

Attachment 8.16

Response to Draft Decision:
Affidavit – John Ferguson

2016/17 to 2020/21 Access
Arrangement Information
Response to Draft Decision

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**IN THE MATTER OF
THE AUSTRALIAN ENERGY REGULATOR
GAS ACCESS ARRANGEMENT REVIEW 2016-2021**

Affidavit of: **John Leslie Ferguson**
Address: Level 19, 580 George Street, Sydney, NSW 2000
Occupation: Group Executive Networks
Date: 5 January 2016

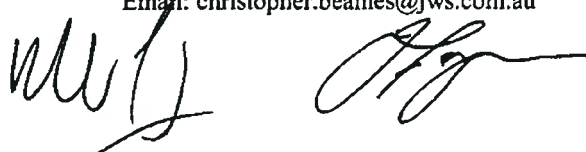
AFFIDAVIT

I JOHN LESLIE FERGUSON of Level 19, 580 George Street, Sydney, NSW 2000 TAKE AN OATH and say:

- 1 I am employed by the APA Group as the Group Executive Networks. In this role I am responsible for managing all of APA's networks division, including management of the Operating and Management Agreements between APA and Australian Gas Networks (AGN), operation of the Allgas gas distribution network in Queensland (previously owned by APA and in which APA maintains a minority equity interest), and the Central Ranges network in New South Wales. I am also responsible for APA's operation of [REDACTED] Reticulated LPG networks in Queensland, Northern New South Wales, South Australia and the Northern Territory.
- 2 As Group Executive Networks I report directly to the Chief Executive Officer of the APA Group.
- 3 By reason of my experience referred to below and my role with APA in managing its networks division including managing AGN's gas networks, I am familiar with the methods used by AGN and APA, and in the gas distribution industry in general, to

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ensure the management and operation of gas distribution networks is executed safely, efficiently and effectively.

Background and Qualifications

- 4 I make this affidavit for the purpose of explaining from AGN's and APA's perspective the methods through which AGN and APA evaluate safety and how these methods have been used to develop the gas mains replacement program for the regulated South Australian network (by which I mean the part of the network subject to AGN's South Australian access arrangement).
- 5 I commenced employment with APA in October 2008. I have around 38 years experience in the gas industry, including previous roles with AGL, Agility and Jemena in NSW. My experience has been mainly in gas construction, operations and maintenance. In particular I have around 21 years in Operations Management roles with AGL, Agility, Jemena and APA. I have a Certificate in Management from Deakin University, an Associate Diploma in Engineering (Plumbing Hydraulics Services) from TAFE and trade and post trade certificates in plumbing and gas fitting.

The APA Group

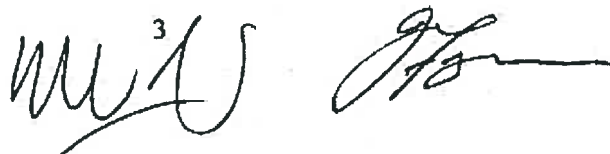
- 6 APA Group comprises Australian Pipeline Limited, which is the responsible entity for the Australian Pipeline Trust and the APT Investment Trust (referred to in this affidavit collectively as **APA**).
- 7 APA is Australia's largest natural gas infrastructure business, owning and/or operating approximately 14,700 kilometres of high pressure gas transmission pipelines across mainland Australia. APA transports approximately half of the natural gas used in Australia annually.
- 8 APA employs over 1,600 people.
- 9 Major assets owned and operated by APA include:
- (a) the Roma to Brisbane pipeline, the Carpentaria gas pipeline, the Berwyndale Wallumbilla pipeline, South West Queensland gas pipeline and the Wallumbilla Gladstone gas pipeline in Queensland;



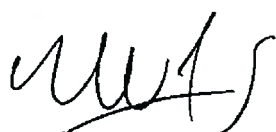
- (b) the Moomba to Sydney pipeline including lateral pipelines running off it. This includes the New South Wales – Victoria interconnect. APA also owns and operates the Central West pipeline from Marsden to Dubbo and the Central Ranges pipeline from Dubbo to Tamworth. APA also owns and operates the Central Ranges network which consists of 225 kilometres of gas distribution network in Tamworth;
- (c) the Victorian transmission system for natural gas and the Dandenong LNG storage facility. The Victorian transmission system is 1,993 kilometres in length;
- (d) in South Australia the SEA Gas pipeline from Port Campbell (Vic) to Adelaide (50% ownership interest) and the SESA pipeline in south eastern South Australia (100% APA owned);
- (e) in Western Australia the Goldfields gas pipeline from Yarraloola to Kalgoorlie (88.2% ownership interest), the Parmelia gas line from Dongara to Perth (100% APA owned), the Mid-West pipeline from Eradu to Windimurra (50% ownership interest), the Pilbara pipeline system (100% APA owned) and the Mondarra gas storage facility (100% APA owned);
- (f) in the Northern Territory the 1,629 kilometre Amadeus Gas Pipeline, and two small laterals of high pressure pipelines in the Northern Territory.

APA's relationship with AGN

- 10 AGN is the holder of gas transmission and distribution licences for the South Australian natural gas assets, the main asset being the Adelaide gas distribution network. As I explain more fully below, AGN has contracted with APA to operate and manage its gas infrastructure assets.
- 11 The long term AGN contract now with APA was part of an acquisition by APA of the Origin Energy Asset Management group in July 2007, and included the transfer of the long term operations and maintenance of AGN assets across five states and territories.
- 12 In August 2014, APA sold its 33.4% interest in AGN, but it has retained the operation and management of these assets until 2027.

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- 13 There are three Operating and Management Agreements in place between APA and AGN: one relating to Victoria; one relating to the Wagga Wagga gas distribution network and associated assets and one relating to AGN's assets in Queensland, South Australia and the Northern Territory. In the current context the Operating and Management Agreement relating to Queensland, South Australia and the Northern Territory is relevant (SA OMA).
- 14 Under the SA OMA, APA is appointed to exclusively operate and manage, or procure the operation and management of, AGN's South Australian network (clause 3.1).
- 15 In operating and managing the network APA must comply with the Legal and Prudential Standards (clause 4.2). This, amongst other matters, involves:
- (a) complying with all applicable laws;
 - (b) complying with standards of safety not less than the safety standards adopted by responsible and reputable Australian gas distribution operators;
 - (c) acting in accordance with the technical standards generally accepted from time to time by engineers experienced in the operation of gas distribution networks as being at least the minimum standards generally acceptable for gas distribution networks;
 - (d) acting consistently with the practices of an efficient and prudent operator.
- 16 Under the SA OMA there is a process for AGN to set its "financial objectives" for each year. These financial objectives in turn factor into the development of budgets which budgets in turn determine the amounts of expenditure APA is entitled to be reimbursed each year for operating and managing the network (in that APA may only exceed the budgets in specified circumstances). In setting its financial objectives AGN is required to set them having regard to several matters including that AGN must give primacy to the need to maintain the continuous operation of each network in accordance with the legal and prudential standards (referred to above) (clause 8.2).
- 17 The financial objectives as advised by AGN are then used by APA to prepare annual budgets under the SA OMA. Those budgets include an estimate of the total expenditure required to operate the network in accordance with the legal and prudential standards. In approving the budget AGN must approve sufficient expenditure (as estimated by APA) to operate and manage the network in accordance




with the legal and prudential standards (clause 9.3). If AGN disagrees with APA's estimate then there is provision for the matter to be referred to an independent expert to resolve the dispute.

- 18 In summary, the SA OMA obliges APA to operate and manage the networks safely, in accordance with all applicable laws and in accordance with the standards of reputable and responsible gas industry operators.
- 19 Equally AGN must allow APA sufficient expenditure allowance to ensure APA is able to meet these standards. AGN must reimburse APA this expenditure.

AGN Approach to Safety

- 20 AGN's approach to safety is set out in its Work Health and Safety Policy, Code of Conduct and Compliance Policy (each of which are published on AGN's website). The Code of Conduct provides that AGN is to "Provide a safe, reliable and high quality natural gas distribution service" and requires compliance with all applicable laws and the Work Health and Safety Policy. The Work Health and Safety Policy provides that AGN is "fully committed to achieving zero harm to its employees and contractors" and that "exceptional performance in health and safety is critical to the success and sustainability of the business." Under AGN's Compliance Policy AGN is committed to complying with all laws, regulations, industry and internal codes of conduct and will seek to ensure APA as its major contractor complies with the intent of the policy.
- 21 In my experience these AGN policies are typical of the policies which are adopted by any large energy business which seeks to conduct its operations prudently, efficiently and in accordance with accepted good industry practice.
- 22 The SA OMA also prescribes safety requirements. Under the SA OMA (as well as the other Operating and Management Agreements) AGN and APA have agreed a procedure to ensure compliance with their various duties under the relevant work health and safety legislation. Now produced and shown to me marked "JLF-1" is a copy of the AGN and APA 'Agreed Procedure for Work Health and Safety Duties'.
- 23 This procedure has been signed by myself and by Ben Wilson, the Chief Executive Officer of AGN.
- 24 The elements of this procedure include:

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- (a) monthly reporting on work health and safety matters;
- (b) AGN and APA are each to regularly review their respective health and safety management systems;
- (c) each of AGN and APA are to maintain a zero harm culture;
- (d) AGN and APA are to specifically consider whether the budgets under the Operating and Management Agreements make adequate provision for work health and safety matters.

APA's approach to safety

- 25 Safety is a core value for APA. Under work health and safety legislation, APA has a statutory duty to eliminate risks to health and safety so far as is reasonably practicable. In addition, APA's corporate policies require it to operate and maintain networks systematically and rigorously to ensure safe and reliable gas supply to end users.

Corporate Safety Policies

- 26 APA aspires to provide a zero harm work environment. A corporate policy reflecting this aim has been issued and approved by the HSE Committee of the APA Board, and signed by the Managing Director, a copy of which has been produced and shown to me marked "JLF-2".
- 27 Operationally, APA's policy is underpinned by a Health, Safety and Environment (HSE) Management System "Safeguard" (**Safeguard**), implemented to deliver on APA's HSE commitments, including providing a zero harm work environment. Now produced and shown to me marked "JLF-3" is a copy of the 'Safeguard Management System Overview Elements' and the 'APA HSE GP 06.01 – Risk Management Overview', which together provide an overview of Safeguard and the requirements for HSE risk management.
- 28 Safeguard provides a framework by which the processes relating to APA's HSE activities are written, approved, issued, communicated, implemented and controlled. Safeguard is arranged under 15 Elements, structured to reflect the Continuous Improvement cycle of Commit, Plan, Do, Check and Act.

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29 In broad terms, the above policies require APA to eliminate risk as much as possible, and otherwise to reduce any risk to a level as low as reasonably practicable (known in the industry as "ALARP"). For any risk to be ALARP, it must be possible to demonstrate that the costs involved with reducing the risk further would be grossly disproportionate to the benefit gained. These principles are applied uniformly to all APA Group assets whether they are assets subject to pricing regulation by the AER or assets that are classified as "unregulated" (that is not subject to pricing controls).

Safety Requirements at Law

30 In South Australia the safety requirements with which AGN (and APA in turn in discharging its obligations under the SA OMA) must comply are set out in:

- (a) its licence under the *Gas Act 1997*;
- (b) provisions of the *Gas Act 1997* itself and regulations made under that Act; and
- (c) the *Work Health and Safety Act 2012*.

These are outlined below.

Gas Act 1997

31 I am aware that by virtue of section 55 of the *Gas Act 1997* and regulation 37 of the *Gas Regulations 2012* AGN must take reasonable steps to ensure its infrastructure is safe and safely operated and ensure it complies with applicable requirements of AS/NZS 4645, AS/NZS 1596 and AS 2885.

32 AS 4645 "Gas distribution networks" is the principal Australian Standard governing gas distribution networks.

33 That standard requires a network operator to ensure that risks associated with the network are at levels as low as reasonably practical with respect to any loss of supply of gas and any threats from escaping gas throughout the life of the network.

34 In order to comply with the legal obligations and the requirements referred to above, AGN (through APA) implements the mains replacement plan as amended/updated annually and from time to time.



Work, Health and Safety Legislation

35 I am aware that under the *Work Health and Safety Act 2012* APA has a duty to ensure so far as is reasonably practicable the health and safety of its workers. APA also has a duty to ensure so far as is reasonably practicable that the health and safety of other persons is not put at risk by APA's work carried out as part of its obligations under the SA OMA on behalf of AGN. I am also aware that these duties require risks to be eliminated as far as is practicable. To the extent they cannot be eliminated, the risks must be minimised.

36 AGN has equivalent duties as a person conducting a business or undertaking and APA's obligation under the SA OMA to act in accordance with all legal and prudential standards requires APA to act in such a way as to not put AGN in breach of AGN's own statutory and common law duties.

AGN's Gas Licence

37 AGN's entitlement to operate the South Australian gas distribution network arises from a licence granted under the *Gas Act 1997* originally issued in 1998 and last updated on 16 December 2014, a copy of which is produced and shown to me marked "JLF-4". The licence is issued by the Essential Services Commission of South Australia (ESCOSA), which body regulates gas licensing in South Australia.

38 The licence requires AGN to use its best endeavours to comply with good industry practice including conducting operations so as to prevent death or injury or damage to property and to minimise leakage of gas.

39 Clause 8 of the licence requires AGN to prepare a safety, reliability, maintenance and technical management plan and submit it to ESCOSA for approval. That plan is to include a Unaccounted-for Gas Plan comprised of (without limitation) leakage management plan, asset management plan and mains replacement plan.

40 A clause in the form of clause 8 is required to be included in a gas distribution licence by section 26(1)(b) of the *Gas Act 1997*. That section also provides that ESCOSA may only give approval to the plan on the recommendation of the Technical Regulator.

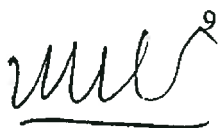
41 The Technical Regulator is a statutory office holder responsible for the regulation of the safety of the South Australian gas industry.

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Safety, Asset Management, and Mains Replacement Plans

- 42 Under the SA OMA, APA has developed a series of plans on behalf of AGN in order to comply with AGN's licence obligation. The plans are prepared by APA and then submitted to AGN for approval. AGN then seeks approval of these plans from the regulator for the purposes of its licence.
- 43 Each of the above plans, including the Mains Replacement Plan, is required to be updated/reviewed each year.
- 44 The process of mains replacement is an ongoing one. For the 2011-2016 South Australian Access Arrangement the AER allowed expenditure for a 1072 kilometre mains replacement program focussed on replacing aging CI & UPS mains. AGN/APA forecasts are that by 30 June 2016 1071 kilometres of CI & UPS mains will have been replaced, as well as approximately 81 kilometres of HDPE 250 mains.
- 45 The current plans, which were approved by ESCOSA on 9 November 2015, include the:
- (a) Safety, Reliability, Maintenance and Technical Management Plan (**Safety Plan**) dated August 2015, a copy of which is produced and shown to me marked "JLF-5";
 - (b) Asset Management Plan dated 26 June 2015, a copy of which is produced and shown to me marked "JLF-6"; and
 - (c) Mains Replacement Plan (**MRP**) dated 26 June 2015, a copy of which is produced and shown to me marked "JLF-7".
- 46 These plans reflect and apply AGN's and APA's corporate policies and APA's and AGN's regulatory obligations and requirements as outlined above. The plans broadly collect data around the assets and performance, review asset integrity, leakage data and maintenance performance, and determine maintenance, augmentation and replacement strategies.
- 47 The Safety Plan also elaborates on the methodology used by APA in assessing and managing risk. At pages 38 – 41, the Safety Plan sets out a qualitative risk assessment of threats, taking into account the consequence and likelihood of each outcome. In relation to health and safety, the consequences of risks range from insignificant, where the risk may result in first aid treatment only with the ability to return to work



immediately, to catastrophic, which may involve multiple fatalities. This is weighed against the frequency of the risk to determine a 'risk rank' from negligible to extreme.

48 As outlined at page 28 of the Safety Plan, APA has adopted a number of strategies to reduce the level of gas leakage in the distribution network to a level as low as is reasonably practicable, including:

- (a) Preparation of a mains replacement plan;
- (b) Regular reviews of the leakage history of mains to identify the optimal replacement versus repair action, so that prioritised replacement can be factored into the MRP where possible;
- (c) Periodic leakage surveys of all mains;
- (d) Operating the network at the lowest practicable operating pressures to minimise leakage; and
- (e) Attendance within two hours of all publically reported leaks.

49 In preparing the current forms of the plans referred to in paragraph 45, a rigorous review, implementation and audit process was conducted. This included review of the plans by:

- (a) the original generators;
- (b) the AGN South Australian management team;
- (c) Peter Sauer, General Manager SA Networks (APA Group); and
- (d) Ralph Mignone, Manager Operations and Engineering (AGN).

50 Following this internal review, I conducted a final review of the plans prior to submission to ESCOSA.

51 The process of developing each annual edition of the plan takes several months. The process begins with APA staff reviewing the data collected since the previous plan on the level of leaks detected and cracks and corrosion of mains and any other relevant information collected through monitoring and maintenance activities. Progress against the current plan is then assessed as is feedback from the Technical Regulator

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and the current performance of and resources available from contractors. The plan then progresses through a number of drafts as it is reviewed by APA and AGN personnel before its final review by myself.

- 52 The development of a rolling 5 year plan for each access arrangement is an even more detailed process, taking place over a 9-10 month period with at least a dozen iterations passing between APA and AGN.

Current Mains Replacement Plan

- 53 The current MRP (on which AGN's access arrangement proposal was based) was as set out above approved by ESCOSA on 9 November 2015. In giving its approval ESCOSA acts on the advice of the Technical Regulator. AGN cannot depart from the plan without ESCOSA's approval.

- 54 The current MRP as approved as at the date of this my affidavit proceeds on the basis of:

- (a) replacement of all remaining CI & UPS mains over the 2016-2021 access arrangement period (approximately 862 km);
- (b) replacement of approximately 1300, predominantly UPS, multi-user inlet services;
- (c) replacement of all remaining 250 HDPE (260 km); and
- (d) replacement of 151 km of 575 HDPE identified as being highest risk.

CI and UPS Replacements

- 55 AGN and APA have been conscious of the risks from CI mains for some time and have been undertaking mains replacement to address these risks.

- 56 Shown to me and marked "JLF-8" is the July 2010 Mains Replacement Plan.

- 57 The 2010 Mains Replacement Plan noted the need to develop a strategy to replace all CI and UPS mains and noted on page 6:

"The prime safety risk concern is associated with gas entering buildings, especially from a circumferential break in the CI network where a sudden large





release of gas could have sufficient volume to create an explosive mixture in a nearby building.”

58 The focus of the mains replacement over the 2010 to 2015 period has been on replacement of CI and UPS mains.

59 By the end of the current access arrangement period approximately 1071 km of CI and UPS mains will have been replaced. The process of mains replacement, and until a main can be replaced employing appropriate monitoring strategies to seek to reduce the risks from the main, is an ongoing one.

60 As noted in the current MRP:

“A key risk associated with CI is that of fracture. As CI mains corrode over time, there is an increasing risk of fracture leading to increasing risk of an explosion in a property and consequential loss of life or injury.” (Page 11).

61 As noted on page 26 of the MRP the remaining CI and UPS mains within the South Australian network are considered at the end of their useful life.


HDPE mains

62 As noted above, the currently approved MRP provides for the replacement of all MP Class 250 HDPE mains within the Adelaide distribution network by the end of FY 2020/21, as well as replacement of HP Class 575 HDPE mains in high risk locations.

63 Over recent years, following a number of incidents across the South Australian network, analysis has shown that HDPE mains are prone to sudden brittle crack failures under certain conditions. It has become apparent that the risk inherent in leaving these pipes in operation is higher than previously understood. Although the chance of an incident is relatively low, the potential consequences could be catastrophic (involving multiple fatalities). This has been confirmed by a number of incidents resulting from similar fractures around the world.

64 As noted in the current MRP:

“Analysis has shown that HDPE mains are prone to brittle crack failures under certain conditions where defects exist, resulting in a sudden release of gas. While the historic frequency of these types of failures is low, the consequences can be catastrophic.” (Page 7).

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66 Attachment A of the current MRP outlines a HDPE behaviour model developed by APA to assess the useful life of HDPE mains. The Attachment concludes that Class 250 HDPE mains are at an age where brittle failures are likely to become increasingly prevalent over the next 5-10 years. Further pipes which have been subject to squeeze-off will have a shorter life (squeeze-off is a process where pipes are pinched to isolate supply for the purposes of effecting repairs). Similar issues are likely to arise in the case of Class 575 HDPE mains in about 15 years (assuming the pipe has not been subject to squeeze-off damage).

The Risks Posed by Mains

67 The CI, UPS and HDPE mains represent a risk both to customers, the general public and workers. Cracked mains may result in a release of material volumes of gas which can then accumulate in houses or buildings with the consequent risk of explosion.

68 I note that the risks of accumulations of gas have been increased by a number of changes that have taken place over time to the environment in which the network operates (all of which changes are outside the control of APA and AGN). These changes include grass footpaths being replaced by concrete paving (meaning leaking gas is not able to make its way to the surface and dissipate into the atmosphere) and use of artificial turf instead of natural lawn (which has the same impact). Houses are built increasingly close to property boundaries meaning gas has less opportunity to dissipate before accumulating in a house. Risks to the integrity of mains have also been increased by large tree roots (which can crush mains) and the increasing volumes of vehicular and pedestrian traffic.

- 69 Brittle or cracked mains pose a material risk to the health and safety of workers. When workers uncover a main to investigate a leak (or other matter) they do not know the state that the main is in and whether it may be leaking or weeping significant quantities of gas (due to fracture, corrosion or graphitization for example). Clearly it is hazardous to undertake work on a main leaking significant quantities of gas.
- 70 As the condition of mains deteriorates the likelihood increases that to safely undertake work on a main, gas supply to the surrounding areas will need to be suspended (such that the main is entirely isolated from gas supply before any work is undertaken). Such suspensions will, of their nature, prevent continuity of supply.
- 71 The management of the risks posed by leaks and cracked mains is a difficult process due in particular to the unpredictability of when leaks will occur and mains will crack. While APA (and through APA AGN) keep data which seeks to identify higher risk areas (as noted in paragraph 76 below), this does not change the fundamental reality that leaks and cracks are of their nature unpredictable. Further the fact a leak on a particular main has been repaired does not mean that the same main may not have another leak, potentially within days.
- 72 As a result of the issues discussed above, applying the risk assessment methodologies above and in order to comply with APA's and AGN's regulatory and corporate policy obligations and requirements, immediate action is required to mitigate or reduce the risk to low and/or so that the risk is ALARP.
- 73 APA has assessed the nature of the risk and has determined that in order to reduce the risk to low and/or so that the risk is ALARP in many cases the only available option is to replace the mains. The predominant reason for this is the unpredictability of the risk in these types of pipe, as it is impossible to accurately predict where or when a fracture will occur.
- 74 APA has therefore prepared the proposed MRP with the aim of replacing all necessary pipes as soon as is practicable, taking into account certain constraints on the speed at which these pipes can be replaced.

Constraints on the Pace of Replacement

- 75 Constraints on replacement speed include:

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- (a) availability of labour and other resources;
- (b) the need to plan replacements so that they are carried out effectively;
- (c) the need to coordinate access schedules with other utilities providers, councils and the community (and in various cases obtain their approval (for example permits) to undertake the mains replacement); and
- (d) the need to minimise disruption to gas users and the general public, for example by staggering required road closures and service outages.

76 Taking into account the above constraints as well as mains replacement rates achieved in prior years, APA has estimated it has the capability to replace approximately 250 kilometres per year. The plan provides for replacement to be focussed initially on those mains where a combination of past failures, location, operating pressure, building and soil type present an unacceptable public risk.

77 In effect the timeframes in the plan reflect a program which provides for the replacement of mains as soon as is practicable given the restraints on replacement speed.

78 The current mains replacement program has involved APA undertaking a tender based process to establish an approved panel of contractors and assessed potential contractors based on both their capability to perform the mains replacement and their capacity to do so. It took 6 months to establish this panel. Annual work packages are then tendered to the members of the panel on a rolling 18 month basis. The 18 month period is used because it takes approximately 6 months for designs to be drafted, tenders to be issued for pricing, tenderers to visit the relevant work areas to assess the work, tenderers to lodge their bids, these bids to be reviewed by APA and contracts awarded in sufficient time to allow the successful tenderer to schedule and resource the work packages they have been awarded in time to undertake those work packages over the relevant 12 month period.

79 The current panel used by APA has 5 contractors, three of whom are interstate contractors. Those contractors have added extra crews to meet the needs of the mains replacement program and are now at the crew level APA considers the maximum practicably achievable. Any further increase in crews will create issues with safety and quality as there will not be sufficient supervision available to verify that work is being undertaken safely and to the requisite quality.

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80 Until such time as the mains are replaced, they will be monitored. APA has a number of strategies to reduce the risk from mains which have not yet been replaced. These strategies include pipe internal camera inspections, installation of ground level vents, replacement of above ground fittings and ongoing research and development. However these monitoring techniques do not eliminate the risk of a main fracturing or leaking and therefore are only an interim risk control measure until such time as the main can be replaced. Simply leaving mains in the ground and monitoring them would not reduce risks to a low rating or to as low as reasonably practicable because it does not address the risk that at some point an unknown number of the mains is likely to fracture.

81 In determining the courses of action outlined above, APA has had regard to the risk assessment methodologies referred to above including those imposed on AGN under the Gas Act 1997 namely the risk assessment and treatment methodology within AS 4645. This qualitative assessment starts from the position that all safety risks should be eliminated, and where this is not possible aims to bring the risk to a level to low or as low as reasonably practicable. Consistent with the risk principles and methodology of AS 4645, AGN/APA balances the safety risk with the cost of the solution in order to operate efficiently and effectively. Neither that standard nor any other risk management principle or methodology of which I am aware requires AGN or APA to assign safety risks an economic value. Rather, AGN/APA weighs safety risks based on their potential frequency and consequences, and aims to bring all such risks to a level where the costs involved with reducing the safety risks further would be grossly disproportionate to the benefit gained.

82 APA/AGN has not undertaken an assessment of whether the costs to AGN should a safety risk manifest itself (that is result in a safety incident) outweigh the cost to AGN of eliminating the risk. To do so would be inconsistent with AGN's legal obligations as well as the zero harm culture it and APA promotes at a corporate level. Those legal obligations and requirements and culture require risk to be reduced to a level which is low, or alternatively as low as reasonably practicable, with cost only a constraint on mitigation strategies where the cost is grossly disproportionate to the risks involved.

Proposed Revisions to Mains Replacement Plan to respond to AER

83 On 26 November 2015, the AER published its draft decision on AGN's proposed access arrangement for 2016-21.



84 In the draft decision, the AER did not accept AGN's proposal for replacement of mains in a manner consistent with the current Mains Replacement Plan. Instead, the AER considered that a plan providing for replacement of 55% of the volumes proposed by AGN was consistent with the National Gas Law and National Gas Rules. However the AER did invite AGN to submit further material to justify AGN's mains replacement program.

85 In response to the AER's draft decision on AGN's access arrangement for 2016-21, AGN proposes to revise the Mains Replacement Plan to seek to address certain matters raised by the AER.

86 I expect that ESCOSA will be prepared to approve a revised plan provided that it adequately addresses the same key concerns as sought to be addressed by the original plan and provides for mains replacement to occur at a rate which is commensurate with AGN's obligations and requirements and with the resources available to APA and AGN. Until such time as ESCOSA approves this revised plan it does not have effect as a matter of law. It is the original plan with which AGN must comply.

87 The revised mains replacement program still provides for the replacement of approximately the same volume of mains (1265km as compared to the originally proposed 1273 km) but a greater portion of HDPE mains will be replaced (766 km of HDPE mains and 499 km of CI/UPS mains as compared to the current plan of 411 km HDPE and 862 km of CI/UPS). Rather than replacing all CI/UPS mains over the 2016-2021 period the highest risk CI/UPS mains will be replaced.

88 These revisions reflect further analysis by AGN of which mains pose the greatest risk to safety. In summary the revised program provides for:

- (a) 106 km of 'Extreme' risk CI/UPS mains in the Adelaide CBD and medium pressure trunk (100 per cent of the total volume of these mains);
- (b) 393 km of 'High' risk CI/UPS mains identified to have the highest safety risk using AGN's risk prioritisation model (48 per cent of the total volume of 'High' risk CI/UPS mains);
- (c) 766 km of 'High' risk HDPE 250 and HDPE 575 mains identified to have the highest safety risk using AGN's risk prioritisation model (45 per cent of the 'High' risk HDPE 250 and HDPE 575 mains); plus



(d) (as in the current plan) replacement of the multi-user service inlets.

89 AGN (through APA) proposes to submit the revised mains replacement plan to ESCOSA for approval shortly after the lodgement of AGN's response to the AER's Draft Decision. As the plan provides for a rate of replacement commensurate with that under the original plan (albeit with revisions to the type of pipe to be replaced) and commensurate with the maximum rate at which AGN/APA can practicably progress replacement given available resources, I expect the revised mains replacement plan would be approved. Equally I anticipate ESCOSA would not approve a plan providing for a substantial reduction in the volumes of pipe to be replaced.

90 I am aware that AGN's revised proposal to the AER will seek an allowance to cover the cost of the mains replacement plan on the basis that ESCOSA will approve the revised plan.

91 In my opinion, having regard to my experience, my knowledge of the gas distribution businesses in Australia and abroad, and my technical expertise, compliance with either the current plan or a plan in the revised form is required to ensure AGN/APA discharge the obligations and requirements under section 55 of the Gas Act 1997 (having regard in particular to the application of AS 4645 given statutory force by that section), clause 5 of AGN's distribution licence and the *Work Health and Safety Act 2012* described above.

The National Gas Rules

92 I am aware of the test for the recovery of capital expenditure in the National Gas Rules under Rule 79. Specifically that:

"(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

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- (2) *Capital expenditure is justifiable if:*
- (a) *the overall economic value of the expenditure is positive; or*
 - (b) *the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or*
 - (c) *the capital expenditure is necessary:*
 - (i) *to maintain and improve the safety of services; or*
 - (ii) *to maintain the integrity of services; or*
 - (iii) *to comply with a regulatory obligation or requirement; or*
 - (iv) *to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity)."*

93 In my opinion, having regard to my experience, my knowledge of the gas distribution businesses in Australia and abroad, and my technical expertise, the mains replacement plan (as originally developed and as revised) meets this test. It is expenditure designed to maintain and improve the safety of services, to maintain the integrity of services, and to meet regulatory obligations and requirements, and therefore satisfies (2)(c)(i), (ii) and (iii).

94 In my opinion, again having regard to my experience, my knowledge of the gas distribution businesses in Australia and abroad, and my technical expertise, the mains replacement plan (as originally developed and as revised) represents expenditure which would be undertaken by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services. A prudent service provider would act so as to ensure its network complies with applicable laws and to reduce risks to safety from the network to a level as low as reasonably practicable. The costs underpinning the plan are based

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on tendered rates from the available contractors who have the skills to carry out the plan safely and to the required quality. The costs are therefore efficient.

The National Gas Objective

- 95 Further I consider the plan (as originally developed and as revised) meets the National Gas Objective as set out in the National Gas Law because the plan ensures the safety and reliability of the network both of which factors are in the long term interests of consumers. It does this at an efficient cost and therefore is consistent with the long term pricing interests of consumers.
- 96 In contrast the scale of mains replacement proposed by the AER in its draft decision does not, in my view, meet the National Gas Objective and does not allow full recovery of expenditure falling within rule 79. AGN's proposal is therefore materially preferable to the National Gas Objective and the AER's draft decision is not. This is because the AER's proposal does not provide for sufficient levels of mains replacement to ensure safety, security and reliability risks from mains are reduced to a level which is as low as reasonably practicable. Material risks to the safety, security and reliability of the network would be created by the failure to implement appropriate mitigation strategies.
- 97 That is, in my opinion the mains replacement plan as proposed by AGN will contribute to a far greater degree to servicing the long term interests of consumers (and therefore the National Gas Objective) than would the mains replacement proposed by the AER in the draft decision. This is because the AGN proposal will address the long term interests of consumers with respect to safety, security and reliability. The AER's proposed mains replacement plan does not adequately address these interests and indeed is detrimental to them.

Sworn by the above named Deponent

JOHN LESLIE FERGUSON at

On 5 January 2016.

Before me



ROBERT A WYND
Level 25/20 Bond St Sydney NSW
Legal Practitioner.



Health, Safety and Environment (HSE) Policy

At APA we aspire to provide a zero harm work environment. We are committed to the effective implementation of our HSE Policy and to the continual improvement in our HSE performance.

To achieve this APA Group will:

- Provide leadership and direction to drive accountability for our HSE performance.
- Document, implement and maintain an appropriate HSE Management System.
- Comply with applicable HSE legislation and best practice requirements to which APA Group subscribes.
- Establish and regularly monitor measurable objectives and targets to ensure continued improvement against established standards.
- Communicate HSE commitments and information to employees, contractors and other relevant stakeholders.
- Proactively seek to identify hazards and reduce the risk of injury and environmental harm by investigating all reported accidents, incidents and near misses promptly and taking appropriate actions to prevent a reoccurrence.
- Provide appropriate training, supervision, specialist support and other resources to HSE matters.
- Consult and engage with our employees and other stakeholders to build relationships based on our values for meeting the goals of our HSE Policy.
- Partner with companies having similar HSE standards and values as APA Group.
- Ensure processes are in place to protect the environment from harm.

General Responsibilities for Health, Safety & Environment

Every employee has an obligation to look after their own health and safety and the safety of those who may be affected by their acts or omissions. They must comply with APA Group's HSE policies and procedures, including safe work procedures and directions about safety. They must report all accidents, incidents and near misses.

All managers and supervisors are responsible for managing HSE in accordance with the Group Policy and our HSE Management System as an integral and mandatory duty of their position.

Contractors and sub-contractors have an obligation to look after their own health and safety and the safety of those who may be affected by their acts or omissions. They must have a system that complies with all applicable health, safety and environmental legislation and local site rules or with the APA Group HSE policies and procedures.

Mick McCormack – Managing Director / CEO

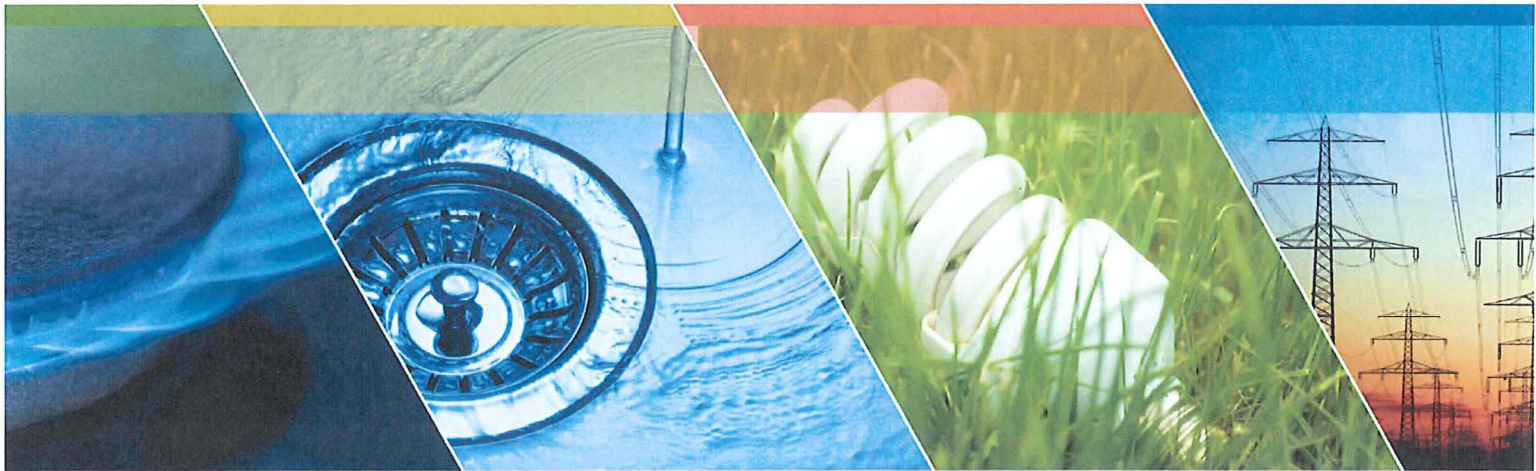


GAS DISTRIBUTION LICENCE

AUSTRALIAN GAS NETWORKS LIMITED (ACN 078 551 685)

Issued by the Technical Regulator on 16 September 1998

Last varied by the Essential Services Commission of South Australia on 16 December 2014



Variation History

AMENDMENT NUMBER	VARIATION DATE
1 ESCOSA	8/3/2004
2 ESCOSA	1/1/2005
3 ESCOSA	6/7/2006
4 ESCOSA	28/6/2007
5 ESCOSA	7/11/2007
6 ESCOSA	17/9/2010
7 ESCOSA	28/8/2013
8 ESCOSA	16/12/2014

The Essential Services Commission of South Australia is the independent economic regulator of the electricity, gas, ports, rail and water industries in South Australia. The Commission's primary objective is the *protection of the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services*. For more information, please visit www.escosa.sa.gov.au.

1 DEFINITIONS AND INTERPRETATION

- 1.1 Words appearing in italics like *this* are defined in schedule 1;
- 1.2 This licence must be interpreted in accordance with the rules set out in schedule 2.

2 GRANT OF LICENCE

- 2.1 The *licensee* is licensed under Part 3 of the *Act* to carry on the operation of the *distribution system*, as specified in schedule 3, subject to the terms and conditions set out in this licence.

3 TERM

- 3.1 This licence continues until:
 - (a) it is surrendered by the *licensee* under section 31 of the *Act*; or
 - (b) it is suspended or cancelled by the *Commission* under section 38 of the *Act*.

4 COMPLIANCE WITH APPLICABLE REGULATORY INSTRUMENTS

- 4.1 The *licensee* must comply with all *applicable regulatory instruments*, including any technical or safety requirements under the *Act* and the *Natural Gas (South Australia) Act 2008*.
- 4.2 The *licensee* must:
 - (a) monitor and report to the *Commission* on its levels of compliance with *local regulatory instruments* in accordance with the requirements of any applicable guideline issued by the *Commission*; and
 - (b) notify the *Commission* if it commits a material breach of any *local regulatory instrument* within 3 days of becoming aware of that breach.
- 4.3 The *licensee* must notify the *Commission* if it commits a material breach of any *national regulatory instrument* in accordance with the requirements of any applicable guideline issued by the *Commission*.

5 COMPLIANCE WITH GOOD GAS INDUSTRY PRACTICE

- 5.1 The *licensee* must use its *best endeavours* to conduct the operations authorised by this licence in accordance with *good gas industry practice* including, but not limited to, conducting the operations so as to:
 - (a) prevent death or injury to, persons or damage to property;
 - (b) minimise leakage of gas; and

- (c) account for the total amount of gas lost from the **distribution system** as a result of leakage or an activity referred to in section 82(1) of the **Act**.

6 AUDITS

- 6.1 The **licensee** must undertake periodic audits of the operations authorised by this licence and of its compliance with its obligations under this licence and any applicable **industry codes** in accordance with the requirements of any applicable **guideline** issued by the **Commission** for this purpose.
- 6.2 The **Commission** may require the costs of conducting audits under this clause 6 to be met by the **licensee**.

7 INFORMATION TO THE COMMISSION

- 7.1 The **licensee** must, from time to time as required by the **Commission** and in a manner and form determined by the **Commission**, provide to the **Commission**:
 - (a) details of the **licensee's** financial, technical and other capacity to continue its operations authorised by this licence; and
 - (b) such other information as the **Commission** may require.
- 7.2 The **licensee** must notify the **Commission** of any changes to its officers or major shareholders (if applicable) within 20 **business days** of that change.
- 7.3 The **licensee** must promptly notify the **Commission** of any significant reduction in its financial capacity which has potential to impact upon the **licensee's** ability to carry on the operations authorised by this licence.
- 7.4 Upon request, the **licensee** must provide the **Commission** with an accurate description and specification of the **distribution system** and its components and must promptly update that definition to reflect material changes to the **distribution system** or **gas infrastructure**.

8 SAFETY, RELIABILITY, MAINTENANCE AND TECHNICAL MANAGEMENT PLAN

- 8.1 The **licensee** must,
 - (a) prepare a safety, reliability, maintenance and technical management plan dealing with matters prescribed by regulation and submit the plan to the **Commission** for approval, including, a UAFG Plan comprised of (without limitation) a:
 - (i) Leakage Management Plan;
 - (ii) Asset Management Plan; and
 - (iii) Mains Replacement Plan;

- (b) annually review and, if necessary, update the plan to ensure its efficient operation, and submit the updated plan to the **Commission** for approval;
- (c) comply with the plan prepared in accordance with clause 8.1(a) and as updated from time to time in accordance with clause 8.1(b);
- (d) not amend the plan without the approval of the **Commission**; and
- (e) undertake annual audits of its compliance with its obligations under the plan and report the results to the **Technical Regulator**, in a manner approved by the **Technical Regulator**, and
- (f) prepare an annual report on performance against the approved UAFG Plan for public release.

9 CUSTOMER CONCESSIONS AND COMMUNITY SERVICE OBLIGATIONS

- 9.1 The **licensee** must comply with the requirements of any scheme approved and funded by the Minister for the provision by the State of **customer** concessions or the performance of community service obligations by the **licensee**.

10 CONFIDENTIALITY

- 10.1 The **licensee** must, unless otherwise required or permitted by law, this licence or an **industry code**:
- (a) comply with any rules determined by the **Commission** from time to time relating to the use of information acquired by the **licensee** in the course of operating the business authorised by this licence; and
 - (b) ensure that information concerning a **customer** is not disclosed without the **explicit informed consent** of the **customer**.
- 10.2 The **licensee** must not disclose confidential information to an intelligence or law enforcement agency unless requested to do so by an intelligence or law enforcement agency on the basis that:
- (a) disclosure is necessary under the terms of a warrant issued under Division 2 of the Australian Security Intelligence Organisation Act 1979 or under the terms of any other court order; or
 - (b) disclosure is reasonably necessary for the enforcement of the criminal law or of a law imposing a pecuniary penalty or for the protection of the public revenue; or
 - (c) disclosure is necessary to safeguard the national security of Australia.
- 10.3 The **licensee** may accept an assertion of an intelligence or law enforcement agency, without making further enquiry, for the purposes of clause 10.2(b) and clause 10.2(c).

10.4 The *licensee* must ensure that any information received from, or provided to, any related body corporate of the *licensee* holding a retail licence is only received or provided on non-discriminatory commercial terms.

11 VARIATION

11.1 This licence may only be varied in accordance with section 29 of the *Act*.

12 TRANSFER

12.1 This licence may only be transferred in accordance with section 30 of the *Act*.

This licence was issued by the **Technical Regulator** on 16 September 1998, varied by the **Technical Regulator** on 29 March 2001, 23 April 2001 and 5 November 2002 and varied by the **Commission** on 8 March 2004, 1 January 2005, 30 June 2006, 28 June 2007, 7 November 2007, 17 September 2010, 28 August 2013 and 16 December 2014.

THE COMMON SEAL OF)
THE ESSENTIAL SERVICES)
COMMISSION OF SOUTH)
AUSTRALIA was hereunto affixed)
by authority of the Chairperson)
and in the presence of:)



[Handwritten signature]
.....

Witness

16/12/14
.....

Date

SCHEDULE 1 – DEFINITIONS

In this licence:

Act means the Gas Act 1997;

AEMO means the Australian Energy Market Operator Limited (ACN 072 010 327)

applicable regulatory instruments means any *local regulatory instrument* or *national regulatory instrument*;

best endeavours means to act in good faith and use all reasonable efforts, skill and resources;

business day means a day other than a Saturday, Sunday or public holiday in South Australia;

Commission means the Essential Services Commission established under the *ESC Act*;

customer has the meaning given to that term in the *Act*, namely a person who has a supply of gas available from a system for consumption by that person, and includes:

- (a) the occupier for the time being of a place to which gas is supplied by a distribution system; and
- (b) where the context requires, a person seeking a supply of gas from a distribution system; and
- (c) a person of a class declared by regulation to be customers.

distribution system has the meaning given to that term in the *Act*;

ESC Act means the Essential Services Commission Act 2002 (SA);

Explicit informed consent is the consent provided by a *customer* where:

- (a) the customer provides express conscious agreement;
- (b) the relevant retailer has fully and adequately disclosed all matters relevant to that customer, including each specific purpose for which the consent will be used;
- (c) all disclosures referred to in clause (b) are truthful and have been provided in plain language appropriate to that customer;

Gas Distribution Code means the *industry code* of that name made by the *Commission* under section 28 of the *ESC Act*;

gas infrastructure means any part of the *distribution system*;

Gas Metering Code means the *industry code* of that name made by the *Commission* under section 28 of the *ESC Act*;

good gas industry practice means the exercise of that degree of skill, diligence, prudence and foresight that reasonably would be expected from a significant proportion of operators of gas distribution systems forming part of the Australian gas supply industry under conditions comparable to those applicable to the **distribution system** operated by the **licensee** consistent with **applicable regulatory instruments**, reliability, safety and environmental factors;

guideline means any guideline issued by the **Commission** under section 8 of the **ESC Act**;

industry code includes any **industry code** made by the **Commission** under section 28 of the **ESC Act**;

industry rule includes any **industry rule** made by the **Commission** under section 28 of the **ESC Act**;

licensee means Australian Gas Networks Limited (ACN 078 551 685);

local regulatory instrument means:

- (a) any Act or statutory instrument made under an Act which imposes obligations on the **licensee** in respect of the operations authorised by this licence and which is administered by the **Commission**; and
- (b) any **industry code**, **industry rule**, **guideline** or other regulatory instrument made by the **Commission**;

national regulatory instrument means any Act or statutory instrument made under an Act which imposes obligations on the **licensee** in respect of the operations authorised by this licence but which is not administered by the **Commission**;

Retail market procedures means the rules administered and published by AEMO;

retailer means a person holding a licence under the National Energy Retail Law for the sale and supply of gas;

small customer has the same meaning as is given to that term in the **Act**.

Technical Regulator means the person holding the office of the Technical Regulator under the **Act**.

SCHEDULE 2 – INTERPRETATION

In this licence, unless the context otherwise requires:

- (a) headings are for convenience only and do not affect the interpretation of this licence;
- (b) words importing the singular include the plural and vice versa;
- (c) words importing a gender include any gender;
- (d) an expression importing a natural person includes any company, partnership, trust, joint venture, association, corporation or other body corporate and any governmental agency;
- (e) a reference to a person includes that person's executors, administrators, successors, substitutes (including, without limitation, persons taking by novation) and permitted assigns;
- (f) a reference to any statute, regulation, proclamation, order in council, ordinance or bylaw includes all statutes, regulations, proclamations, orders in council, ordinances or by-laws varying, consolidating, re-enacting, extending or replacing them and a reference to a statute includes all regulations, proclamations, orders in council, ordinances, by-laws and determinations issued under that statute;
- (g) a reference to a document or a provision of a document includes an amendment or supplement to, or replacement or novation of, that document or that provision of that document;
- (h) an event which is required under this code to occur on or by a stipulated day which is not a *business day* may occur on or by the next *business day*.

SCHEDULE 3 – LICENCED OPERATIONS

- (a) The ***distribution system*** used by the ***licensee*** to carry on the business of transporting natural gas at the commencement of this licence (in as far as that system constitutes a ***distribution system*** for the purposes of the ***Act***); and
- (b) Any extension to that ***distribution system***; and
- (c) A new ***distribution system*** (that does not extend from that system) approved by the ***Commission***.

