and other equipment used in drilling and production. (CAPP, 2021)
Functional Acceptance Test	FAT	Means the test that demonstrates the correct operation of the system's functions as specified within the contract including all of the interfaces, fees, workflows, system security, and data conversion components. (Lawinsider, 2021) Also see Factory Acceptance Test.
Functional Design Specification	FDS	Documentation that describes the requested behaviour of an engineering system. The documentation typically describes what is needed by the system user as well as requested properties of inputs and outputs (e.g. of the software system).
Functional Organisation		An organizational structure in which staff is grouped by areas of specialisation and the project manager has limited authority to assign work and apply resources. See also matrix organisation and projectized organisation. (PMI Lexicon v3.2, 2021)
Fusion Bonded Epoxy	FBE	Fusion bonded epoxy (FBE) coating is a powder coating broadly used to provide protection to pipelines, steel pipes and a wide range of piping bonds. FBE coatings are thermoset polymers by nature. In the coating nomenclature, fusion bonded epoxy coatings are classified as protective coatings. (Corrosionpedia, 2013)

G

Gas Industry Social & Environmental Research Alliance	GISERA	CSIRO's Gas Industry Social & Environmental Research Alliance is a collaboration between CSIRO, Commonwealth and State Governments and industry established to undertake publicly reported independent research. (Energy Information Australia, 2020)
Gas Chromatograph	GC	
Gas Conditioning		The removal of objectionable constituents and addition of desirable constituents.
Gas Day		A period of twenty-four (24) consecutive hours commencing at a specified hour on a given calendar day and ending at the same specified hour on the next succeeding calendar day.
Gas Detector		An instrument that indicates the existence of combustible or noxious gas.
Gas Engine Alternator	GEA	
Gas Grid		The layout of a gas distribution system in which pipes are laid in both directions in the streets and frequently connected at intersections.
Gas Insulated Switchgear	GIS	

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Gas Transportation Agreement	GTA	The GTA is an exchange of pipeline capacity or pipeline transporting services for money. That exchange for money is rarely as simple as what is found in a GSA because the transporter will typically charge what is known as a tariff. The tariff can be determined by a flat rate, the number of zones the gas passes through, the volume of the gas transported, or the joules shipped.
Gas Tungsten Arc Welding	GTWA	Commonly known as tungsten inert gas (TIG) welding, is an arc welding process that uses a non-consumable tungsten electrode to produce the weld.
Gas Turbine Alternator	GTA	
Gas Turbine Compressor	GTC	
Gasification		Conversion of solid fuel to gaseous fuel. The process during which liquified natural gas (LNG) is returned to its vapor or gaseous state through an increase in temperature and a decrease in pressure.
Gate Review		When a project Gate is encountered, a Gate Review is held to determine if the project should proceed or not and under what conditions. (Stratton, 2003) Also known as Stage Gate Review.
Gate Station		Generally a location at which gas changes ownership, from one party to another, neither of which is the ultimate consumer. It should be noted, however, that the gas may change from one system to another at this point without changing ownership. Also referred to as city gate station, town border station, or delivery point. (AGA, 2021)
Gathering System		The gathering pipelines plus any pumps, tanks, or additional equipment used to move oil or gas from the wellhead to the main pipeline for delivery to a processing facility or consumer. (AGA, 2021)
General Purpose	GP	
General Purpose Outlet	GPO	
Generator Circuit Breaker	GCB	
Generator Performance Standards	GPS	
Geocentric Datum of Australia 2020	GDA2020	Replaced GDA 94.
Geographic Information System	GIS	A Geographic Information System is a framework for gathering, managing, and analysing geospatial data.
Geophysics		A study of subsurface geological conditions of structure or material through the interpretation of measurement variations in density,

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		magnetics, elasticity, electrical conductivity, temperature, and/or radioactivity. (AGA, 2021)
Geotechnical		Geotechnical engineers and engineering geologists perform geotechnical investigations to obtain information on the physical properties of soil and rock underlying (and sometimes adjacent to) a site to design earthworks and foundations for proposed structures, and for the repair of distress to earthworks and structures.
Glass Reinforced Epoxy	GRE	It is a composite material consisting of an epoxy resin, used as the base polymer matrix, reinforced with glass fibres.
Glass Reinforced Plastic	GRP	It is made of synthetic resin as main basic material and glass fibre or other product as reinforced material, processed into a solid material by moulding and setting.
Global Horizontal Irradiation	GHI	Is the amount of terrestrial irradiance falling on a surface horizontal to the surface of the earth.
Global Positioning System	GPS	GPS is a satellite navigation system used to determine the ground position of an object.
Globally Harmonised System	GHS	Classification and Labelling of Chemicals
Gouge-Pipe		A groove or scooped out cavity damage to pipe caused by a foreign object. (AGA, 2021)
Grandfather Clause		The continuation of a former rule, clause, or policy (usually in a contractual agreement) where a change to a new rule or policy would be patently unfair to those covered by the former.
Green Energy Trading		REC trading agent and clean energy advocate Green Energy: Energy created without creating CO ₂ emissions i.e. wind, water, solar PV. (Renew Economy, 2021)
Greenfield		Greenfield project starts from scratch. The site is not developed and required infrastructure for the project is normally not present.
Greenhouse Gases	GHG	A type of gas that contributes to the greenhouse effect by absorbing infrared radiation. GHG emissions from oil and natural gas development include carbon dioxide (CO ₂), methane, nitrous oxide and ozone. (CAPP, 2021)
Grid Connecting Transformer	GCT	
Guide Word		Word or phrase which expresses and defines a specific type of deviation from a system design intent.

H

Halogen Free, Flame Retardant and, Temperature Resistant	HFT	
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Handover of Operational Control		The milestone point (or staged points) when operational responsibility for an asset or system transfers from a project to the Client owner or operator.
Hazard	Haz.	A physical situation with a potential for human injury and or damage to property or plant.
Hazard Analysis	HAZAN	Is a technique that focuses on job tasks as a way to identify hazards before they occur.
Hazard and Operability Analysis	HAZOP	Systematic method for evaluating hazards. It often involves the review of detailed system drawings, specifications, and operating procedures. Process hazards and potential operating problems are identified through a qualitative investigation of deviations from normal process conditions.
Hazard Identification Study	HAZID	Study using the brainstorming approach to identify possible hazards in a process, system, or activity.
Hazardous Area	HA	Area in which an explosive atmosphere is present, or may be expected to be present, in quantities such as to require special precautions for the design, construction, installation and use of equipment. [AS/NZS 60079.0] (Standards Australia, 2021)
Hazardous Area Verification Dossier	HAVD	Set of documents showing the compliance of electrical equipment and installations. (AS/NZS 60079.14:2022, Clause 3.1.2) Also known as Hazardous Area Dossier (HAD). The correct term is HAVD.
Hazardous Chemical Information System	HCIS	Is a web-based information system that helps you to find GHS classification information on chemicals. Requirements for transporting hazardous chemicals.
Hazardous Material		Any substance or material that is dangerous to human health or safety or the environment if used incorrectly or if not properly stored or contained.
Header		In a gathering system, a pipe arrangement that connects flowlines from several wellheads into a single gathering line. A header has production and testing valves to control the flow of each well, thus directing the produced fluids to production or testing vessels. Individual gas/oil ratios and well production rates of oil, gas and water can be assigned by opening and closing selected valves in a header and using individual metering equipment or separators. (Schlumberger Ltd., 2021)
Health and Safety Committee	HSC	Are a elected group within a workplace with members from management, the workforce as well as from all departments and staffs.
Health and Safety Representative	HSR	A worker who has been elected by a work group under the model WHS Act to represent them on health and safety issues. (Safe Work Australia, 2021)

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Health, Safety and Environment	HSE	Refers to a branch, or department, within a company that is responsible for the observance and protection of occupational health and safety rules and regulations along with environmental protection.
Heat Affected Zone	HAZ	The heat-affected zone (HAZ) is the area of base material, either a metal, which is not melted but has had its microstructure and properties altered by welding or heat intensive cutting operations.
Heat Conservation	HC	
Heating, Ventilating and Air Conditioning	HVAC	
Hedging		A hedge is an investment that is made with the intention of reducing the risk of adverse price movements in an asset. Normally, a hedge consists of taking an offsetting or opposite position in a related security. (Investopedia, 2021)
Helium	He	A colourless, odorless, inert gas, specific gravity 0.1368, found in some natural gas.
Hertz	Hz	The derived unit of frequency
Hierarchy of Control		The hierarchy of risk control shows ways of controlling risks, ranked from the highest level of protection and reliability to the lowest. (Safe Work Australia, 2021)
High Consequence Area	HCA	
High-density Polyethylene	HDPE	High-density polyethylene (HDPE) or polyethylene high-density (PEHD) is a thermoplastic polymer produced from the monomer ethylene.
High Frequency Induction Weld	HFW	
High Level Architecture	HLA	
High Point Vents	HPVs	In order to completely fill a gas piping system (gathering lines) you must be able to purge all air from the pipes – air will naturally accumulate in the high points of the system. Thus companies install High Point Vents on gathering lines to get rid of any air. (Energy Information Australia, 2020)
High Speed Disturbance Monitor	HSDM	
High Vapour Pressure Liquid	HVPL	
High Voltage	HV	High Voltage. In Australia “High Voltage” is considered as any level exceeding Low Voltage” according to the definition in AS/NZS3000: (a) Extra-low voltage: Not exceeding 50 V a.c. or 120 V ripple-free d.c. (b) Low voltage: Exceeding extra-low voltage, but not exceeding 1 000 V a.c. or 1 500 V d.c.

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High Voltage Direct Current	HVDC	
Higher Heating Value	HHV	
Highly Volatile Liquid	HVL	
Highway Addressable Remote Transducer	HART	Communication protocol for smart measuring Instruments.
Holiday		A discontinuity or break in the anticorrosion protective coating on pipe, tubing, or fitting that leaves the bare metal exposed to corrosive processes. (AGA, 2021)
Hoop Stress		The tensile stress, acting on the pipe along the circumferential direction of the pipe wall when the pipe contains gas or liquid under pressure.
Horizontal Directional Drilling	HDD	Trenchless construction method used to install pipes underground without disturbing the ground surface. The drill is launched from one end of the designed bore path and retrieved at the other end, and except for the launch and retrieving spaces above ground, the entire process takes place underground, out of sight.
Horizontal Drilling		Drilling a well that deviates from the vertical and travels horizontally through a producing layer. (CAPP, 2021)
Hot Tap		Hot tapping, also known as pressure tapping, is a method of connecting (either by drilling or cutting) to a pressurised system, such as a pipeline or pressure vessel, without removing the pipe or tank from service.
Hot Work		Maintenance or construction work requiring welding, burning, grinding, or drilling. Normally requires a permit i.e. Hot Work Permit
Hub		A market or supply area pooling/delivery where gas supply transaction point occur that serve to facilitate the movement of gas between and among interstate pipelines. Transactions can include a change in title, a change in transporter, or other similar items. (AGA, 2021)
Human Machine Interface	HMI	Is the hardware or software through which an operator interacts with a controller.
Hydrate		A solid ice-like material resulting from the combination of a gas with water under pressure. (AGA, 2021)
Hydraulic Power Unit	HPU	A device used in a hydraulic system to store energy or, in some applications, dampen pressure fluctuations. Energy is stored by compressing a pre-charged gas bladder with hydraulic fluid from the operating or charging system. Depending on the fluid volume and pre-charge pressure of the accumulator, a limited amount of hydraulic energy is then available independent of any other power source.

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Hydrocarbons		Organic compounds comprising hydrogen and carbon. Hydrocarbons are the principal constituents of oil and gas. (Energy Information Australia, 2020)
Hydrogen Gas	H ₂ (H2)	A colourless, odorless, highly flammable gas used in hydrogenation of petroleum and for producing ammonia. Also, an important constituent of manufactured gas.
Hydrogen Sulphide	H ₂ S (H2S)	A poisonous, corrosive compound consisting of two atoms of hydrogen and one of sulfur, gaseous in its natural state. It is found in manufactured gas made from coals or oils containing sulphur and must be removed. It is also found to some extent in some natural gas.

Ideal Gas Law		The ideal gas law is the combination of the volume, temperature, and pressure relationships of Boyle's and Charles' laws resulting in the relationship PV=RT. Real gases deviate by varying amounts from the ideal gas law. (AGA, 2021)
Impressed Current Cathodic Protection.	ICCP	
In Situ		In its original place or in place.
Incidence Angle Modifier	IAM	The incidence effect (IAM, for "Incidence Angle Modifier") corresponds to the decrease of the irradiance really reaching the PV cells' surface, with respect to irradiance under normal incidence, due to reflections increasing with the incidence angle.
Indirect Cost	IDC	Indirect costs are costs that are not directly accountable to a cost object (such as a particular project, facility, function or product). Indirect costs may be either fixed or variable. Indirect costs include administration, personnel and security costs. These are those costs which are not directly related to production. Some indirect costs may be overhead. But some overhead costs can be directly attributed to a project and are direct costs.
Industrial Fuel Switching		Switching from natural gas to alternate fuels such as residual or clarified oil by large industrial customers, primarily motivated by the relative fuel prices.
Inert		A material not acted upon chemically by the surrounding environment. Nitrogen and carbon dioxide are examples of inert constituents of natural gases; they dilute the gas and do not burn, and thus add no heating value. (AGA, 2021)
Injection Line		A pipeline transporting gas, water or other fluids for injection into a pipeline or a production system.
Input Output	I/O	
Inspection		The examination and checking of infrastructure for the purposes of ensuring the infrastructure is operating safely and to the specified

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		standards. Inspections may be scheduled, or event driven. Inspections shall be carried out by authorised competent persons.
Inspection and Test Plan	ITP	A document prepared by a Supplier/Vendor containing the details of the inspection and testing activities required to ensure that a product or design complies with the specification. The ITP identifies witness, hold and surveillance points as agreed between the Supplier and APA.
Inspection and Test Report	ITR	
Inspector		Nominated third-party inspection agency. A person appointed by the Licensee to carry out inspections.
Installation, Operation and Maintenance	IOM	IOM is used to refer to an Installation, Operation and Maintenance Manual, which can also be referred to as an O&M.
Instrument Piping		All piping, valves, and fittings used to connect instruments to main piping, other instruments and apparatus, or measuring equipment. (AGA, 2021)
Instrument Society of America	ISA	
Integrated Asset Plan	IAP	
Integrated Gasification Combined Cycle	IGCC	
Integrated Operations Centre	IOC	APA term
Integrated Support		A complete process for identifying the united or collective support requirements for a new or existing system asset.
Integrity		Being of sound and unimpaired condition. ¹³
Integrity Assessment		Is an evaluation to determine pipeline integrity. Acceptable assessment methods for pipelines include the use of internal inspection tools, hydrostatic pressure testing, or other technology that the operator demonstrates can provide an equivalent understanding of the pipe condition. (Pipeline Association for public awareness, 2021)
Intelligent Electronic Device	IED	
Interconnectors		Interconnectors are transmission links which connect two control areas e.g. the Bass Strait cable between Tasmania and Victoria. They allow power to move between regions in response to supply and demand and are a fundamental component of the grid. (Renew Economy, 2021)

¹³ Pipeline integrity assures that the pipeline is in sound and unimpaired condition and can safely carry out its function under the conditions and parameters for which it was designed.

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Interface		A common boundary or point of connection between two or more items, persons, or systems. It may include mechanical connections, electrical or electronic connections, software to software or hardware interfaces, personnel interfaces, data transfer requirements, procedural requirements or input conditions, and constraints that exist between one system and another or between items within the same system.
Interface Specification		The essential functional, performance and design requirements and constraints at a common boundary between two or more system elements.
Intergovernmental Panel on Climate Change	IPCC	A United Nations organisation.
Interlock		A control to prove the physical state of a required condition, and to furnish that proof to the primary safety control circuit.
International Laboratory Accreditation Cooperation	ILAC	
International Standards Organisation	ISO	
Interstate Pipeline		An interstate pipeline is a pipeline that extends beyond the boundaries of one state. ¹⁴
Intrinsically Safe	IS	Intrinsic Safety (IS) is an approach to the design of equipment for hazardous areas. The idea is to reduce the available energy to a level where it is too low to cause ignition. That means preventing sparks and keeping temperatures low.
Inverter		An electrical device for conversion of direct current to alternating current.
Isobutane	C ₄ H ₁₀	A hydrocarbon of the same chemical formula as butane but different molecular structure, resulting in different physical properties, notably lower boiling point.

J

Jacket		The space surrounding a cylinder of an engine through which a cooling liquid flows. Steam engine cylinders are sometimes heated by steam circulating through a jacket to prevent condensation on the inside cylinder walls.
Job Hazard Analysis	JHA	A part of risk assessment in which the hazards that come along with a certain job or workplace are identified and, ideally, mitigated, before they occur.

¹⁴ An interstate pipeline is a pipeline or that part of a pipeline that is used in transportation of hazardous liquids or natural gas in interstate or foreign commerce.

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Job Safety & Environment Analysis	JSEA	
Job Safety Analysis	JSA	A procedure which helps integrate accepted safety and health principles and practices into a particular task or job operation
Joint		The connection between two lengths of material such as pipe.
Joint Venture	JV	A business arrangement in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task.
Journey Management System	JMS	A process used by organisations to ensure their travelling workforce are safe, prior to, during and post travel. J5 is used in APA through the IOC.
Junction Box	JB	An electrical junction box (also known as a “jbox”) is an enclosure housing electrical connections.
Jurisdiction		The territory over which authority is exercised. (Safe Work Australia, 2021)

K

Key Performance Indicator	KPI	KPIs are measurable values that determine how effectively an individual, team or organisation is achieving a business objective.
Key Stop		A method of restricting the travel of a ball valve from fully open to fully closed. The stem key bears against the ends of an arc machined in the adapter plate. (Petroleum Engineering Handbook, 2015)
Key Vendor Data	KVD	
Kick Off Meeting	KOM	
Kick Off Sheet	KOS	
Kilometre	Km	Metric unit of distance or length.
Kilometre Point	KP	KP/offset is an often-used method of describing the location on any “linear” engineering system. Cumulative distance and offset values are relative to a convenient reference line, usually centre line or ROW boundary line. Distances are sometimes accumulated and marked in the field (“original” KP) as the line is surveyed.
Kilopascal Gauge	kPag	Standard form: kPa -101.325
Kilowatt	KW	A unit of electrical work equivalent to 1,000 watts, 1.3414 horsepower, or .9478 Btu/sec.
Kinetic Energy		Energy possessed by a body due to its own motion.

L

Lack of Reserve	LOR	Lack of reserve is an AEMO term.
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Lagging		Asbestos and magnesia plaster used on process equipment and piping as a thermal insulation. (AGA, 2021)
Landholder		The owner and/or occupier (e.g. rental tenant) of private land. (Energy Information Australia, 2020)
Large-scale Generation Certificates	LGCs	1 certificate equals 1MWh of renewable electricity.
Large Scale Renewable Energy Target		A scheme run by the Australian Government Clean Energy Regulator to promote the growth of renewable power generation.
Lateral Pipeline		A lateral is a segment of a pipeline that branches off the main or transmission line to transport the product to a termination point, such as a tank farm or a metering station. (Pipeline Association for public awareness, 2021)
Layer of Protection Analysis	LOPA	Is a methodology for hazard evaluation and risk assessment for the process industry.
Leak Test		A pressure test that determines whether a pipeline is free from leaks. ¹⁵
Lease		A contract between an owner (lessor) and a tenant (lessee), setting forth the compensation, terms, and conditions upon which the lessee may occupy or use property, real or personal, of the lessor.
Lessons Learned		The knowledge gained during a project which shows how project events were addressed or should be addressed in the future for the purpose of improving future performance. (PMI Lexicon v3.2, 2021)
Level of Detail	LOD	The BIM element detail levels are usually defined from LOD 100 to LOD 500. It is common for the LOD of the BIM element to match the project phase in which it is generated, but this rule may not always apply. The most common discrepancies in this regard are with the FM and digital twin models.
Levelised Cost of Electricity	LCOE	Can be defined as the present value of the price of the produced electrical energy (usually expressed in units of cents per kilowatt hour), considering the economic life of the plant and the costs incurred in the construction, operation and maintenance, and the fuel costs.
Levelised Cost of Hydrogen	LCOH	The levelized cost of hydrogen (LCOH) is a methodology used to account for all of the capital and operating costs of producing hydrogen and therefore enables different production routes to be compared on a similar basis.
License	LIC	
Life Cycle Costing	LCC	

¹⁵ Used for above ground piping.

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Lifecycle (Asset)		Includes the period of its design, manufacture, construction, installation, commissioning, operation, maintenance, repair, decommissioning and disposal.
Line Markers		Are signs or other markers installed above the pipeline to indicate the approximate pipeline route and provide emergency phone numbers. Requirements for line markers are specified in Federal/State pipeline safety regulations.
Line Pack		In a gas transmission system, the line pack is the quantity of gas in excess of the gas inventory in the system required to meet deliveries. The line pack is used to continue deliveries for some period following interruption of supply upstream.
Line Pipe	LP	Pipe that is part of a line section.
Line Section		Is a designated section of a continuous run of pipeline. Line sections may designate sections that run, for example, between adjacent compressor stations or pump stations, between a compressor/pump station and a storage facility, between a compressor/pump station and a block valve, or between adjacent block valves. A line section can also be designated for testing purposes. For example, a line section may be a pipeline segment designated for hydrostatic testing that runs between two mainline valves.
Lip Seal		A circular seal ring of U-shaped cross section encompassing an elastomeric O-ring, which provides resiliency and ensures a seal at the inner and outer lips of the U. (Schlumberger Ltd., 2021)
Liquefied Natural Gas	LNG	LNG is natural gas (methane, CH ₄ , with some mixture of ethane, C ₂ H ₆) that has been cooled down to liquid form for ease and safety of non-pressurized storage or transport. It is about 1/600 th the volume of natural gas in the gaseous state. Natural gas is condensed into a liquid at close to atmospheric pressure by cooling it to approximately -162 °C.
Liquid Hydrogen	LH ₂ (also LH2)	
Liquid Penetrant Inspection	LPI	
Liquid Petroleum Gas	LPG	Liquefied petroleum gas or liquid petroleum gas, also denoted as just propane or butane, are both flammable hydrocarbon gases. Chemical formula of LPG is C ₃ H ₈
Liquidated Damages	LDs	Construction – Construction contracts often use liquidated damages. It establishes the damages that the party undertaking the construction works (the Contractor) must pay to the other party (the Principal), if they fail to complete the works within the period required by the Contract. Business – Liquidated damages are presented in certain legal contracts as an estimate of otherwise intangible or hard-to-define losses to one of the parties. It is a provision that allows for the

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		payment of a specified sum should one of the parties be in breach of contract.
Lithium-ion		A common battery technology.
Local Network Service Provider	LNSP	
Load		The amount of electricity used by any electrical unit at any given time.
Location Class		The classification of an area according to its predominant land use and density of human activity, reflecting both the threats to the pipeline/facility from the land usage and the consequences for the population should the pipeline suffer a loss of containment/facility suffer an incident of significant or greater impact. (Pipeline Association for public awareness, 2021)
Lock Closed	LC	
Lock Open	LO	
Long Lead Items	LLI	
Long Term Service Agreement	LTSA	
Looping		A paralleling of an existing pipeline by another line over the whole length or any part of it to increase capacity. (AGA, 2021)
Lost Time Injury	LTI	A lost-time injury is defined as an occurrence that resulted in a fatality, permanent disability or time lost from work of one day/shift or more. (Safe Work Australia, 2021)
Low Frequency Induction	LFI	
Low Point Drains	LPDs	Once all air has been purged from a gas piping system (gathering lines), companies must be drain out all the water. Water naturally gravitates to low points of the system, so companies install Low Point Drains. (Energy Information Australia, 2020)
Low Temperature Carbon Steel	LTCS	
Low Voltage	LV	
Lower Explosive Limit	LEL	
Lower Heating Value	LHV	The amount of heat released by a specified quantity of product where latent heat of vaporisation of water has been assumed not to have been recovered. (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Low-pressure Distribution System		Is a pipeline system designed and used for distributing natural gas, and is characterized by the gas pressure in the main being substantially the same as the pressure provided to the consumer. (Pipeline Association for public awareness, 2021)

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Lubrication Oil	LO	
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M

Magnetic Flux Leakage	MFL	
Magnetic Particle	MP	
Magnetic Particle Inspection	MPI	A non-destructive inspection procedure for detecting surface cracks in welded areas through the use of fine iron particles in an electrical field.
Main		A distribution line that serves as a common source of supply for more than one service line. (AGA, 2021)
Main Distribution Board	MDB	
Main Earth	ME	Also known as Earth Grid.
Main Line Valve	MLV	Is a valve positioned at a location along the pipeline system that can be closed down to isolate a line section in an emergency. Mainline valves are especially important to minimize hazards and damage or pollution from an accidental release of oil or natural gas. Mainline valves may also be referred to as sectionalizing block valves for natural gas pipelines. (Pipeline Association for public awareness, 2021)
Maintainability		The probability that an item will be restored to operating condition, within a given period, using prescribed procedures and resources. A measure of the ease with which the item can be maintained. ¹⁶
Maintenance Data		Comprises scheduled maintenance and major periodic maintenance (MPM) requirements, operating and repair procedures, maintenance instructions, procedures, and manuals as well as maintenance documentation and compliance records. ¹⁷
Maintenance Override Switch	MOS	
Maintenance Requirements Analysis		(MRA) Process of identifying the appraisal, preventive and corrective maintenance requirements of systems / equipment to allow the system / equipment to fulfil its intended function.
Major Design Change		Affects the approved design basis, process design parameters and P&ID's, project function and impacts on the Engineering and /or Project Budget, Schedule or Scope or is outside of assigned

¹⁶ The most used measure of maintainability is the mean time to repair (MTTR).

¹⁷ Except for mandatory 'safety-by-inspection' requirements and retirement lives, maintenance data does not form part of the configuration documentation but must accurately reflect the approved design, must be approved through a process similar to design approval, and must be maintained for compliance purposes.

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		Delegation of Authority limits or requires the drawdown of Engineering/Project contingencies.
Major Hazard Facilities	MHF	MHF are industrial sites such as oil refineries, chemical plants and large fuel or chemical storage sites where large quantities of hazardous materials are stored, handled or processed. (Safe Work Australia, 2021)
Major Hazard Facility	MHF	
Make Good Agreement	MGA	A Make Good Agreement is a legally binding agreement entered into by a resource tenure holder and a bore owner about a water bore. An MGA is required for all bores that have had a bore assessment undertaken (not just those with an impaired capacity). (Energy Information Australia, 2020)
Management of Change	MOC	
Manifold		The conduit of an appliance which supplies gas to the individual burners. Also, a pipe to which two or more outlet pipes are connected.
Manual Ultrasonic Testing	MUT	
Manufacturer's Data Report or Record	MDR	A document that consolidates all materials, testing, fabrication, and installation data to comply with traceability requirements and as required by the VDRL.
Map Grid of Australia 2020	MGA2020	Supersedes MGA 94.
Marked-up Drawing		Paper or electronic drawing that has been marked up with comments from other disciplines or the client.
Material Management System	MMS	
Mass Flow Diagram	MFD	Simple block diagram which identifies the mass flow of all matter through the process.
Material Take Off	MTO	A material take-off is the output from the analysis the model or drawing and includes material quantities, types, grades, and weights. Also see BOM.
Matrix Organisation		An organisational structure in which the project manager shares authority with the functional manager temporarily to assign work and apply resources. (PMI Lexicon v3.2, 2021)
Maximum Allowable Operating Pressure	MAOP	Maximum Allowable Operating Pressure or MAOP is a pressure limit set, usually by a governing body, which applies to compressed gas pressure vessels, pipelines, and storage tanks.
Maximum Daily Flow	MDQ	
Maximum Hourly Flow	MHQ	
Maximum Operating Pressure	MOP	

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Maximum Power Point Tracking	MPPT	
Maximum Working Pressure	MWP	
Mean		The sum of all observations divided by the number of observations. (Safe Work Australia, 2021)
Mean Sea Level	MSL	
Mean Time Between Failures	MTBF	
Mean Time to Repair	MTTR	
Median		The middle value in a distribution when all values are ordered from lowest to highest. The median divides a distribution in half, which means 50% of observations will be higher than the median and 50% will be lower. If there is an odd number of observations, the median value is the middle value. (Safe Work Australia, 2021)
Medium Low Voltage	MLV	
Memorandum of Understanding	MOU	
Mercator Geocentric Australia 94	MGA 94	Superseded by MGA2020 Map Grid of Australia 2020.
Meter		A device that measures the amount of something that is used.
Meter Station		A meter of high capacity for measuring the output of a gas plant or pipeline delivery station.
Metering and Regulating Station		Facilities installed at a given location for measuring and regulating the flow of gas in connection with distribution system operations other than the measurement of gas deliveries to customers.
Metering and Regulating Stations		Are installations containing equipment to measure the amount of gas entering or leaving a pipeline system and, sometimes, to regulate gas pressure.
Methane	CH ₄ (CH ₄)	Methane is a chemical compound with the chemical formula CH ₄ . It is the primary constituent of natural gas. (Energy Information Australia, 2020)
Methylcyclohexane	MCH	
Metre	m	Metric unit for length.
Midstream		The processing, storage, and transportation (primarily pipelines) sector of the petroleum industry. (CAPP, 2021)
Milestone		A significant point or event in a project, program, or portfolio. (PMI Lexicon v3.2, 2021)

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Minerals Council of Australia	MCA	
Miniature Circuit Breaker	MCB	
Minimum Design Material Temperature	MDMT	
Minor Alteration		Options offered by the supplier or other minor changes that do not affect the key functional or physical characteristics of the item.
Minor Design Change		Affects the approved basic Design but does not affect the Project schedule, budget or scope and is within the assigned Delegation of Authority limits.
Minor Document Change		Minor changes to engineering documents are classified as: <ul style="list-style-type: none"> - editorial changes or corrections to spelling or format - consequential changes resulting from updates to related documents changes involving negligible impact on APA or stakeholder costs, risk profiles, or resource requirements.
Mitigation		A process, policy, device, or practice that acts to minimise negative risk or enhance positive opportunities.
Monolithic Insulating Joint	MIJ	Monolithic insulating joints (or isolation joints) are shock absorbent and insulated against electrical charge, they isolate sections of pipeline so that currents can only pass so far.
Monte Carlo Analysis		Monte Carlo Analysis is a risk management technique that is used for conducting a quantitative analysis of risks.
Motor Control Centre	MCC	Is an assembly to control some or all electric motors in a central location. It consists of multiple enclosed sections having a common power bus and with each section containing a combination starter, which in turn consists of motor starter, fuses or circuit breaker, and power disconnect.

N

Name Plate Rating		The full-load continuous rating of a generator, prime mover, pump, compressor, or other equipment under specified conditions as designated by the manufacturer. It is usually indicated on a name plate attached mechanically to the individual machine or device. (AGA, 2021)
National Association of Testing Authorities	NATA	Australia's national accreditation body for the accreditation of laboratories, inspection bodies, calibration services, producers of certified reference materials and proficiency testing.
National Code of Practice	NCOP	National Code of Practice – National codes of practice declared by the National Commission under s.38(1) of the National Occupational Health and Safety Commission Act 1985 (Cwlth) are documents prepared for the purpose of advising employers and workers of

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		acceptable preventive action for averting occupational deaths, injuries and diseases in relation to workplace hazards. It should be noted that National Commission documents are instruments of an advisory character, except where a law, other than the National Occupational Health and Safety Commission Act, or an instrument made under such a law, makes them mandatory. The application of any National Commission document in any particular State or Territory is the prerogative of that State or Territory. {superseded by model WHS laws, regs and codes} (Safe Work Australia, 2021)
National Construction Code	NCC	The NCC is given legal effect by relevant legislation in each State and Territory. This legislation prescribes or “calls up” the NCC to fulfil any technical requirements that are required to be satisfied when undertaking building work or plumbing and drainage installations. (Australian Building Codes Board, 2021)
National Electrical Manufacturers Assoc.	NEMA	
National Electricity Code	NEC	
National Electricity Law	NEL	
National Electricity Market	NEM	
National Electricity Market Dispatch Engine	NEMDE	
National Electricity Rules	NER	
National Fire Protection Association	NFPA	
National Gas Rules	NGR	
National Greenhouse Emissions Reporting	NGERs	
National Offshore Petroleum Safety and Environmental Management Authority	NOPSEMA	NOPSEMA is Australia’s independent expert regulator for health and safety, structural (well) integrity and environmental management for all offshore oil and gas operations and greenhouse gas storage activities in Commonwealth waters, and in coastal waters where regulatory powers and functions have been conferred.
National Pipe Thread	NPT	American National Standard Pipe Threads, often called national pipe thread standards for short NPT. NPT Threads are U.S. national technical standards for screw threads used on threaded pipes and pipe fittings.
National Renewable Energy Laboratory (US)	NREL	
National Standard	NS	
Native Title	NT	

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Natural Gas	NG	Primarily methane extracted from gas-bearing underground reservoirs. (Energy Information Australia, 2020)
Natural Gas Law	NGL	(Australian Energy Regulator, 2021)
Natural Gas Liquids	NGL	Liquids obtained during natural gas production, including ethane, propane, butanes, and condensate. (CAPP, 2021)
Naturally Occurring Radioactive Materials	NORM	Usually consists of industrial wastes or by-products enriched with radioactive elements that exist in the natural environment. This includes uranium, thorium, potassium, radium and radon. In the oil & gas industry, NORMs are created during the production process.
NEM Time		Australian Eastern Standard time with no daylight saving. The time base for data in the NEM
Net Present Cost	NPC	The net present cost (or life-cycle cost) of a Component is the present value of all the costs of installing and operating the Component over the project lifetime, minus the present value of all the revenues that it earns over the project lifetime.
Net Present Value	NPV	Is the present value of all future cash flows of a project or investment in excess of the initial amount invested.
Network Service Provider (Electricity)	NES	
New Zealand Standards	NZS	
Nitrogen	N2	An odorless, colourless, generally inert gas. It comprises 79% of the earth's atmosphere in the free state.
Nitrogen Oxide	Nox	Nitrogen oxide is a common term for mono-nitrogen oxides viz. nitric oxide (NO) and nitrogen dioxide (NO2). Its chemical formula is (Nox).
Nominal Bore	NB	
Nominal Diameter	DN	Diameter Nominal refers to the internal diameter of a pipe.
Nominal Piping Size	NPS	
Nomination		A request for a physical quantity of gas under a specific purchase, sales or transportation agreement or for all contracts at a specific point. (AGA, 2021)
Non-conformance Register	NCR	An NCR process is used to determine a resolution with the customer and documenting any corrective changes made through to the close out of the NCR, typically with acknowledgments of time and cost impacts.
Non-destructive Examination	NDE	NDE methods are used to provide quantitative measurements about defects (manufacturing or material) such as size, shape and orientation. NDE methods are also used to determine the physical properties of a material, for example formability and fracture toughness.

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Non-destructive Testing	NDT	Inspection tests that are not destructive to the valve structure or function.
Non-destructive Testings	NDT	Is a testing and analysis technique used by industry to evaluate the properties of a material, component, structure or system for characteristic differences or welding defects and discontinuities without causing damage to the original part.
Non-Metallic	NM	Not containing or resembling or characteristic of a metal.
Normally Closed	NC	In electrical terms: Normally Closed is a contact that flows current in its normal state. Normally Closed Valves are designed to block flow through the valve and are commonly used for emergency safety. During usual operation, these devices use a spring to remain closed.
Normally Open	NO	In electrical terms: Normally open – Is a contact that does not flow current in its normal state. Energizing it and switching it on will close the contact, causing it to allow current flow. Normally Open Valves are also used as safety devices. However, unlike Normally Closed valves, these parts work to maintain low pressure in a system. Normally Open valves are designed to allow liquid or gas to flow through in usual circumstances.
North West Power System (QLD)	NWPS	The NWPS is an electricity generation and transmission network centred in the Mount Isa region of Queensland which services surrounding mining operations as well as residents and businesses in Mount Isa and Cloncurry. Due to its isolation the NWPS is not connected to the National Electricity Market. (ACCC, 2021)
Notice of Intent to Negotiate	NIN	A resource company wishing to begin formal negotiations with a landholder may give the landholder a Notice of Intent to Negotiate. This period is 20 business days and provides a formal window for negotiation of a CCA. The notice will state whether the resource company wishes to negotiate a CCA or a Deferral Agreement. (Energy Information Australia, 2020)
Notifiable		An incident that is required, under the model WHS Act, to be notified to regulators. Only the most serious safety incidents are intended to be notifiable and they trigger requirements to preserve the incident site pending further direction from the regulator. These include the death of a person, a serious injury or illness or a dangerous incident. Safe Work Australia receives information from jurisdictions on all notifiable fatalities and publishes monthly and annual summaries of this information. (Safe Work Australia, 2021)
Notification of Delay	NOT	Refer to AS 4000, Section 34.
Notification to Procurement	NTP	

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O

Obsolescence		A process that brings about the retirement of plant prior to its physical degeneration by the development of new types of plant which are more economical, efficient, versatile and reliable. (AGA, 2021)
Occupational Health & Safety	OHS	
Odorant		Any material added to natural or LP gas in small concentrations to impart a distinctive odor. Odorants in common use include various mercaptans, organic sulfides, and blends of these.
Officer		An officer within the meaning of section 9 of the Corporations Act 2001 (Cth) other than each partner within a partnership. Broadly, an officer is a person who makes, or participates in making, decisions that affect the whole, or a substantial part, of the organisation's activities. Each partner within a partnership is not an officer but a PCBU in their own right. Under the model WHS Act, an officer must exercise due diligence to ensure compliance by the PCBU with its health and safety obligations. (Safe Work Australia, 2021)
Ohm	Ω	Unit of electrical resistance.
On Load Tap Changer	OLTC	
Open Cycle Gas Turbine	OCGT	
Open Drain		A drain system that collects liquids that spill on the ground is an "atmospheric," "gravity," or "open" drain. (Oil & Gas Process Engineering, 2021)
Operating Expenditure	OPEX	
Operations & Maintenance	O&M	
Operations Safety Case	OSC	
Operator		The company or individual responsible for managing an exploration, development, or production operation. (CAPP, 2021)
Optical Fibre Ground Wire	OPGW	
Opt-out Agreement		A legal agreement in which the landholder chooses to 'opt-out' of the requirement to enter into a CCA or Deferral Agreement. (Energy Information Australia, 2020)
Organizational Breakdown Structure	OBS	A hierarchical representation of the project organisation, which illustrates the relationship between project activities and the organizational units that will perform those activities.
Original Equipment Manufacturer	OEM	
Outside Diameter	OD	

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Ovality		Is a condition in which the internal diameter of the pipe is not consistent around the entire circumference of the pipe. This can be thought of as the internal diameter of the pipe being, to varying degrees, egg-shaped. Ovality can be measured by inline inspection tools known as calliper pigs or geometry pigs.
Over Voltage	OV	
Overhead Line	OHL	
Overpressure Protection Valve		Valve intended to protect the pipeline against overpressure by preventing pressure from a source building up in the pipeline.
Oxygen	O ₂ (O2)	A gas which forms about 21%, by volume, of the atmosphere. It is chemically very active and is necessary for combustion. The combination of oxygen with other substances generally produces heat.
Ozone		Ground-level ozone is a colourless gas that forms just above the earth's surface. (CAPP, 2021)

P

Package Engineer	PKE	
Package Plan & Responsibilities Schedule	PPRS	
Parameter		The conditions used to define the process, usually the flow, pressure, temperature, level, and composition.
Paris Agreement		Signed Dec 2015 under the United Nations Framework Convention on Climate Change. Participants agreed to hold temperature increase to less than 2 degrees C above pre- industrial levels.
Partial Looping		A method for increasing carrying capacity of a pipeline by constructing a series of pipe sections parallel to the main pipeline for a portion of the distance between compressor or pump stations and connecting them to the main pipeline at the beginning and end of each segment. This reduces pressure drop in the portions of the pipeline that are "looped" (i.e., with parallel sections), allowing an increased pressure drop in the unlooped sections and, thus, an increased flow rate. Over time, a series of partial loops may be constructed resulting in a complete, second, parallel pipeline. At which time the pipeline will be totally looped. (AGA, 2021)
Peak Demand / Load		The highest demand for electricity within a particular period of time. (AGL, 2021)
Peak Sunlight		The time of the day when the energy received from the sun is at its peak. (AGL, 2021)
Peaking Power		Power available to cover spikes in demand. Typically, gas or hydro, batteries would be ideal. (Renew Economy, 2021)

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Performance Measures		Are parameters or information that can be collected and evaluated to determine if a program of action is accomplishing its intended purpose. Federal pipeline safety regulations require that pipeline operators establish performance measures as part of their integrity management programs.
Performance or Functional Specifications		Are specifications that focus on the functions and performance requirements of the final design. Performance specifications do not include an important level of information covering the detailed design requirements for the item, i.e., they do not specify 'how to' carry out the design task.
Performance Testing		Those tests that are included in the Project Scope of Work and are necessary to measure the performance of the Pipeline and/or Facility, against pre-agreed performance targets. It may also include specific performance tests as required by the Environmental Management Plan and any APA commercial agreements.
Permeability		The degree to which gas or fluids can move through a porous material, such as rocks.
Permit Issuing Officer	PIO	A Permit Issuer Officer must be a person who is trained, competent and authorised to issue a Permit to Work after ensuring that all of the hazards, associated with the work being done, have been identified and all necessary safety precautions are being implemented to ensure that the work can be completed safely.
Permit to Work ¹⁸	PTW	A permit to work is a formal written authority given to appropriately trained personnel to carry out work in areas where hazards or adverse conditions may be present. The permit is issued by an authorised person and confirms that the job in question has been assessed and clearly defines the safety precautions to be taken. See Authorisation to Work.
Person Conducting a Business or Undertaking	PCBU	The model WHS Act places the primary duty of care on the PCBU. The term PCBU is an umbrella concept used to capture all types of working arrangements or structures. A PCBU can be a: company; unincorporated body or association; sole trader or self-employed person. Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU. (Safe Work Australia, 2021)
Person in Charge	PIC	Also see Person Conducting a Business or Undertaking.
Personal Protective Equipment	PPE	
Petajoule	PJ	The joule is the standard unit of energy in general scientific applications. One joule is the equivalent of one watt of power radiated

¹⁸ Guide for Major Hazard Facilities, Safety Management Systems

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		or dispatched for one second. One petajoule in 1015 joules (1 million billion) or 278 gigawatt hours. (Energy Information Australia, 2020)
Petroleum		Liquid, gaseous and solid hydrocarbons including oil, natural gas, gas condensate, ethane, propane, butane and pentane. (Energy Information Australia, 2020)
Petroleum Pipeline Licence	PPL	
Phase Gate		A review at the end of a phase in which a decision is made to continue to the next phase, to continue with modification, or to end a project or program. (PMI Lexicon v3.2, 2021) Also see Gate Review.
Philosophy		The study of the theoretical underpinnings of a particular field or discipline.
Photovoltaic	PV	Photovoltaics (PV) is the conversion of light into electricity using semiconducting materials that exhibit the photovoltaic effect, a phenomenon studied in physics, photochemistry, and electrochemistry.
Photovoltaic Array		A group of multiple solar panels connected and designed to supply solar power. (AGL, 2021)
Photovoltaic Cell		Otherwise known as a solar cell – an electrical device that converts energy from light directly into electricity – via the photovoltaic effect. (AGL, 2021)
Photovoltaic System		Otherwise known as a photovoltaic solar system – technology that converts energy generated from sunlight into electrical energy. (AGL, 2021)
Pilot-operated Regulator		A regulator that is controlled by a second small-volume, high-accuracy regulator or pilot. This arrangement has the advantage of improving performance by reducing the effects of unbalanced pressure and droop. (Schlumberger Ltd., 2021)
Pipe Coating		A corrosion resistant material, sometimes with an outer wrapping, used to protect pipe.
Pipeline		Used broadly, pipeline includes all parts of those physical facilities through which gas, hazardous liquid, or carbon dioxide moves in transportation. Pipeline includes but is not limited to: line pipe, valves and other appurtenances attached to the pipe, pumping/compressor units and associated fabricated units, metering, regulating, and delivery stations, and holders and fabricated assemblies located therein, and breakout tanks. (Pipeline Association for public awareness, 2021)
Pipeline Capacity		The maximum quantity of gas that can be moved through a pipeline system at any given time based on existing service conditions such

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		as available horsepower, pipeline diameter(s), maintenance schedules, regional demand for natural gas, etc. (AGA, 2021)
Pipeline Code		An industry or national code written for the purpose of designing, constructing and operating pipelines.
Pipeline Corridor (easement)		A pipeline corridor is a linear area where two or more pipelines (either part of the same or different pipeline systems) are closely grouped in a single right-of-way.
Pipeline Inspection Gauge	PIG	A generic term signifying any independent, self-contained device, tool or vehicle that moves through the interior of the pipeline for purposes of inspecting, dimensioning, or cleaning.
Pipeline Leak		An uncontrolled fluid release from a pipeline.
Pipeline Patrol		An inspection of a pipeline to check for leaks, washouts or other abnormal conditions. A pipeline patrol is commonly performed using aerial surveillance.
Pipeline Research Council International	PRCI	
Pipeline System		All portions of the physical facilities through which gas or liquid moves during transportation including pipe, valves, and other appurtenances attached to the pipe, such as pump stations, compressor units, metering stations, regulator stations, delivery stations, holders, and other fabricated assemblies.
Plane of Array	POA	The direct irradiance on a panel or Plane of Array (POA) is the irradiation coming directly from the sun multiplied by the cosine of the angle of incidence (the angle between the direction of the sun and a vector normal to the panel).
Planned Value	PV	The authorised budget assigned to scheduled work.
Planning, Design, and Control	PDC	
Plant		Includes any machinery, equipment, appliance, container, implement or tool, and any component or anything fitted or connected to these things. (Safe Work Australia, 2021)
Point of Connection	POC	
Pole Top Rescue or Transmission Tower Rescue	PTR	
Polyfluoroalkyl Substances	PFAS	Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. (US EPA, 2021)
Polyvinyl Chloride	PVC	

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Port		Opening in the seat of a slide valve in diaphragm gas meters or an opening in any equipment for the flow of gases or vapors.
Position Description	PD	
Post Weld Heat Treatment	PWHT	
Potential Energy		Stored energy. Energy possessing the power of doing work but not actually performing such work.
Potential Induced Degradation	PID	Potential Induced Degradation is a process that occurs in photovoltaic (PV) cells when the system has a negative potential relative to the ground.
Power (noun)		Power is the rate at which energy is generated or used. (AGL, 2021)
Power Clipping		Industry practice is to oversize the PV power installed with respect to the inverters nominal power; the inverter will then clip the top of the daily power curve and that amount of energy will be lost. This practice is known as 'overbuild'.
Power Conversion System	PCS	
Power Factor	PF	Power factor (PF) is the ratio of working power, measured in kilowatts (kW), to apparent power, measured in kilovolt amperes (kVA). Apparent power, also known as demand, is the measure of the amount of power used to run machinery and equipment during a certain period. It is found by multiplying ($kVA = V \times A$). The result is expressed as kVA units. (Fluke, 2021)
Power Purchase Agreement	PPA	A PPA is an agreement between an independent power generator (or vendor) and a purchaser (often called the 'off-taker') for the sale and supply of energy. (Law Quarter, 2022)
Practical Completion	PC	Practical completion is the point at which the Work is completed except for minor omissions and defects as defined in the various contracts. At Practical completion, a Certificate shall be issued.
Pre-Commissioning		The construction readiness phase when multi-disciplinary components of systems and/or sub-systems are checked, energised and tested for operation prior to the introduction of the process fluid. It can include the introduction of electrical energy.
Preferred Suppliers		Suppliers that have been qualified according to procurement policy and approved for use by the organisation.
Preliminary Activity		An activity that will have no impact or only a minor impact on the business or land use activities of a landholder on which the activity is to be carried out. (N.B. These activities are not considered preliminary activities if they are carried out on land that is being used for intensive farming or broadacre agriculture that is less than 100ha in size or if they affect organic or bio-organic farming). (Energy Information Australia, 2020)

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Preliminary Design		Initial solution overview which supplies a coordinated design between product, process and people that addresses all the requirements identified in the requirements specification document.
Prepared	PREPD	
Pressure Control Regulator	PCR	A device that maintains the pressure in a fluid flow line, less than its inlet pressure within a constant band of pressures, regardless of the rate of flow in the line or the change in upstream pressure.
Pressure Indicating Transmitter	PIT	
Pressure Rating		The estimated maximum pressure that the medium in the pipe can exert continuously with a high degree of certainty that failure of the pipe will not occur. (AGA, 2021)
Pressure Regulating Station	PRS	Equipment installed for the purpose of automatically reducing and regulating the pressure in the downstream pipeline or main to which it is connected. Included are piping auxiliary devices such as valves, control instruments, control lines, the enclosures, and ventilating equipment.
Pressure Relief Valve		See Valve, Relief
Pressure Storage Tank		A tank designed for storing volatile liquids such as gasoline and liquefied petroleum gases (LPG), which generate high internal pressures. A pressure storage tank is commonly spherical. Other types include spheroidal or hemispherical vessels. Some pressure storage tanks can support several hundred pounds per square inch of internal pressure. A pressure storage tank is also called a pressure-type tank. (Schlumberger Ltd., 2021)
Pressure Swing Adsorption	PSA	
Priority Agricultural Area	PAA	A priority agricultural area (as defined in the RPI Act 2014) is an area that includes one or more areas used for a priority agricultural land use, whether it also includes other areas or features, including, for example, a regionally significant water source. (Energy Information Australia, 2020)
Private Land		Is freehold land, or an interest in land less than fee simple held from the State under another Act. (Energy Information Australia, 2020)
Probability to Fail on Demand	PFD	
Procedure Qualification Record	PQR	PQR is the 'actual' method that is used to create and test the welds to ensure they meet all applicable requirements.
Process and Instrumentation Diagram	PID P&ID	
Process Flow Diagram	PFD	

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Process Schematic	PSC	
Procurement Package	PP	
Procurement Package Plan	PPP	
Procurement Specialist	PS	
Programmable Logic Controller	PLC	
Project		A temporary endeavor undertaken to create a unique product, service, or result. (PMI Lexicon v3.2, 2021)
Project & Portfolio Management	PPM	
Project Change Request	PCR	
Project Engineer	PE	
Project Engineering Manager	PEM	
Project Investment Proposal	PIP	A document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities. In APA, the acronym PIP = Proposal Information Plan.
Project Management	PM	The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. (PMI Lexicon v3.2, 2021)
Project Management Body of Knowledge	PMBOK	
Project Management Plan	PMP	The document that describes how the project will be executed, monitored and controlled, and closed. See also portfolio management plan, program management plan, communications management plan, cost management plan, resource management plan, and staffing management plan. (PMI Lexicon v3.2, 2021)
Project Manager	PM	The person assigned by the performing organisation to lead the team that is responsible for achieving the project objectives. (PMI Lexicon v3.2, 2021)
Project Phase		A collection of logically related project activities that culminates in the completion of one or more deliverables. (Project Management Institute, n.d.) APA infrastructure project Stages are Concept, Develop, Plan, Deliver, Close. ¹⁹
Project Quality Plan	PQP	

¹⁹ A project consists of a series of stages that together constitute the whole project lifecycle.

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Project Scope		The work that must be done to deliver a project or service with specified features and functions. ²⁰ (PMI Lexicon v3.2, 2021)
Project Sponsor		Person accountable for the initiative, ensuring that all objectives are met, and benefits can be realised as defined in the project scope. ²¹
Projectized Organisation		An organizational structure in which the project manager has full authority to assign work and apply resources. (PMI Lexicon v3.2, 2021) Example in APA is a major Project organisational structure.
Prosumer		Customer who consumes and produces hydrogen or electricity. (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Pumped Hydro		Pumping water back up to the reservoir when there is cheaper electricity available and then running the water through the turbine again ... and again. (like a giant battery only made of water). (Renew Economy, 2021)
Pumped Hydro Energy Storage	PHES	
Purchase Order	PO	A commercial document used to request the supply of goods/services from a supplier in return for payment. It generally provides specifications and quantities, defines delivery times and payment terms. It often incorporates the standard terms and conditions of purchase of an organisation.
Purchaser		Party undertaking procurement of materials or equipment. May be APA or other specified party acting on APA's behalf.
Purge		To displace gas, liquids, or foreign matter from piping, tanks, and equipment with other gases or liquids. (AGA, 2021)

Q

Qualification Test		An investigation, independent of a procurement action, performed on a product to determine whether or not the product conforms to all requirements of the applicable specification. (AGA, 2021)
Quality Assurance	QA	The QA process of evaluating overall deliverable performance on a regular basis to provide confidence that the deliverable will satisfy the relevant quality standards.
Quality Control	QC	The QC process of monitoring, measuring, checking, and testing specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

²⁰ The scope includes definition of product or service, project boundaries and inputs, project objectives, high-level technical and functional requirements, exclusions, constraints, and related projects.

²¹ The sponsor drives the outcomes of the project, rather than managing the project and may not necessarily be the beneficiary of the benefits (unless they are also the customer).

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Quality Management Plan	QMP	A component of the project or program management plan that describes how an organization's policies, procedures, and guidelines will be implemented to achieve the quality objectives. (PMI Lexicon v3.2, 2021)
Quality Management System	QMS	
Quality, Health, Safety & Environment	QHSE	
Quantitative Risk Assessment	QRA	
Quick Opening Closure	QOC	

R

	R2	Testing of facility model as defined in the NER
Raceway		A channel for holding wires, cables, or bus bars which is designed expressly for and used solely for this purpose. Raceways may be of metal or insulating material, and the term includes metal conduit, flexible metal conduit, and wireways. (AGA, 2021)
Radio Frequency	RF	
Radiographic Testing	RT	
Raised Faced	RF	
RASCI		<p>A Matrix used to identify the various stakeholders in a project, or operating process, and their roles in it. The matrix divides project or process tasks into five types which are then assigned to the different roles:</p> <p><u>Responsible</u>: Those who perform the task</p> <p><u>Accountable</u>: The person(s) in charge of ensuring the task is completed correctly</p> <p><u>Support</u>: Those who supply support during implementation of the activity/process/service</p> <p><u>Consulted</u>: Those whose opinions will be solicited</p> <p><u>Informed</u>: Stakeholders who need to be kept apprised of project developments</p>
Receipt Point		Point at which transportation (movement) begins pursuant to the transportation contract.
Reciprocating Engine		An apparatus which converts the energy in a fluid to mechanical energy by means of the expansion of the fluid (gas) against a piston. It normally includes a cylinder closed by a piston connected by means of a connecting rod to a crankshaft; a valve mechanism admits and discharges fluid at appropriate times in the cycle. (AGA, 2021)

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Recoverable Heat		That portion of thermal input to a prime mover that is not converted to mechanical power and can be reclaimed for utilization.
Recovery Capacity, Water Bath Heater		The quantity of water that a water heating system can heat from supply temperature to required temperature in one hour.
Reduced Level	RL	The elevation of a point above (or below) the adopted datum. (Dept of Training and Workforce Development WA, 2016)
Reference File		CAD model file associated or linked with another CAD model file. Also referred to as an external referenced file.
Registered Professional Engineer of Queensland	RPEQ	All drawings and documents related to design for Queensland Assets shall be signed by a RPEQ for all revisions up to and including IFC, IFU or IFP. As-built drawings do not necessarily require RPEQ signature. Where changes to a drawing or document have occurred during fabrication or construction, the as-built documents or drawings shall be signed by a RPEQ.
Registered Training Organisation	RTO	
Regulator		The Authority with legislative powers relating to Petroleum Pipelines Process equipment designed to manage flows to a specific process variable
Regulatory Authority		Government Body formed or mandated under the terms of a legislative act (statute) to ensure compliance with the provisions of the act, and in carrying out its purpose.
Rehabilitation Management Plan	RMP	
Releasable User's Guide	RUG	
Reliability		The probability that a specified item will perform a specified function, within a defined environment, for a specified length of time.
Reliability Centred Maintenance	RCM	
Reliability, Availability and Maintainability	RAM	
Remaining Life		The expected future service life of plant at any given age.
Remote Area Power Systems	RAPS	
Remote Terminal Unit	RTU	
Remote Vent Line		A pipeline used for discharging light gaseous fluids to atmosphere.

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Renewable Energy		Energy obtained from natural resources, which can be constantly replenished. This includes sunlight, wind, rain, tides, waves, and geothermal heat. (AGL, 2021)
Renewable Energy Certificate	REC	Made up of large generation certificates LGC and small-scale certificates STC.
Renewable Energy Source	RES-E	Electricity from a Renewable Energy Source.
Renewable Energy Target	RET	Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector (Australian Energy Regulator, 2021) Australia's Renewable Energy Target is a federal government policy that ensures at least 33,000 Gigawatt-hour of Australia's electricity comes from renewable sources by 2020 (AGL, 2021)
Renewable Hydrogen		Hydrogen made from water electrolysis using electricity generated from renewable sources. (CSIRO, 2018)
Repair Criteria		Standards and requirements that govern the methods and timeframes to make pipeline repairs, based on the type, extent or configuration of identified anomalies, defects, or damages.
Repair Parts		Spare part that are used to repair or overhaul equipment, either in the field or in the workshop, in the case of a breakdown. ²²
Request for Information	RFI	Document that is used to request information about a product or service from vendors, suppliers, or other 3 rd parties. In turn APA can be issued an RFI from a vendor, supplier etc.
Request for Quotation	RFQ	Is a process and document in which a company solicits select suppliers and contractors to submit price quotes and bids for the chance to fulfill certain tasks or projects.
Request for Tender	RFT	Request for Tender means the document(s) containing or referring to the Conditions of Tendering and Contract, the Annexure, Special Conditions of Contract (if any), Scope of Services, Response Schedules, Drawings or Diagrams (if any) and any other document issued for the purposes of inviting tenders for the Services.
Required on Site	ROS	A Required on Site (ROS) date is the dates in which the project equipment and materials should be delivered to the site in order for the project schedule to be maintained. Also known as Required at Site (RAS).
Requirement Traceability Matrix	RTM	Is a document used to ensure that the requirements defined for a system are linked at every point during the verification process.
Requirements		Customer and stakeholder expectations of project outcomes/delivery.

²² Repair parts are typically unique to the item that they support, but may include common, non-rotable items that are widely used within the infrastructure.

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Requirements Specification		A specification used to ensure that sponsor (customer) requirements are very clearly defined, to enable a project solution to be designed and developed that will meet the business and operational needs of stakeholders and satisfy project objectives.
Research and Development	R&D	Work directed towards the innovation, introduction, and improvement of products and processes.
Residential User		A residential user is a consumer using natural gas to provide heat and light for personal use to a private residence. Local distribution companies (LDCs) provide natural gas directly to residential users.
Residual Risk		The risk that remains after risk responses have been implemented. (PMI Lexicon v3.2, 2021)
Resistance Temperature Detectors	RTD	Is a temperature sensor which measures temperature using the principle that the resistance of a metal changes with temperature.
Resource Breakdown Structure	RBS	A hierarchical representation of resources by category and type. Typically called a Project Breakdown Structure.
Responsibility		A duty or obligation to satisfactorily perform or complete a task (assigned by someone or created by one's own promise or circumstances) that one must fulfil, and which has a consequent penalty for failure.
Restriction Orifice	RO	Is mainly used to achieve controlled or restricted flow of process medium.
Retailer of Last Resort	RoLR	A scheme to ensure continued consumer energy supply in the event of a retailer failure.
Review		A review of proposed concepts and key design assumptions against specified requirements at each design stage.
Reviewer		Competent person(s) assigned to confirm that a Document or Drawing conforms to Contract or other requirements.
Revision		Formal issue of a document indicated with a descriptive status and a sequential code. In APA, revision codes numeric.
Right of Way	ROW	A right of way is a particular type of easement, i.e. a right, annexed to land (excluding a right of way in gross), to travel over other land of different ownership in a particular manner (not involving the taking of any of its produce or soil). (Land Registry Services, 2021)
Ring Main Unit Switchgear	RMU	A ring main unit (RMU) is a factory assembled, set of switchgear used at the load connection points of a ring-type distribution network.
Riser		A vertical, or near vertical, section in a pipeline.
Risk		An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives. (PMI Lexicon v3.2, 2021)

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		The possibility that harm (death, injury or illness) might occur when exposed to a hazard. (Safe Work Australia, 2021)
Risk Acceptance		A risk response strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs. (Petroleum Engineering Handbook, 2015)
Risk Appetite		The degree of uncertainty an organisation or individual is willing to accept in anticipation of a reward. (PMI Lexicon v3.2, 2021)
Risk Assessment	RA	A risk assessment is a comprehensive evaluation of a system to identify hazards, likelihood and consequences of potential incidents or accidents. A risk assessment should provide a significant understanding of risks and significant risk contributors. (Sometimes referred to as risk analysis or risk evaluation).
Risk Control		Taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible, minimising the risks so far as is reasonably practicable. Eliminating a hazard will also eliminate any risks associated with that hazard. (Safe Work Australia, 2021)
Risk Management	RM	The identification, analysis, assessment, control, and avoidance, minimisation, or elimination of unacceptable risks. An organisation may use risk assumption, risk avoidance, risk retention, risk transfer, or any other strategy (or combination of strategies) in proper management of future events.
Risk Reduction		The act of making changes to controllable factors (e.g., operating pressure, patrol frequency) to reduce risk. Risk reduction can also refer to a quantitative measurement of the magnitude of a reduction in risk.
Risk Tolerance [deprecated]		The degree of uncertainty that an organisation or individual is willing to withstand. (PMI Lexicon v3.2, 2021)
Rockwell Hardness Number		A numerical expression of the hardness of a metal as determined with a Rockwell Hardness Tester. There are several hardness scales. The most commonly used are the Rockwell B scale for soft metals and the Rockwell C scale for hard materials.
Rockwell Hardness Testing		Rockwell hardness testing is a testing method that uses a conical diamond or a steel ball to indent the surface of metals or polymers. The hardness number is determined from the depth of deformation created by the indenter into the sample.
Rolling Blackout or Rotational Load Shedding		Deliberate sequential shutdown at different times and parts of the grid to avoid total system failure
Root Cause Analysis		Root cause analysis is a problem-solving process that focuses on the task of finding the root cause and determining the best prevention solutions to a problem.

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Rotable Item		Item that is capable of being repaired or overhauled in a workshop environment, to return the item to a condition that is equivalent to new.
Rotating Inertia		The sum of all rotating mass inertias of the connected synchronous generation opposing a change of system frequency
Run		An assembly of more than one piece of pipe; a portion of a fitting having its end in line or nearly so, as distinct from the branch or side opening, as of a tee.
Rupture		A rupture is the process or instance of breaking open or bursting, as in the failure of the pipe such that the cylinder has opened to a size equivalent to its diameter. ²³

S

Le Système International d'Unités International	SI	International decimal system of weights and measures derived from and extending the metric system of units.
Safe Work Method Statement	SWMS	Is a form of safety statement used within the construction industry in Australia. It outlines all high-risk activities that will be carried out within a given workplace, as well as the associated hazards and the controls put in place to mitigate the risk to as low as reasonably practicable. (Safe Work Australia, 2021)
Safeguard		A device, system or action that would eliminate or prevent an event with the potential to cause harm or mitigate its outcomes.
Safety		Freedom from unacceptable risk or harm.
Safety and Operating Plan	SAOP	
Safety Case		A document produced by the operator of a facility which identifies the hazards and risks, how these are controlled and describes the safety management system in place to ensure the controls are effectively and consistently applied.
Safety Data Sheet	SDS	Are documents that provide critical information about hazardous chemicals. (Safe Work Australia, 2021) Also known as MSDS (material) or PSDS (product)
Safety in Design	SiD	Safe design is about integrating hazard identification and risk assessment methods early in the design process, to eliminate or minimise risks of injury throughout the life of a product. (Safe Work Australia, 2021)
Safety Instrumented Function	SIF	Is a protection layer whose objective is to achieve or maintain a safe state of the process when a specific dangerous event occurs. The

²³ A rupture is the propagation or growth of a defect to such an extent that the pipe becomes completely unserviceable.

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		SIF is implemented in the SIS (Safety Instrumented System) which is normally composed of several Safety Functions. (IEC 61511) Also see Safety Instrumented System.
Safety Instrumented System	SIS	Consists of an engineered set of hardware and software controls which are especially used on critical process systems. Also see Safety Instrumented Function.
Safety Integrity		The probability of a safety related system satisfactorily performing the required safety functions under all the stated conditions within a stated period.
Safety Integrity Level	SIL	Safety Integrity Level, or as more usually referred to “SIL” or “SIL level”, is a unit of measurement for quantifying risk reduction. There are four integrity levels, e.g. SIL 1 – represents the integrity required to avoid relatively minor incidents and is likely to be satisfied by a certain degree of fault tolerant design using guidelines that follow good practice.
Safety Management Study	SMS	Is a set of policies, procedures and plans that systematically manages health and safety at work and can help to minimise the risk of injury and illness from workplace operations. (Comcare, 2021)
Safety Risk		Combination of the likelihood of a hazard being realised and its consequence.
Schedule – Pipe	SCH	A system for indicating the wall thickness of pipe. The higher the schedule number, the thicker the wall for a certain pipe size. Also see Wall Thickness.
Scope of Work	SoW	A scope of work, narrative description of products or services to be supplied under contract describes the specific tasks the contractor will perform to meet objectives. The scope of work describes how the work will be divided, with specific tasks listed with deadlines. The task descriptions may include methods used.
Scope of Work ²⁴	SOW	Scope of Work means the description of Services and Deliverables specified in the Contract and as may be amended.
Scraper Station	SS	An assembly/station in either end of a pipeline or section with a shut-off valve and a door to insert or remove a pipeline scraper (PIG) which is pushed through the pipeline to clean it and increase flow efficiency.
Seat		That part of a valve against which the closure element (gate, ball) affects a tight shutoff. In many ball valves and gate valves, it is a floating member usually containing a soft seating element.
Seed File		A seed file is a CAD drawing that is used in its native format as an input parameter with the Export to CAD tool. It functions as a template and provides base data for the destination CAD file. Seed files are used to store layer names, styles, and other common settings.

²⁴ Scope of Work differs from a Statement of Work

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Separator		A cylindrical or spherical vessel used to separate oil, gas, and water from the total fluid stream. Separators can be either horizontal or vertical. Separators can be classified into two-phase and three-phase separators (commonly called free-water knockout). The two-phase type deals only with oil and gas, while the three-phase type handles oil, water, and gas. Additionally, separators can be categorised according to their operating pressure. (Schlumberger Ltd., 2021)
Serious Pipeline Incident		A serious pipeline safety incident is an event involving a fatality or injury requiring in-patient hospitalisation.
Shale Gas		Natural gas that is contained within shale formations. (Energy Information Australia, 2020)
Short Circuit Current	ISC	
Short Term Trading Market. (Gas market)	STTM	
Shutdown	SD	The cessation or suspension of an operation or activity.
Simultaneous Operations	SIMOPS	Simultaneous operations involving two or more concurrent operations taking place within a facility or in close proximity to a facility where each operation is currently operating under its own accepted safety case. (Department of Mines, Industry Regulation and Safety, 2020)
Single Axis Tracking		A mechanical system that continually turns a solar panel to face the sun. Boosts output by around 25%, dual axis tracking can add a further 5%.
Single Line Diagram	SLD	Single line diagram is the representation of a power system using simple symbols for each component. It is the diagram of a power system is the network which shows the main connections and arrangement of the system components along with their data such as output rating, voltage, resistance and reactance, etc.
Site Acceptance Test	SAT	Tests performed upon completion of the installation of the equipment on site to ensure correct installation, operation, and interoperation with other equipment. SAT Tests are performed in accordance with the Inspection and Test Plan.
Sleeve		A sleeve is a method used to repair a pipeline. Technically speaking: A sleeve is a full-encirclement of a pipeline with a reinforcing material at the location of a damage or defect to restore the strength of the pipe. Sleeves may be fabricated from steel or composite material. Sleeves may be for reinforcement only (Type A) or for reinforcement and pressure retention (Type B).
Slugcatcher		A device located at the downstream end of a two-phase pipeline, for the primary separation of the liquid and gas phases, and the temporary storage of liquids generated by pigging and transient flow

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		conditions. There are two types of slug catchers: the vessel type and the finger type.
Small Scale Technology Certificates	STCs	Issued by the Clean Energy Regulator under the renewable energy target scheme an Australian Government initiative to promote lowering of emissions.
So Far As is Reasonably Practicable	SFAIRP	The term "so far as is reasonably practicable" means that the degree of risk in a particular situation can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk.
Solar Radiation		The total electromagnetic radiation emitted by the sun.
Solid Oxide Electrolyser	SOE	A solid oxide electrolyzer cell (SOEC) is a solid oxide fuel cell that runs in regenerative mode to achieve the electrolysis of water (and/or carbon dioxide) by using a solid oxide, or ceramic, electrolyte to produce hydrogen gas (and/or carbon monoxide) and oxygen.
Solution		Mixture in which the components lose their identity and are uniformly dispersed. All solutions are composed of a solvent (water or other fluid) and the substance dissolved called the "solute". A true solution is homogeneous, as salt in water. Air is a solution of oxygen and nitrogen. (AGA, 2021)
Sorbent		A material which extracts one or more substances present in an atmosphere or mixture of gases or liquids with which it is in contact due to an affinity for such substances. (AGA, 2021)
Sour Gas		Natural gas may contain hydrogen sulphide (H ₂ S), a toxic compound. Natural gas that contains more than one per cent of H ₂ S is called sour gas. (CAPP, 2021)
Source of Release		A planned or unplanned discharge of fluids (gas or liquids) to the environment from process equipment including vents, leaking flanges, pipeline rupture.
South West Interconnected System	SWIS	The SWIS is an electricity distribution network operated by Western Power. It covers the most populated area of Western Australia, from the south-west coast to as far north as Kalbarri.
Specific Volume		The volume of a unit weight of a substance at specific temperature and pressure conditions.
Specification		A document that fully describes a design element or its interfaces in terms of requirements (functional, performance, constraints, and design characteristics) and the qualification (validation) conditions and procedures for each requirement.
Specified Minimum Tensile Strength	SMTS	See Specified Minimum Yield Strength.
Specified Minimum Yield Strength	SMYS	The minimum specified yield strength and the minimum specified tensile strength are the values that must be met by the materials and

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		are used the engineering values by the designer when sizing members and welds.
Spinning Reserve		Generation capacity already synchronised to the grid but not operating at full capacity, typically a spinning turbine, a synthetic spinning reserve can be created with batteries.
Spot Price		The AEMO trading interval price.
Spurline		A pipeline transporting fluid or gas into a larger pipeline.
Stainless Steel	SS	Stainless steel is a group of ferrous alloys that contain a minimum of approximately 11% chromium.
Stakeholder		The persons or groups that have claims on ownership, rights, or interest in a project or its activities in the past, present or future and whose interest in the project must be recognised if the project is to be successful. ²⁵
Standard Flow Rate		Gas volume flow rate corrected to standard temperature and pressure (STP).
Standard Temperature and Pressure	STP	STP is commonly used to define standard conditions for temperature and pressure which is important for the measurements and documentation of chemical and physical processes: 101.325 kPa abs, 15° C, dry. Also known as Metric Standard Conditions (MSC).
Standards		The specified performance requirements for the function, fit, form and finish of assets and the planning, production and proving process procedures related to the work on assets.
State of Charge	SoC	Is a measurement of the amount of energy available in a battery at a specific point in time expressed as a percentage.
Statement of Environment Objectives	SEO	Environmental objectives are goals that you would like to meet in the future. Targets are the means for providing verifiable evidence that you have actually met the objective. (ISO 14000)
Statement of Work	SOW	A statement of work defines a project's goals, deliverables, and performance criteria. Also see Scope of Work.
Station Control Panel	SCP	
Status		Defines the “suitability” of information in a model, drawing or document i.e., work in progress, issued for construction.
Stay in Business	SiB	Stay in business capital (SiB) refers to continued investments made by a company in relation to an existing facility or industrial plant in order to exploit changed market circumstances or new market opportunities.

²⁵ Those who may be positively or negatively affected during the project or on successful completion of the project.

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Steel Wire Armoured	SWA	SWA cables are multicore cables with a layer of steel wire armour, which provides protection from mechanical damage.
Stoppie		A procedure used in the repair of a pipeline to isolate a section of line in the absence of a shutoff valve. After welding a flanged saddle to the pipe, the line is hot tapped—a method of making a connection to existing piping or pressure vessels without the interruption of emptying that section of pipe or vessel—and an expanding resilient plug is inserted into the pipe bore. When the repair is completed, the plug is withdrawn and a valve, installed on the saddle flange, is closed. (Schlumberger Ltd., 2021)
Strength Test		That part of the pressure test procedure that establishes the pressure strength of the test section.
Stress		Stress is the resultant internal forces within a material that resist change in the size or shape of the material when the material is acted on by external forces. For example, Stress in the wall of a pipe resists the internal pressure exerted by the transported products.
Stress Corrosion Cracking	SCC	Also known as stress corrosion cracking, is a type of corrosion that occurs due to the simultaneous action of a corrodent and a sustained tensile stress. This mechanism is characterised by corrosion in the microscopic granular composition of a metal's surface. ²⁶
Structural, Mechanical, Piping, Electrical & Instrumentation	SMPEI	
Structure		Anything that is constructed, whether fixed or moveable, temporary, or permanent, and includes buildings, masts, towers, framework, pipelines, transport infrastructure and underground works (shafts or tunnels). Also includes any component or part of a structure. (Safe Work Australia, 2021)
Submerged Arc Welded	SAW	Submerged-arc welding (SAW) is a common arc welding process that involves the formation of an arc between a continuously fed electrode and the workpiece.
Submerged Arc-Welded Pipe, Helical Seams	SAWH	
Submerged Arc-Welded Pipe, Longitudinal Seams	SAWL	
Substance		Any natural or artificial substance whether in the form of a solid, liquid, gas, or vapour. (Safe Work Australia, 2021)

²⁶ SCC is environmentally assisted cracking that can result when the combined action of stress, an electrochemical cracking environment, and temperature causes cracks to initiate and grow in susceptible line-pipe steel.

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Sub-Synchronous Interactions	SSI	Sub-synchronous interactions (SSIs) is a basic term that contains several emerging oscillations. It has an expanded definition compared with existing sub-synchronous resonance or oscillation (SSR/SSO). SSO was first observed on thermal power generators.
Sulphide Stress Corrosion Cracking	SSCC	Is a type of hydrogen cracking which presents a cathodic embrittlement mechanism. This term should not be confused with stress corrosion cracking (SCS), since this is anodic in nature.
Sulphur	S	Sulfur (S), also spelled sulphur, non-metallic chemical element belonging to the oxygen group.
Sulphur Dioxide	SO ₂	A major component of a group of airborne contaminants termed "acidifying emissions." (CAPP, 2021)
Supervisory Control and Data Acquisition	SCADA	A generic name for a computerised system that is capable of gathering and processing data and applying operational controls over long distances.
Supplier		A party typically providing goods such as materials and equipment, and/or performing a service. See Vendor.
Supportability		The inherent quality of a system – including design for reliability and maintainability, technical support data, and maintenance procedures – to facilitate detection, isolation and timely repair or replacement of system anomalies. ²⁷
Surge		A surge is the transient sudden rise or fall of pressure in a pipeline. Pipeline surges can be positive or negative and are caused most frequently by the sudden closure of a block valve or emergency shutdown of a pump. Surge pressure in excess of the rated capacity of a pipeline can cause ruptures of the piping system. (Schlumberger Ltd., 2021)
Surge Pressure		Pressure due to mass flow velocity changes, caused by operational activities, e.g. valve closures, pump shut-down or start-up.
Surge Protection Devices	SPD	Surge Protective Devices (SPD) are used to protect the electrical installation, which consists of the consumer unit, wiring and accessories, from electrical power surges known as transient overvoltages.
Suspended Pipeline Crossing		Location where a pipeline is suspended to cross a waterway, either by cables over the waterway or attached to the girders of a bridge designed to normally carry vehicle traffic.
Sustainable Practices		This deals with the management of environmental, social and economic impacts throughout the lifecycle of operations/goods/services, and with the encouragement of good governance practices. It is increasingly recognised as a key

²⁷ Compare maintenance support performance.

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		component of corporate social responsibility, and makes good business sense, as well as being the right moral and ethical thing to do.
Swage		A threaded adapter used to connect a circulating line to a casing or tubing string.
Sweet Gas		Petroleum containing little or no hydrogen sulphide. Pertaining to crude oil or natural gas lacking appreciable amounts of sulphur or sulphur compounds. (Schlumberger Ltd., 2021)
Sweetening		A process used to remove hydrogen sulphide [H ₂ S] and carbon dioxide [CO ₂] from a gas stream. These components are removed because they can form acidic solutions when they contact water, which will cause corrosion problems in gas pipelines. In a sweetening process, different types of ethanolamine can be used, including monoethanolamine (MEA), diethanolamine (DEA), diglycolamine (DGA) and methyl diethanolamine (MDEA). Hydrogen sulphide and carbon dioxide are absorbed by the ethanolamine and sweet gas leaves at the top of the absorber. The ethanolamine is heated and acid gas (hydrogen sulphide and carbon dioxide gases) and water vapor are obtained. The water is removed while the acid gas can be flared or further treated in a sulphur recovery unit to separate out elemental sulphur. Finally, the lean ethanolamine is returned to the absorber. (Schlumberger Ltd., 2021)
Synchronous Generators		Describes the turbines found in coal, gas, and hydro plants. All have similar characteristics. They were originally designed two centuries ago, are massive (each can weigh as much as 10 greyhound buses) and spin at 3000 rpm or 50 Hz. This rotating mass puts desirable inertia into the system to ride through faults. Asynchronous Generators can be wind, PV, tidal they don't spin at 3000 rpm, some of them can't be bothered spinning at all. This resultant lack of inertia would be a problem except for the fact that in the intervening years since the invention of the generator electrical engineers have resolved this with Synthetic inertia (fast frequency response) this can take many forms including Batteries
Syngas		A mixture of carbon monoxide and hydrogen (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Synthetic fuels		Fuels derived from syngas (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
System		A set of components, which interact according to a design. A component of a system can be another system (called a sub-system).
System Restart Ancillary Services	SRAS	See Ancillary Services.
Small Scale Renewable Energy Scheme	SRES	

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T

Tankage		The capacity of all the tanks in a facility or system.
Tariff		The price paid for energy services includes the tariff and any other fees and charges that may apply under a contract.
Task Force on Climate-related Financial Disclosures	TCFD	The TCFD is committed to market transparency and stability. The TCFD believe that better information will allow companies to incorporate climate-related risks and opportunities into their risk management and strategic planning processes.
Technical Assurance	TA	Technical assurance is the prevention of errors and mistakes in the delivery of engineering and technology services.
Technical Authority		The authority to make and approve engineering decisions. The scope of technical authority may extend to the preparation and approval of specifications, detail design proposals, construction and maintenance processes and standards, as well as products and systems used within the engineering support task.
Technical Bid Evaluation	TBE	An evaluation and examination of bidders or subcontractors' technical bid document or proposals.
Technical Note/Brief	TN	A technical note is a short article giving a brief description of a specific development, technique or procedure, or it may describe a modification of an existing technique, procedure or component.
Technical Query	TQ	In simple terms, a Technical Query (TQ), like an RFI, is a question that needs answering. In business terms, it's a process that results in an official communication, one that seeks to confirm something, get clarification, or seek direction on an element that could cause delay if it's not answered. A TQ, or the results of a TQ, can often trigger several other processes, like Changes and Reviews.
Technical Specification		Description of the features of the deliverable in detailed technical terms and contains additional information that is not contained in the General Specifications to provide project team members with crucial guidance on what needs to be done on project.
Technology Readiness Level	TRL	Technology Readiness Level (TRL) index is a globally accepted benchmarking tool for tracking progress and supporting development of a specific technology through the early stages of the innovation chain, from blue sky research (TRL 1) to actual system demonstration over the full range of expected conditions (TRL 9). (Arena, 2021)
Telemetry		Automated communications process by which measurements (of e.g. pressure, vibration, or temperature) and other data are collected at remote or inaccessible points and transmitted to receiving equipment for monitoring.
Temperature		The degree of "hotness" or "coldness" as measured on a definite scale.

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Temperature Indicating Transmitter	TIT	
Temperature, Ambient		The temperature of the air, atmosphere or other fluid that completely surrounds the apparatus, equipment or the workpiece under consideration.
Temperature Relief Valve		See Valve, Relief.
Tensile Strength		The tensile stress necessary to cause failure in a short-time test. It is performed by pulling a specimen of specified dimension at a specified rate.
Term Sheet		Nonbinding agreement that shows the basic terms and conditions of an investment. The term sheet serves as a template and basis for more detailed, legally binding documents. Once the parties involved reach an agreement on the details laid out in the term sheet, a binding agreement or contract that conforms to the term sheet details is drawn up. (Investopedia, 2022)
Terms of Reference		Statement of the background, objectives, and purpose of a program, project, or proposal.
Test Pressure		The pressure at which the pipeline will be or has been tested for strength.
Thermal Coal		Coal used for power generation (also known as steam coal)
Thermal Electric Generator	TEG	An electric device that converts heat energy produced from a heat source directly into electrical energy. This phenomenon is called the Seebeck Effect, named after Thomas Johan Seebeck. (Corrosionpedia, 2020) (used on MWP for CP power)
Third Party Validation	TPV	Third party validation is when an external body is used to review and confirm the accuracy of information, design and or calculations.
Threat		A risk that would have a negative effect on one or more project objectives. (PMI Lexicon v3.2, 2021)
Three Letter Acronym	TLA	APA - Used for creating a unique identifier for an APA owned or operated asset. Also see Four Letter Acronym.
Throttling		The intentional restriction of flow by partially closing or opening a valve. A wide range of throttling is accomplished automatically in regulators and control valves.
Throughput		Is a measurement of the amount of oil or gas product flowing through a pipeline.
Tie-in		The final connection (spool, cable etc.) between two designated tie-in points.

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Tie-in Points		A location on an existing plant where a new installation it is connected (via a tie-in spool, cable, etc.).
Tight Gas		A natural gas field that can be made economical with a combination of horizontal wells and fracture stimulation (see hydraulic fracturing). (Energy Information Australia, 2020)
To Be Advised	TBA	
To Be Confirmed	TBC	
Top Entry		The design of a particular valve or regulator where the unit can be serviced or repaired by leaving its body in the line and accessing its internals by removing a top portion of the unit
Total Cost of Incident		Total cost is defined as total property damage as reported on the incident report filed by the Operator.
Total Cost of Ownership	TCO	The total cost of ownership is the sum of all costs involved in the purchase, operation and maintenance of a given asset during its lifetime. It is a financial analysis that shows all present and future costs of taking possession of the asset.
Total Installed Cost	TIC	Refers to the final cost of designing, fabricating and building a capital project or industrial asset. Various phases or components of a capital project are assigned a value based on a percentage of the total installation cost or TIC.
Total Recordable Injury Frequency Rates	TRIFRs	TRIFR is the number of injuries (excluding fatalities) requiring medical treatment per million hours worked within an organisation.
Trace Heating		An electrical system comprising of electrical trace heating elements used to maintain or raise temperature of pipes and vessels.
Train		Process equipment composed of vessels, piping, heat exchangers, etc., required to produce SNG or also the utilisation system after customer metering. (AGA, 2021)
Transducer		A device for converting energy from one form to another, specifically called the measurement of pressure differential in natural gas gate stations.
Transformer	TRF	An apparatus for reducing or increasing the voltage of an alternating current.
Transformer Rectifier Unit	TRU	A TRU combines the functions of a Transformer and a Rectifier into one unit
Transmission	Tx	(typ. electrical line)
Transmission Line		A transmission line is a pipeline used to transport natural gas from a gathering, processing or storage facility to a processing or storage facility, large volume customer, or distribution system. A large volume customer may receive similar volumes of gas as a distribution center, and includes factories, power plants, and institutional users of gas. Often used to describe hazardous liquid pipelines also, a

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		transmission line is a pipeline used to transport crude oil from a gathering line to a refinery and refined products from a refinery to a distribution center. Technically speaking: As applied to natural gas pipeline systems, a natural gas transmission pipeline is a pipeline, other than a gathering line, that 1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large-volume customer that is not downstream from a distribution center; 2) operates at a hoop stress of 20 percent or more of specified minimum yield strength; or, 3) transports gas within a storage field. (Pipeline Association for public awareness, 2021)
Tri-Ethylene Glycol	TEG	Triethylene glycol is a colorless liquid with a mild odor. $C_6H_{14}O_4$
Trunnion		The part of a ball valve that holds the ball on a fixed vertical axis and about which the ball turns. The torque requirements of a trunnion-mounted ball valve are significantly less than for a floating ball design.
Turbulent Flow		A fluid-flow regime characterised by swirling or chaotic motion as the fluid moves along the pipe. The linear velocity of the fluid particles is similar regardless of position in the pipe, although particles close to the pipe walls have a lower velocity. This characteristic makes turbulent flow an efficient flow regime for the pickup and transport of solids. However, the potential for erosion may be significant, especially with abrasive fluids and a tortuous flow path. (Schlumberger Ltd., 2021)
Turn Down		Ratio between the range defined by maximum and minimum flow rates in which the device indications and device performance are not subject to an error greater than the maximum permissible error.
Type Approved Product		Items or products that have previously been tested, validated, and approved by APA as being suitable for use in specific applications.
Type Testing		A specific form of validation carried out to demonstrate that a specific type of item (i.e., by manufacturer's part or model number) can meet the full operating, performance, and environmental design requirements for its intended application within the APA system.

U

Ultrasonic Inspection or Testing	UT	A non-destructive evaluation (NDE) inspection procedure that uses high-frequency sound waves to detect voids and imperfections of metal parts.
Ultraviolet	UV	Of electromagnetic radiation having a wavelength shorter than that of the violet end of the visible spectrum but longer than that of X-rays.
Uncontrolled Document		Document which is not subject to formal approval or change control.
Under Voltage	UV	Undervoltage is defined as a condition where the applied voltage drops to 90% of rated voltage, or less, for at least 1 minute.

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Underground	UG	Located, position or situated beneath the surface of the ground.
Underground to Overhead Transitions	UGOH	Typ electrical services
Uninterruptible Power Supply	UPS	A UPS, or a uninterruptible power supply, is a device used to backup a power supply to prevent devices and systems from power supply problems, such as an instantaneous voltage drop and a power failure.
Unit Control Panel	UCP	
United Nations Framework Convention on Climate Change	UNFCCC	
Units of Competency	UOC	Is the specification of knowledge and skill, and the application of that knowledge and skill, to the standard of performance expected in the workplace. A unit of competency is the smallest unit that can be assessed and recognised.
Un-plasticised PVC	UPVC	UPVC refers to unplasticized polyvinyl chloride. it does not contain phthalates or BPA, rendering a safe product for the environment.
Upper Range Limit	URL	Is the highest pressure at which the transmitter was set to measure, respected the sensor upper range limit. LRL (Lower Range Limit): is the lowest pressure at which the transmitter was set to measure, respected the sensor lower range limit.
Upstream		The first pipeline to transport natural gas en route to an inter-connect point for delivery to another pipeline. (AGA, 2021)
Utility Flow Diagram	UFD	All process (Utility) main equipment shown diagrammatically marked with an equipment number.

V

Validation		Process to confirm, by examination and provision of objective evidence, that the final product delivers defined operations and user requirements for its intended use.
Value Improving Practices	VIPs	Value Improving Practices (VIPs) are tools and techniques identified by companies in the Industry Benchmarking Consortium (IBC) and verified through IPA research as disciplined practices that improve the value of capital projects. (Independent Project Analysis)
Valve, Ball	VB	A valve in which a pierced sphere rotates within the valve body to control the flow of fluids. The sphere may be trunnion mounted or free.
Valve, Block		A valve that isolates or blocks possible leaks in case of an emergency situation. (Schlumberger Ltd., 2021)
Valve, Butterfly		A throttling valve made up of a disc that rotates on an axis within the valve body, thereby varying the cross-section that is open to fluid or gas passage.

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Valve, Check	VC	A valve built to pass a fluid in one direction but to close automatically when the fluid tries to flow in the opposite direction.
Valve, Gate	GV	A type of valve that incorporates a sliding gate closure element is a wedge or parallel-sided slab, situated between two fixed seating surfaces with means to move it in or out of the flow stream in a direction perpendicular to the pipeline axis.
Valve, Globe	GL	A valve equipped with an orifice and a stem attached to a plug and matching circular seat. Shut-off is obtained by direct contact of the plug and the seat.
Valve, Needle		A small valve that is opened and closed to permit or restrict fluid or gas flow by the movement of a pointed plug or needle in an orifice or tapered orifice in the valve body.
Valve, Plug		Metal valve in which a pierced plug rotates in a tapered or cylindrical body to control flow through the valve.
Valve, Pressure Control	PCV	
Valve, Pressure Relief Safety	PRV	Valve for protecting a pipeline against overpressure by releasing fluid from the pipeline.
Valve, Pressure Safety	PSV	
Valve, Relief		<p>An automatic valve designed to discharge when a preset pressure and/or temperature condition is reached.</p> <ol style="list-style-type: none"> 1. Pressure Relief Valve. An automatic valve which opens and closes a relief vent, depending on whether the pressure is above or below a predetermined value. 2. Temperature Relief Valve. <ol style="list-style-type: none"> a. Fusible Type. A valve which opens and keeps open a relief vent by the melting or softening of a fusible element at a predetermined temperature. b. Manual Reset Type. A valve which automatically opens a relief vent at a predetermined temperature and which must be manually returned to the closed position. c. Reseating or Self-Closing Type. An automatic valve which opens and closes a relief vent when the temperature reaches a predetermined value. d. Vacuum Relief Valve. An automatic valve which opens or closes a vent for relieving a vacuum, depending on whether the vacuum is above or below a predetermined value. Frequently used in a hot water supply system.
Valve, Safety	SV	A quick-opening, pop-action valve used for fast relief of excessive pressure.
Valve, Safety Shut-Off		A valve which automatically shuts off the supply of fuel through the functioning of a flame safeguard control or limiting device. This device

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		may interrupt the flow of fuel to the main burner(s) only or to the pilot(s) and main burner(s).
Valve, Shut Down	SDV	A shut down valve (also referred to as SDV or Emergency Shutdown Valve, ESV, ESD, or ESDV; Safety shutoff valve) is an actuated valve designed to stop the flow of a hazardous fluid upon the detection of a dangerous event.
Valve, Slam Shut	SSV	Fail closed spring actuated safety device with pneumatic pressure sensor. Has a specified speed of response and specified leakage rate in the data sheet
Valve, Solenoid		An automatic valve that is opened or closed by an electromagnet.
Vapor Recovery Unit		A system composed of a scrubber, a compressor, and a switch. Its main purpose is to recover vapours formed inside completely sealed condensate tanks. The switch detects pressure variations inside the tanks and turns the compressor on and off. The vapours are sucked through a scrubber, where the liquid trapped is returned to the liquid pipeline system or to the tanks, and the vapor recovered is pumped into gas lines.
Variable Frequency Drive	VFD	
Variable Renewable Energy	VRE	
Variable Speed Drive	VSD	
Variance		Used to approve a departure from the approved 'for-construction' design baseline. Variances are normally approved for a specific number of items or for a limited period. If a variance is to be permanent it must be processed as a Project Change Request (PCR). A PCR may result in a Design Change (DCN) been raised.
Variation		An actual state that differs from the expected outcome that is defined in the contract or project deliverables list.
Vendor		A party typically providing goods only such as materials and equipment.
Vendor Data	VD	
Vendor Data Requirements	VDR	
Vendor Data Requirements List	VDRL	
Vendor Document Schedule	VDS	
Ventilation		The process of supplying or removing air by natural or mechanical means to or from any space. Such air may or may not have been conditioned.

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Venting		Is the intentional, controlled, safe release of a determined quantity of gas into earth's atmosphere, without combustion.
Verification		Process to ensure that the outputs of any stage (or stages) in the project life cycle, meets the intent of the preceding stage and/or design inputs requirements (e.g. standards and regulations). ²⁸
Verifier		As per the WHS Regulation, the verifier must be a competent person and must not have been involved in the production of the design or engaged by the design company at the time the design was developed. (Safe Work Australia, 2021)
Version		Intermediate updates to revisions.
Vertical Support Member	VSM	
Very Early Smoke Detection Apparatus	VESDA	VESDA Systems are aspirating smoke detection used for early warning applications where response to a fire is critical.
Victorian Energy Efficiency Certificate	VEEC	Each certificate represents abatement of 1 tonne of greenhouse gas emission. Large energy retailers are obliged to surrender a certain number each year
Victorian Energy Efficiency Target	VEET	Promotes energy reduction to homes and businesses by issuing Victorian Energy Efficiency Certificates (VEEC)
Victorian Transmission System	VTS	
ViewX Client (ClearSCADA)	ViewX	Is a dedicated ClearSCADA Windows application that typically runs on a separate computer workstation (the client PC). It can be used to configure the database and view data associated with database items. (Schneider Electric, 2018)
Virtual Pipelines		Trucks that transport gas (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Virtual Private Network	VPN	
Virtual Synchronous Generator	VSG	
Viscosity		In general, resistance to flow; that property of semi-fluids and gases by virtue of which they resist an instantaneous change of shape or arrangement of molecules.
Visible Position Indicator		A position-indicating rod supplied with gate valves. It extends from the top of the valve stem and serves to indicate the relative position of the gate.
Voltage Transformer	VT	

²⁸ Independent verification may be performed by another part of the designer organisation, not involved in the design, or by a separate designer organisation.

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Volts	V	The derived unit for electric potential, electric potential difference (voltage), and electromotive force.
Volts Alternating Current	V a.c.	
Volts Direct Current	V d.c.	
Volumetric Density		Mass per unit volume (CSIRO, Bruce S, Temminghoff M, Hayward J, Schmidt, 2018)
Volumetric Rates		A classification method which assigns 100% of fixed costs to the commodity rate. (AGA, 2021)

W

Waiver		<p>An ATP 'Waiver' is a formal request that seeks to provide for an item that is not currently covered by an existing ATP or to deviate from the requirements or intent of some portion of an existing ATP due to special circumstances.</p> <p>Waivers may also be referred to as Deviations.</p>
Wall Thickness	WT	A Pipe Wall Thickness is expressed in Pipe Schedule (SCH) which is for a given size and thickness of the pipe that is fixed and defined in the applicable ASME standard. Other than the pipe schedule, pipe thickness can also be specified in mm or inches to the value corresponding to that specified in the ASME standard.
Warning		(under the GHS) is a signal word on a label or safety data sheet that is used to indicate the relative level of severity of a hazard; Warning is used for less severe or significant hazards. (Safe Work Australia, 2021)
Warranties		Providing assurance by one party to the other party that specific facts or conditions are true or will happen.
Water Bath Heater	WBH	
Water Hammer		The physical effect, often accompanied by loud banging, produced by pressure waves generated by a rapid change of velocity in a liquid system within piping.
Web-based Client (ClearSCADA)	WebX	WebX is a web interface that allows you to access the Server's data via a web connection (intranet or Internet). (Schneider Electric, 2018)
Welder Performance Qualification	WPQ	A Welder Qualification Test is recorded on documentation known as a test certificate that details the ranges that welder is qualified. Ranges or essential variables for WQT are not always the same as those for a WPS.
Welding Procedure Qualification Record	WPQR	All WPSs start with a PQR. It is a record of the test. It DOES NOT have any ranges. It lists the actual values recorded during the welding of a test piece. It proves the welding process.

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Welding Procedures Specification	WPS	WPS is essentially a welder's guide that includes applicable code requirements and production standards. It controls the welding process.
Wellhead		Wellhead refers to the point at which oil or natural gas is extracted from the ground.
Wet Gas		Natural gas that contains less methane (typically less than 85% methane) and more ethane and other more complex hydrocarbons. [Geology] Natural gas that contains water. [Production] Natural gas containing significant heavy hydrocarbons. Propane, butane and other liquid hydrocarbons can be liquefied. [Production]
Whole of Lifecycle Cost		Whole-life cost is the total expense of owning an asset over its entire life, from purchase to disposal, as determined by financial analysis. (Investopedia, 2021)
Wholesale Electricity Market	WEM	The market Western Australia operates within the SWIS Western Power: Energy Distribution and transmission company WA state-owned
WHS Duties		WHS laws require organisations that employ paid workers ensure, so far as is reasonably practicable, the physical and mental health and safety of workers, including volunteers. (Safe Work Australia, 2021)
Wind Load Rating		A specification used to indicate the resistance of a derrick to the force of wind. The wind load rating is calculated according to formulas incorporated in AS 4100.
Wind Power Plant	WPP	A wind-power plant consists of a wind engine, a generator of electrical current, automatic devices for controlling the operation of the wind engine and generator, and buildings for their installation and maintenance. (Rozhdestvenskii, 1958)
Wind Turbine Generator	WTG	The wind turbine generator converts mechanical energy to electrical energy.
Wiring System	WS	A wiring system can be defined as a group of one or more conductors, cables or busbars along with all parts that are used to secure them in position. It also includes any mechanical protection that is provided for the conductor. (NECA Vic, 2021)
Wobbe Index		A number which indicates interchangeability of fuel gases and is obtained by dividing the heating value of a gas by the square root of its specific gravity.
Work Breakdown Structure	WBS	A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables. (PMI Lexicon v3.2, 2021)
Work Health and Safety	WHS	Work health and safety (WHS) – sometimes called occupational health and safety (OH&S) – involves the management of risks to the health and safety of everyone in your workplace. This includes the

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		health and safety of anyone who does work for you as well as your customers, visitors and suppliers. (Business, 2021)
Work Instructions	WI	A defined set of steps to be followed to complete a required action or function, in more detail than described in Procedures.
Work Package	WP	The work defined at the lowest level of the work breakdown structure for which cost, and duration are estimated and managed. (PMI Lexicon v3.2, 2021)
Workaround		An immediate and temporary response to an issue, for which a prior response had not been planned or was not effective. (PMI Lexicon v3.2, 2021)
Worker		Any person who carries out work for a PCBU, including work as an employee, contractor, subcontractor, self-employed person, outworker, apprentice or trainee, work experience student, employee of a labour hire company placed with a 'host employer' and volunteers. (Safe Work Australia, 2021)
Workplace		Any place where work is carried out for a business or undertaking and includes any place where a worker goes, or is likely to be, while at work. This may include offices, factories, shops, construction sites, vehicles, ships, aircraft or other mobile structures on land or water. (Safe Work Australia, 2021)
World Energy Council	WEC	Contributes the insights needed by energy leaders to make effective strategic, policy and business decisions about the energy transition.
World Wind Energy Association	WWEA	WWEA is an international non-profit association embracing the wind sector worldwide, with more than 600 members in around 100 countries. WWEA works for the promotion and worldwide deployment of wind energy technology.

Y

Yellow Jacket		Yellow Jacket® is a two-layer external coating that provides protection for pipelines used in the oil and gas and waterworks industries requiring up to moderate operating temperatures and good handling capabilities. (Shaw Pipe, 2010)
Yield Point		The stress at which a material exceeds its elastic limit. Below this stress, the material will recover its original size on removal of the stress. Above this stress, it will not.
Yield Strength		Yield strength is the stress level at which a material begins to deform permanently.
Yoke		The part of a gate valve that serves as a spacer between the bonnet and the operator or actuator.

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Z

Zinc Oxide	An infusible white solid used in preparation of synthetic natural gas to absorb sulfur from naphtha.
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5. REVISION CHANGE RECORD

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0.1	530-LI-QM-0001 updated for conversion to ATP document number code. Draft.	26.04.23	T Scorgie
1	Issued for Use	13.09.2023	T Scorgie

6. REFERENCES

All work performed in accordance with this document shall be in conformance with the current issue, including amendments, of those national and international standards, codes of practice, guidelines and APA document/s listed below.

APA Technical Practices

Ref No.	Doc No.	Description
1.	ATP-PR-EM-0002	Engineering Standards Waivers
2.	ATP-PR-EM-0003	ATP Development, Use and Management

International Standards and Other References

Ref No.	Doc No.	Description
3.	ISO 80000	Quantities and Units

Superseded Documents

Ref No.	Doc No.	Description
4.	530-LI-QM-0001	Engineering Glossary

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