



ACT
Government

UTILITIES TECHNICAL REGULATION ANNUAL COMPLIANCE REPORT 2017-18

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MAIN: INNER NORTH RETICULATION NETWORK DICKSON STORMWATER; SMALL: URBAN POWERPOLE;
SMALL: COTTER PIPELINE, PHOTO CREDIT ICON WATER.

1. INTRODUCTION

1.1 TECHNICAL REGULATION

The Utilities Technical Regulation Team (UTR) within Access Canberra operates under the *Utilities (Technical Regulation) Act 2014* (the Act). The statutory office holder under the Act is the Technical Regulator, a role held by the Director-General of the Environment, Planning and Sustainable Development Directorate. The Technical Regulator reports to the Minister for Climate Change and Sustainability.

The objects of the Act are to:

- ensure the safe, reliable and efficient delivery of regulated utility services
- promote the long-term serviceability of regulated utility networks and services
- promote design integrity and functionality of regulated utility networks
- ensure the safe and reliable operation and maintenance of regulated utility networks and regulated utility services to protect:
 - > the public
 - > people working on regulated utility networks and regulated utility services
 - > property near regulated utility networks and regulated utility services
 - > the environment.

Regulated utility services include services delivered by licensed utilities; as well as small and medium scale electrical generation, registrable dams, some district energy services and regulated utility services prescribed by the Minister.

1.2 LICENSED UTILITY PROVIDERS

Within the Australian Capital Territory (ACT), utilities are licensed by the Independent Competition and Regulatory Commission (ICRC) under Part 3 of the *Utilities Act 2000*. Licensed utilities operating in the ACT during 2017–18 included:

- Electricity Transmission
 - > TransGrid
- Electricity Transmission, Distribution and Connection
 - > Evoenergy
- Gas Transmission
 - > East Australian Pipeline Limited
- Gas Distribution and Connection
 - > Evoenergy
- Water and Sewerage Supply
 - > Icon Water Limited

No additional utilities were licensed in the ACT during 2017–18.



STROMLO WATER TREATMENT PLANT - PHOTO CREDIT ICON WATER

1.3 UTILITY COMPLIANCE

While there were areas of non-compliance with various technical codes by regulated utilities during 2017–18, none were deemed serious enough to warrant the issue of a direction by the Technical Regulator under section 18 of the Act. Important issues identified in this report that will be closely monitored by the Technical Regulator include:

- **Electricity** - deficiencies in the general accuracy and quality of data provided by Evoenergy across a number of areas, including incident reporting and safety management.
- **Gas** - deficiencies in the timeliness, accuracy and quality of data reported by Evoenergy in the areas of incident, asset, leakage, customer location and metering equipment data.
- **Water** - inability to deliver full fire flows to some customers under all operating circumstances.
- **Dams** - adequacy of demonstration of the safety of some Icon Water Dams and Transport Canberra and City Services (TCCS) dams.

The Act requires that operating certificates be issued by the Technical Regulator for unlicensed regulated utility services provided in the ACT. Unlicensed utilities include solar farms, the Inner North Reticulation Network (INRN, an existing recycled water network), registrable dams not owned by a licensed utility and the light rail network.

The Technical Regulator had no compliance issues with unlicensed utilities during the reporting period. Both Icon Water (licensed) and TCCS (unlicensed) have provided UTR with programs demonstrating how they plan to transition to full compliance with the Dam Safety Code 2018 within the period permitted by the code.

2. LEGISLATION AND POLICY

2.1 NEW LEGISLATION ENACTED DURING 2017–18

2.1.1 UTILITIES (TECHNICAL REGULATION) REGULATION 2017

Some minor changes were made to the **Utilities (Technical Regulation) Act 2014** as part of the omnibus planning, building and environment legislation amendment bill. These included introducing the Utilities (Technical Regulation) Regulation 2017, which changes the lower limit of small or medium scale generation from 30kW to 200kW. As a result of this amendment, generators from 30kW to 200kW will not be required to hold an operating certificate. This aligns the legislation with current industry standards for what is considered small scale generation. The previous limit of 30kW meant that large scale residential solar installations feeding into the electricity grid were captured by the definition of a 'regulated utility service' and would require an operating certificate under the Act.

2.1.2 ELECTRICITY NETWORK BOUNDARY CODE

The Electricity Network Boundary Code 2017 replaced the Electricity Network Boundary Code 2013 under the *Utilities Act 2000*. It provides further explanation regarding connections between an electricity distribution network and a customer's premises. It ensures proper definition of network boundaries between a transmission network and an electricity network; the boundary between an electricity network of one person and the electricity network of another person where those networks are connected; and the boundary between an electricity distributor's electricity network and a customer's premises.

2.1.3 WATER AND SEWERAGE NETWORK BOUNDARY CODE

The Water and Sewerage Network Boundary Code 2018 replaced the Water and Sewerage Network Boundary Code 2013 under the *Utilities Act 2000*. It defines the boundary between water network utilities; water networks and customers' premises; sewerage utilities; and sewerage utilities and a customer's premises.

2.1.4 DAM SAFETY CODE

The Dam Safety Code 2018 replaced the Dam Safety Code 2014 under the *Utilities Act 2000* on 28 June 2018. It extends regulation of dams in the ACT to 'registrable' dams that the Technical Regulator has determined to present a risk of significant adverse effects on the community in the event of failure of a dam. These are known as 'listed' dams. The purpose of regulating 'listed' dams is to ensure they are designed, constructed and maintained to standards set by the Australian National Committee on Large Dams (ANCOLD). This regulation enables dam owners to systematically demonstrate the continuing safety of their dams against the nationally recognised standard for dam safety.

2.2 UTILITY CODE REVIEW PROGRESS

Following the commencement of the Act on 28 November 2014, a major focus of UTR has been a thorough revision of technical codes approved under the Act.

Revision of the codes spans each of the licensed utility sectors (electricity, gas and water), with the objective of rationalising existing disparate and contradictory codes and incorporating consistency of general requirements across all sectors. Provision will be made for sector-specific requirements where appropriate. UTR specifically recognises the opportunity of working with industry to create a new regulatory framework that seeks to meet the following objectives:

1. Preserve and promote community safety, reliability of service and integrity of the network, both now and over an extended horizon.
2. Establish a clear and robust compliance framework (including technical and performance standards).
3. Promote best practice in utility management for the full life cycle of the assets.
4. Provide confidence that utility, safety and environmental obligations are being met.
5. Provide clear utility reporting requirements for safety, technical and performance of the network and utility services.
6. Support and reinforce objects and obligations under the Utilities Act 2000 and the *Utilities (Technical Regulation) Act 2014*.

The revision of the codes also seeks to address the following current codes' structural issues:

1. Rationalise existing outdated and contradictory codes into single utility sector codes.
2. Consolidate and create consistency of general requirements across utility sector codes.
3. Provide sector specific requirements where necessary.
4. Address current code framework problems:
 - a. Insufficient regulatory coverage—missing codes and gaps in existing codes.
 - b. Outdated requirements, e.g. technical standards and references within existing codes.
 - c. Unclear performance and reporting requirements.

During the reporting period UTR completed a first draft of the Gas Technical Code and issued the 15 parts (chapters) to Evoenergy for review and comment. UTR and Evoenergy also commenced informal consultation through a program of review meetings for the purpose of discussing the respective parts of the draft code. UTR's major focus for the next period is to complete the informal consultation with Evoenergy and Icon Water required to develop the code.

3. ELECTRICITY UTILITY PERFORMANCE – EVOENERGY

Electricity utility services are provided to the ACT via TransGrid, the transmission service provider, which supplies Evoenergy as the distribution service provider.

UTR holds concerns regarding the general accuracy and quality of data provided by Evoenergy, which raises doubt about the adequacy of Evoenergy's network management systems and appropriateness of some operational responses. Areas of concern include incident reporting, safety management, asset management, embedded generation, power quality and reliability.

Evoenergy has acknowledged some deficiencies, and has undertaken to enhance some of their systems such as those for condemned poles, PV generators and power quality.

Additionally, an audit of Evoenergy's safety plan—focused on earthing, safety reporting, and training—revealed substantial deficiencies.

Acknowledging Evoenergy undertook an audit of its Safety Management and Asset Management Systems during 2017–18, Evoenergy has committed to undertake an independent broader Electricity Network Safety Management System (ENSMS) audit during 2018–19.

Evoenergy's performance in delivering electricity distribution services during 2017–18 was satisfactory, however some aspects of the utility's performance did not fully comply with technical code requirements. This report focuses on the more salient performance issues.

3.1 NOTIFIABLE INCIDENTS

Evoenergy reported the following notifiable incidents during 2017–18:

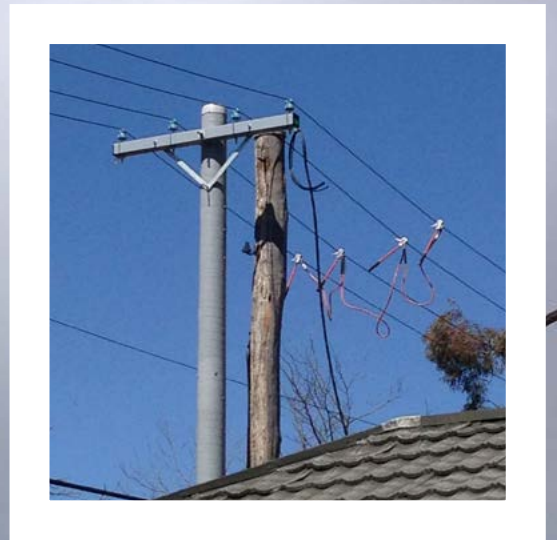
Table 1: Notifiable Incidents

	2015-16	2016-17	2017-18
Deaths	0	0	0
Dangerous incidents includes:	53	59	73
Fires	17	16	8
Electric Shocks	36	43	64
Serious Property Damage	13	0	0
Serious Environmental Damage	3	0	0
Total Notifiable Incidents	69	59	73

The noted number of electric shocks (64 in a portfolio of 200,000 consumer connections) is due to consumer appliance defects and utility network neutral defects.

UTR has identified that while 12 of the electric shock incidents were caused by or related to utility network issues, the majority of electric shocks reported by Evoenergy to UTR were caused by faults with consumer appliances or installations.

UTR and Evoenergy are working together to improve the clarity of reporting requirements to ensure the reporting and investigation of incidents meets the requirements of the Act, as well as improving measures to avoid their occurrence.



MAIN: EVOENERGY POWERPOLE IN URBAN AREA, ABOVE: EVOENERGY POLE REPLACEMENT PROGRAM

3.2 POLE INSPECTION AND MAINTENANCE

Table 2: Condemned power poles in Evoenergy Network

	2013-14	2014-15	2015-16	2016-17	2017-18
Total number poles	50,911	50,704	50,683	50,319	50,574
Distribution	49,442	49,234	49,206	48,846	49,101
Transmission	1,469	1,470	1,477	1,473	1,473
Number of poles tested	16,243	11,103	13,501	12,521	13,419
Distribution	16,042	10,695	13,365	11,945	13,198
Transmission	201	408	136	576	221
Number of poles condemned	1,547	837	1,091	834	436
(as a % of poles tested)	(9.5%)	(7.5%)	(8.08%)	(6.66%)	(3.25%)
Distribution	1,547	837	1,074	773	436
Transmission	0	0	17	61	0
Number of condemned poles replaced or remediated during year	1,225	1,520	1,106	1,163	612
Distribution	1,211	1,510	1,106	1,162	610
Transmission	14	10	0	1	2
Number of condemned poles not replaced or remediated within required 12/24 months period.	934	51	33	135	51
Distribution	911	43	33	135	51
Transmission	23	8	0	0	0
Dangerous poles and pole failures (requires urgent action)	No data	No data	8	4	0
Distribution	-	-	8	3	0
Transmission	-	-	0	1	0

A key risk factor to Evoenergy's operations and the community is the structural integrity of their power poles. To control this risk Evoenergy has a rolling condition testing program for power poles. The purpose of the program is to confirm that poles in their network remain safe (structurally adequate). 'Condemned' poles are deteriorated poles that represent an increased risk to public safety and supply continuity. Evoenergy procedures require that condemned poles are replaced or remediated within 12 months for distribution poles and 24 months for transmission line poles. This procedure is based on the assessment by Evoenergy that, if left for a longer period, the risk to the community from a falling pole becomes unacceptable.

Advice provided by Evoenergy and summarised in **Table 2** indicates that during 2017–18 its timeliness to attending to condemned poles has improved, thereby reducing the number of distribution poles not remediated or replaced within 12 months from 135 to 51.



PRIVATE POLE

3.3 VEGETATION MANAGEMENT

UTR held no concerns regarding Evoenergy's vegetation management activities during the reporting period. Evoenergy continued to work with UTR toward the transfer of vegetation management responsibilities on unleased urban land from TCCS to Evoenergy, and the strengthening of Evoenergy's responsibilities around private powerpoles on rural land.

The Legislative Assembly passed the *Utilities (Technical Regulation) Amendment Bill 2017* in October 2017, which transferred management of vegetation near powerlines on unleased land in the urban area from the ACT Government (Transport Canberra and City Services) to Evoenergy from 1 July 2018. The legislative changes also formalised Evoenergy's responsibility for managing vegetation in rural areas including for privately owned poles on rural leased land and in national parks and reserves.

The amendments define the responsibility for vegetation clearances and maintenance work across all areas of the ACT and address some key ongoing issues that had been highlighted under the Emergency Services Agency's Strategic Bushfire Management Plan 2014–19 regarding reduction of ignitions from electrical infrastructure and clarity of responsibility in rural areas. The Electricity (Powerline Vegetation Management) Code 2018 was also developed during the reporting period to establish good tree pruning practices and outline requirements for technical modifications that aim to reduce bushfire risk. The code applies to Evoenergy as the ACT's Distribution Network Service Provider.

3.4 PHOTOVOLTAIC ELECTRICITY GRID PROTECTION REQUIREMENTS

Privately owned solar panels have been installed widely throughout the ACT over the past 10 years. Photovoltaic (PV) inverters are an essential component of all these installations and automatically operate to disconnect PV-generated electricity supply from the Evoenergy electricity network if supply from the grid is disrupted for any reason.

To ensure the safety features of inverters continue to operate satisfactorily in the event of a power failure in the Evoenergy grid, the Electricity Service and Installation Rules require inverters to be tested every five years to ensure they are functioning correctly and will not cause a safety hazard for maintenance staff.

Evoenergy has advised there are now 21,432 PV installations in the network as shown in **Table 3**.

Evoenergy has advised that PV Inverter re-test reminders have been sent to customers with PV installations over five years old as per **Table 4**.

It is estimated that the condition of approximately 6500 PV installations is unknown. If faulty, they are a potential safety hazard for maintenance staff.

Evoenergy has considered this safety hazard and resolved that if a customer fails to respond after a third reminder then their PV installation should be disconnected from the electricity network.

UTR will continue to monitor progress regarding this management strategy to ensure the safety risk to Evoenergy maintenance staff is minimised. Although an ACAT hearing found that Evoenergy was authorised to disconnect a particular solar system that had not been tested, during the 2017–18 reporting period Evoenergy did not disconnect any customer's PV installation.

Table 3: Photovoltaic inverters (PV) connected to the electricity network

YEAR	NUMBER OF PV SYSTEMS CONNECTED EACH YEAR
2017-18	3,101
2016-17	1,408
2015-16	1,113
2014-15	1,975
2013-14	1,886
2012-13	1,328
2011-12	1,850
2010-11	6,120
2009-10	1,830
2008-09	495
2007-08	244
Prior to 2007-08	82
Total installed	21,432

Table 4: PV Inverter customer re-test reminders sent by Evoenergy and customer responses

	PRIOR TO 2017-18*	2017-18	TOTAL
Number of re-test reminders sent by Evoenergy to customers with PV installations over 5 years old.	9,502	2,017	11,519
Test reports received by Evoenergy	3,991	1,831	5,822
Number of PV Installations Disconnected for non-compliance with testing requirement	0	0	0
Number of PV Installations older than 5 years	10,999	1,328	12,327
Number of untested in-service PV Installations older than 5 years**.	7,008	***	***

* This historical information now incorrect due to Evoenergy data errors.

** Does not allow for any PV Installations that may have been removed from service as this information is not available.

*** Not available due to incomplete data supplied by Evoenergy.

3.5 QUALITY OF SUPPLY ANNUAL SURVEY

The Electricity Distribution (Supply Standards) Code requires Evoenergy to report annually on quality of supply parameters within its network, as referenced in the code. There has been a significant increase in the number of sites where power quality monitoring has been undertaken and significant improvement in the techniques used. However UTR continues to have concerns about the number of non-compliant sites, with 47% requiring remedial action due to overvoltage during 2017-18 due to Evoenergy's inadequate voltage management techniques—see **Table 5**.

However, Evoenergy has now developed a management plan to address power quality issues. UTR is continuing discussions with Evoenergy regarding its power quality monitoring and management program, and will undertake an audit in 2018-19.

Table 5 summarises survey results for the past five years and shows the percentage of overvoltage at surveyed sites. Overvoltage can cause premature equipment failure and possibly injuries. More effective management of this issue by Evoenergy is required to improve performance and compliance.

3.6 DEFECTIVE NEUTRAL

Defective neutrals can be hazardous and cause electric shock. They are of concern because they increase the risk of personal injury and equipment damage.

It is encouraging to report that the number of neutral defects reported in 2017-18 has continued to decrease, as shown in **Table 6**.

3.7 RELIABILITY INDICATORS

The Electricity Distribution (Supply Standards) Code sets supply reliability targets for Customer Average Interruption Duration per interruption (CAIDI), Interruption Frequency (SAIFI), and System Average Interruption Duration per customer (SAIDI).

The target for SAIFI was met but, as shown in **Table 7**, the CAIDI and SAIDI targets were not met. CAIDI is considered a secondary reliability indicator, and therefore a minor non-conformance.

The results indicate that compared to last year customers experiences supply interruptions less frequently but for a longer duration.

Evoenergy has advised that a side effect of its management system, which models the low voltage network to a customer connection point, is that it includes reporting on planned outages that are customer requested. This represents the Evoenergy network as being less reliable from a planned outage perspective. There were five customer-requested outages in 2017–18 that contributed to one third of the total planned outage SAIDI (which represents approximately 18% of total outages, planned and unplanned).

Table 5: Quality of Supply

	2013-14	2014-15	2015-16	2016-17	2017-18
Number of sites where voltage levels were proactively surveyed	40	44	19	55	145
Number of proactively surveyed sites requiring remedial action due to overvoltage	10 (25%)	25 (57%)	8 (42%)	20 (36%)	68 (47%)
Number of Customer high voltage complaint initiated surveys	26	Unknown	21	24	41
Number of valid customer complaints	10 (38%)	Unknown	17 (81%)	22 (92%)	39 (95%)

Table 6: Defective Neutrals

	2014-15	2015-16	2016-17	2017-18
Defective neutrals	65	39	28	18

Table 7: Electricity Supply Reliability

PARAMETER	TARGET	2013-14	2014-15	2015-16	2016-17	2017-18
Interruption Duration per outage(CAIDI) minutes	74.6	98.9	100.3	85.71	92.84	126.72
Interruption Frequency (SAIFI) Number	1.2	0.69	0.82	0.92	0.90	0.79
Interruption Duration per customer (SAIDI) minutes	91	67.8	82.5	79.04	83.74	99.97



TRANSMISSION TOWER

3.8 EMERGENCY PLANNING

During 2017–18 Evoenergy submitted its annual update of the Electricity Networks Emergency Management Plan as required by the Emergency Planning Code.

The plan submitted integrates with Evoenergy's Crisis and Emergency Management Framework and was accepted as meeting the code requirements.

3.9 SAFETY

In late 2017–18 an independent audit was undertaken of Evoenergy's earthing, safety reporting and training. The draft findings included concerns in each area covered by the audit and identified 36 major non-conformances across the three key reporting areas of earthing, safety reporting methods and training.

UTR is continuing discussions with Evoenergy regarding the audit findings and implementation of the auditor's recommended actions to address the non-conformances.

At UTR's request, Evoenergy has also committed to undertake an independent audit of their Electricity Network Safety Management System.

4. ELECTRICITY TRANSMISSION SERVICE PROVIDER PERFORMANCE – TRANSGRID

Following approval of the Electricity Transmission Supply Code in 2016, TransGrid has been working with Evoenergy and the ACT Government toward delivery of a geographically separate transmission supply point for the ACT, the Stockdill Substation, by 31 December 2020.

A requirement of the code is the establishment of interim procedures governing contingency planning following a special contingency event occurring prior to completion of the separate transmission supply. In consultation with UTR, TransGrid submitted a satisfactory Supply Security Status Report as required for 2018 and worked with Evoenergy in developing a simulation exercise for restoration of supply to the ACT should a special contingency event occur.

4.1 PERFORMANCE STATISTICS AND NOTIFIABLE INCIDENTS

Table 8: TransGrid Performance Statistics and Notifiable Incidents

TRANSGRID PERFORMANCE STATISTICS	2016-17	2017-18
Energy not served events (reliability)	Nil	Nil
Major asset failures		
Tested	Nil	Nil
Secondary	Nil	1
Number of Poles/Towers		
Owned	407	407
Due for Test/Inspection	406	407
Tested/Inspected	406	407
Condemned	Nil	Nil
Number of Vegetation		
Encroachments	5	16
Encroachments not cleared prior Bushfire Season	Nil	Nil
NOTIFIABLE INCIDENTS		
Death of a person	Nil	Nil
Dangerous Incidents		
Fires	Nil	Nil
Electric Shocks	Nil	1
Public Injuries	Nil	Nil
Worker & Contractor injuries	Nil	Nil
Serious Property Damage	Nil	Nil
Environmental breaches	Nil	Nil

5. GAS UTILITY PERFORMANCE – EVOENERGY

Evoenergy's performance in the provision of gas utility services was largely satisfactory during the 2017–18 reporting period.

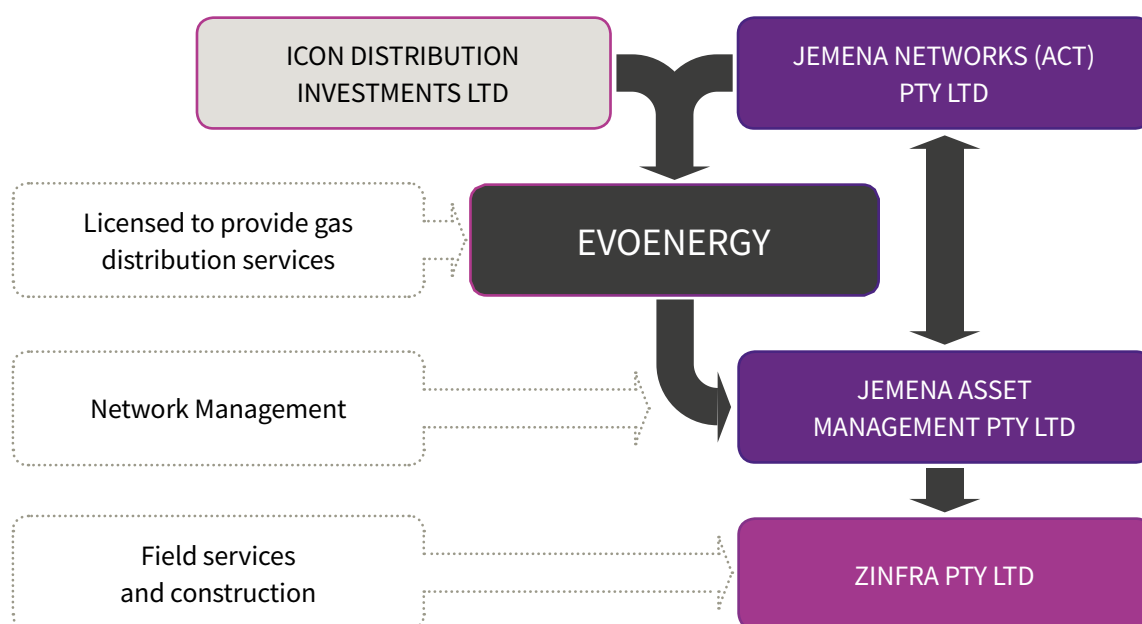
UTR acknowledges Evoenergy's improvements in compliance with and application of relevant technical standards during the reporting period. It is noted, however, that some asset management matters require continued focus (specifically with respect to data and records management).

Evoenergy reported being compliant with its licence to provide gas distribution and connection services under the *Utilities Act 2000* for the reporting period and being compliant to code requirements under the *Utilities (Technical Regulation) Act 2014*.

5.1 OWNERSHIP AND OPERATION OF THE ACT GAS DISTRIBUTION NETWORK

Evoenergy is a partnership between Jemena Networks (ACT) Pty Ltd and Icon Distribution Investments Ltd. Evoenergy manages the ACT's gas distribution network, which comprises over 4,700 kilometres of network. Evoenergy's gas network asset management functions are provided under contract by Jemena Asset Management Pty Ltd (JAM). JAM in turn has a service agreement with Zinfra Pty Ltd for the provision of operations, field services and network construction activities. See **Figure 1**.

Figure 1: Evoenergy gas distribution network structure





FYSHWICK NATURAL GAS TRUNK REGULATOR STATION

5.2 NOTIFIABLE INCIDENTS

Evoenergy reported two dangerous incidents during the reporting period 2017–18, neither involving injury to a person:

The first incident involved civil excavation activities associated with the relocation of a high pressure 150mm steel gas main along Ashley Drive/Johnson Drive in Richardson. The incident duration was two hours.

The second incident involved Zinfra undertaking civil excavation adjacent to a 32mm medium pressure gas main located on Soward Way in Greenway. The incident duration was 2.5 hours.

As reported in the previous Annual Compliance Report (2016–17), a dangerous incident occurred on a 450mm steel pipeline located at the intersection of Northbourne Avenue and Rudd Street, Canberra. This gas main is located within Canberra's central shopping area and runs parallel to the Capital Metro light rail alignment along Northbourne Avenue.

UTR expressed concerns regarding the integrity of this steel gas main due to the development of a rust hole that allowed the loss of gas containment.

Evoenergy undertook to perform 'condition inspections' as opportunities arose from the light rail construction works. Such condition inspections involve exposing sections of the pipeline together and completing inspections of the gas main.

Evoenergy provided project updates, commencing with:

- 8 November 2016—initial incident notification
- 20 April 2017—proposed repair plan
- 11 May 2017—updated correspondence

While UTR did not receive a condition report on the pipeline during the reporting period, Evoenergy has provided a 'close out' report in the current period (on 22 November 2018). This report is under review by UTR.

5.3 SAFE GAS METERING

As previously reported, UTR continues to hold safety concerns around domestic gas meter set installations located inside buildings completed prior to July 2014.

As part of an ongoing review into the safety of gas meter installations UTR commissioned an independent engineering review into the safety and risks associated with installation of domestic gas meters inside residential apartments. This review's findings reported that gas metering equipment located inside the apartments elevated the safety risk for residents, potentially creating hazardous environments where there is insufficient air exchange.

In response to the findings of the UTR report, Evoenergy (via Jemena) commissioned their own independent engineering firm to undertake a peer review of the results of UTR's independent engineering report.

In order to verify input assumptions used in the UTR review, Evoenergy commenced an asset condition inspection program of all gas meters located inside residential apartments. This inspection program is to confirm the condition of this asset class. Some 1300 domestic gas meter set installations across the ACT are programmed for inspection. This inspection program is currently underway and is targeted for completion early 2019.

On completion of the above, a response from Evoenergy with the findings will be provided for review by UTR. Subsequently, amendments to the Gas Service and Installation Rules Code will be considered.

5.4 COMPLIANCE TO EXISTING CODES

5.4.1 GAS NETWORK BOUNDARY CODE

Evoenergy reported no breaches of the Gas Network Boundary Code during the reporting period.

5.4.2 GAS—SAFETY AND OPERATING PLAN CODE

The most recent Evoenergy Safety and Operating Plan (SaOP) approved by the Technical Regulator was in 2015. Evoenergy submitted updated SaOPs to UTR in both 2016 and 2017. On review of both submissions, Evoenergy was requested to address a number of issues that had not been incorporated into the SaOP submissions. Specifically, issues relating to gas meter maintenance remain outstanding. These meter maintenance issues are the subject of a current technical review as discussed above (section 5.3). This review shall inform future metering maintenance requirements and, on completion, appropriate maintenance requirements are to be included in the SaOP.

During the reporting period, Evoenergy submitted a revised SaOP (2018), noting it is a new form. This new form of SaOP reflected a change in approach with a move to a 'Safety Case' model. The new SaOP was submitted to UTR accompanied by an independent audit report and certificate of conformance. The certificate of conformance issued by the independent auditor states the new SaOP 'generally' conforms to the requirements of the Safety and Operating Plan Code.

UTR will complete a review of the new SaOP for the purpose of confirming code compliance during the current reporting period.

5.4.3 EMERGENCY PLANNING CODE

Evoenergy submitted its annual update of the Gas Networks Emergency Management Plan (plan) as required by the Emergency Planning Code 2011. The plan was accepted by UTR as providing the coverage intended by the code.

5.4.4 GAS SERVICE AND INSTALLATION RULES CODE

Evoenergy reported being compliant with the Gas Service and Installation Rules Code for the reporting period.

During the reporting period UTR prepared a draft update of the Gas Service and Installation Rules Code 2014 (GS&I Rules Code). This draft seeks to address safety concerns associated with existing gas metering equipment located inside residential apartments.

Following the completion of the joint UTR and Evoenergy independent engineering review into the above safety concerns, a final draft GS&I Rules Code will be prepared and issued for consultation.

Evoenergy's existing GS&I Rules continue to assist with improving the quality, compliance and gas meter installation practices, demonstrating Evoenergy's commitment to consumer safety.



5.5 GAS METERING

5.5.1 GAS METER MAINTENANCE

Evoenergy reported being compliant with meter management requirements during the reporting period.

As part of an engineering review into the safety concerns associated with domestic gas meters located inside residential apartments, UTR requested a listing of all domestic gas meters located within apartments in the ACT from Evoenergy. This data identified a number of domestic gas meters located in bedrooms inside apartments. The Technical Regulator sought the immediate relocation of nine non-compliant gas meter sets by Evoenergy. All nine domestic gas meter sets were relocated by Evoenergy.

5.5.2 AGED GAS METER TESTING AND REPLACEMENT

Evoenergy undertook a review of meter populations reaching the end of their 15 year in-service life. These aged meter populations may be tested, via sample testing, for assessment as to whether their performance (e.g. accuracy and integrity) supports an extension of their in-service life ('life extension').

Testing was undertaken in accordance with AS 4844: 2006 Gas meters—in-service compliance testing.

Evoenergy provided UTR a Domestic and Industrial and Commercial Meter Life Extension Report detailing the methodology used and justification for extending the operational life of compliant domestic gas meters by five years beyond their 15 year life.

As a result, aged meter replacements and/or life extensions have been specified in the Evoenergy meter management program.

5.6 ASSET MANAGEMENT

5.6.1 NETWORK CAPACITY

Evoenergy confirmed the network's capacity and supply performance as being satisfactory.

Evoenergy's network pressure gauging programs indicated no immediate supply issues in the network, with pressures at network terminal points being above the required minimum pressures.

5.6.2 GAS LEAKAGE SURVEY

Evoenergy reported low levels of network mains leakage, as a result of its annual network leakage survey program. Survey results also indicated that the number and severity of leaks at meter installations identified are also low, being consistent with the previous five years of reporting.

However, there is a question over some of the leakage survey program and data completeness and accuracy, for example a number of new suburbs (e.g. Crace, Coombs etc.) have an operating network which is of an age for inclusion into the leakage survey program yet has not been included. UTR would expect that such suburbs will appear in the leakage survey program for the next period.

5.6.3 PIPELINE PROTECTION—CATHODIC PROTECTION

Evoenergy reported as being compliant with the protection criteria under AS2832.1 Cathodic protection of metals for Cathodic Protection Systems (CP) and CP performance during the reporting period.

CP systems are required for the ongoing integrity and protection of the steel network.

The Canberra light rail infrastructure remains identified as a risk to the CP system within the light rail corridor. UTR and Evoenergy continue to work with Canberra Metro and associated stakeholders for the purpose of ensuring controls are in place where required to mitigate impacts on the CP.

5.7 ASSET RECORDS, DATA AND RECORDS MANAGEMENT

UTR continues to hold reservations about the quality and availability of Evoenergy asset information. This view stems from the less than satisfactory availability of timely and accurate asset information, for example:

- availability of gas metering location data, e.g. requiring UTR to make multiple requests of Evoenergy to supply the necessary location data to enable the gas metering equipment safety review to be undertaken
- accuracy of mains data due to significant variations in total mains lengths reported per suburb year on year
- completeness and accuracy leakage survey program data, as discussed under section 5.6.



COMMERCIAL GAS METER SET

6. GAS TRANSMISSION PERFORMANCE – APA GROUP

East Australian Pipeline Limited (EAPL, a wholly owned subsidiary of APA Group) is licensed for one of two transmission pipelines entering the ACT. APA Group operates and maintains, on behalf of EAPL, the Moomba to Sydney pipeline system, including the Dalton to Canberra spur line.

In conjunction with the UTR annual compliance reporting, APA Group also submits a comprehensive annual report to the NSW Regulator for the Sydney to Moomba pipeline, which includes the Dalton to Canberra licensed spur line performance information.

APA Group's performance in the operation, maintenance and supply management of the Dalton to Canberra licensed spur line for the reporting period was considered by UTR as satisfactory.

6.1 NOTIFIABLE INCIDENTS

APA Group reported no serious gas accidents or incidents during the reporting period.

As a part of its commitment to public safety APA Group undertakes routine landholder and local council gas safety awareness programs. These programs seek to mitigate the occurrence of serious gas accidents or incidents.

APA Group also continues to monitor activities on, over and near the pipeline easement via aerial and land patrols to protect the pipeline from third party activities that may have the potential to impact the pipeline's integrity or operation.

6.2 GAS SAFETY AND OPERATING PLAN

The Gas Safety and Operating Plan Code 2000 requires APA Group to prepare and periodically update a Safety and Operating Plan (SaOP).

APA Group utilises the Pipeline Management System (PMS) within the Australian Standards (AS 2885 Pipelines—Gas and Liquid Petroleum) as the basis for satisfying the requirements of this code. APA Group's PMS details how APA Group safely operates and manages gas transmission assets.

6.3 EMERGENCY PLANNING

APA Group has a national emergency planning model to cover multi-jurisdictional requirements. APA Group's Transmission National Emergency Response and Security Manual (320-MN-ER-0001) is accepted by UTR as meeting the requirements intended by the *ACT Emergency Planning Code*.



LOWER MOLONGLO WATER QUALITY CONTROL CENTRE – PHOTO CREDIT ICON WATER

7. WATER UTILITY PERFORMANCE – ICON WATER

7.1 NOTIFIABLE INCIDENTS

Icon Water reported two notifiable incidents during 2017–18:

→ **Cross connection of the raw (untreated) water and potable water networks at the Mount Stromlo Water Treatment Plant (WTP)**

This resulted in the supply of raw water to customers in a small section of the potable water network. The risk to the public posed by the cross connection incident was low. However, it was the third similar incident in 18 months. Following this latest incident Icon Water has completed modifications to the network assets and revised its procedures to minimise the likelihood of a further unplanned cross connection of its networks occurring.

→ **Failure of the ultraviolet disinfection (UV) system at Mt Stromlo WTP**

The failure of the UV system at Mount Stromlo was the result of a voltage transient damaging the WTP electrical control system. It was caused by a nearby lightning strike during a day where Canberra experienced a series of significant thunderstorms. The Icon Water response demonstrated that its water treatment facilities are robust and the actions of Icon Water's management were appropriate to ensure that the supply of potable water to Canberra was maintained.

7.2 EMERGENCY PLANNING

During 2017–18 Icon Water submitted updates of the draft Water Supply and Sewerage Emergency Management Plan and Dam Safety Emergency Plans as required by the Emergency Planning Code and the Dam Safety Code. The plans integrate with Icon Water's Emergency Management System (EMS) and were accepted as meeting requirements of the applicable codes.

7.3 DAM SAFETY

Icon Water is licensed to provide water services in accordance with Section 11 of the *Utilities Act 2000* and so does not require an operating certificate for its dams. In order to meet its supply obligations Icon Water operates and maintains a water network including multiple water storages. Nineteen of the water storages are also 'registrable' dams as defined in Part 8 of the Act.

As at 30 June 2018 only five of Icon Water's registrable dams (i.e. Bendora, Corin, Cotter, Googong and Lower Molonglo Dams) had been 'listed' in accordance with Sections 69 and 70 of the Act. These are dams that historically have been regulated under various earlier versions of the Dam Safety Code since December 2000.

During 2014–15 Icon Water first acknowledged that it could not demonstrate the current safety of four of its five listed dams in the manner required by the Dam Safety Code due to historical shortcomings in its surveillance program. While Icon Water considers its surveillance indicates that there is no imminent risk, it assured UTR that it would undertake the necessary safety assessments to demonstrate full safety compliance of all its listed dams by December 2018. There are two separate sets of assessments to be completed in order to demonstrate full compliance.

These are completion of:

- formal safety reviews of all aspects of dam structure and spillway to confirm they comply with current Australian National Committee on Large Dams (ANCOLD) safety requirements and
- testing of the integrity of sub-surface ground anchors which contribute to the structural integrity of three dams to determine that they continue to provide the structural support intended.

At 30 June 2018 safety reviews for two of these dams (Bendora and Googong) are complete, and Icon Water has confirmed that it remains on track to complete the remaining two reviews (Corin and Lower Molonglo dams) by 30 December 2018.

Previously, Icon Water has advised that ground anchor inspections for three dams (Bendora, Corin and Googong dams) would be completed in 2017–18. However, due to the complexity of preparations required to enable anchor testing to be completed in a safe manner, testing has been delayed and will be completed in 2019. Therefore it is likely that Icon Water will finally demonstrate the current safety of its four remaining listed dams in the manner required by the Dam Safety Code by the latter part of 2019.

If the ground anchor inspections reveal defects in the anchors, the necessary remedial works will extend the date when Icon Water is able to demonstrate full dam safety compliance of its five listed dams.

Currently only one of the five Icon Water listed dams (Cotter Dam) is fully demonstrated as safe.

A further eleven of Icon Water's registrable dams present a significant to high risk of adverse effects on the community, and so meet the criteria for the Technical Regulator to consider their listing. They are typically inground potable water storage tanks supported by earthen embankments built on hills in the Canberra urban area, or saddle dams associated with some of Icon Water's large water supply dams. As a means of good risk management, Icon Water is voluntarily working towards compliance with ANCOLD and Dam Safety Code requirements for these dams on the basis that following approval of the Dam Safety Code 2018, these eleven additional dams will be listed by the Technical Regulator.

7.4 SERVICE DELIVERY TARGETS—SEWER MAINS

Icon Water's Business Strategy for 2018–19 to 2021–22 notes that the most significant environmental risk the utility manages is the uncontrolled release of raw sewage. This is a fair assessment given it experienced some 1,855 sewer main breaks and chokes and reported 1,577 sewage overflows from its sewer network during 2017–18. Thirty three (33) of the overflows were also reported to the ACT Environment Protection Authority.

The 2014–15 Technical Regulator's Annual Report first mentioned that the incidence of breaks and chokes in the Icon Water sewer network was higher than the industry average. As noted in **Table 9**, the incidence of breaks and chokes in the Icon Water sewer network has remained consistent over the last five years. Year on year, its performance remains the second or third worst of the 14 Australian utilities having more than 100,000 properties connected to sewer. Icon Water has consistently reported a rate for breaks and chokes in its sewer network 60–80% above the average incidence reported by other major urban utilities.

Icon Water analysis of sewer main breaks and chokes occurring between 2005 and 2016 indicates that frequency of breaks and chokes in the sewer network increase with sewer age, but plateaus for sewers greater than 40 years of age. Sewers constructed prior to 1980 have an annual break and choke rate approximately three times the industry average reported in **Table 9**, while those constructed since 1993 have a rate half the industry average.

Table 9: Sewer main breaks and chokes

SERVICE STANDARD	INDUSTRY (1) AVERAGE 2016–17	ICON WATER ANNUAL RESULTS				
		ACTUAL 2013–14	ACTUAL 2014–15	ACTUAL 2015–16	ACTUAL 2016–17	ACTUAL 2017–18
Sewer main breaks and chokes (per 100 km of sewer main)	30	57	52	54	49	56

Bureau of Meteorology, National Performance Report 2016–17: urban water utilities, Part A, March 2018 (ISBN: 978-1-925315-85-1)

UTR is encouraged that Icon Water has recently invested in advanced data analytics so as to better target these specific issues with sewer maintenance interventions and renewals programs. Over the past two decades Icon Water has also invested in operational technology and field resources using modern plant, tools and work practices to significantly improve the efficiency and effectiveness of its sewer maintenance programs. However, further work is required to identify the root cause of the high break and choke rate experienced within the ACT sewer network, and particularly to confirm if the pleasing low rate reported in sewers less than 25 years old is likely to persist as this cohort of sewers ages. Work is also required to identify cost effective means of reducing the incidence of breaks and chokes in existing sewers more than 25 years of age.

7.5 TRADE WASTE

During 2017–18 the number of Icon Water registered Liquid Trade Waste (LTW) customers increased by 420 to 4,853. This 10% increase compares with a 35% increase in customers during 2016–17 and indicates that a mature view of the LTW market in Canberra is close to being achieved.

During 2017–18 Icon Water completed 417 inspections of customer LTW facilities of which 258 were identified as non-compliant. High risk customer facilities were inspected at least once, with approximately 30% of medium risk customer facilities also inspected. In addition, 311 low risk customer facilities were inspected. Overall 9% of the current registered customer facilities were inspected in 2017–18, down from a rate of 14% in 2016–17. The number of non-compliant installations rose from 46% of those inspected in 2016–17 to 62% in 2017–18. However, approximately half of the identified 2017–18 non-compliance was against low risk customers that had not previously been inspected. This non-compliance was administrative in nature, and has now been corrected.

Hence the extent of substantive non-compliance reduced from 40% of LTW customers inspected in 2016–17 to 29% in 2017–18. While there is a clear improvement in substantive compliance by LTW customers in 2017–18 there is still considerable room for further improvement.

Icon Water's current practice in completing inspections leaves it open to the risk that non-compliance by some LTW customers is not reliably being identified. This risk would be mitigated if inspections could be routinely scheduled immediately prior to scheduled cleaning of serviceable devices, and if sampling and testing of LTW discharged by customers was routinely practiced to confirm compliance with Icon Water Liquid Waste Acceptance Guidelines.

UTR encourages Icon Water to develop its LTW acceptance processes to a position where the requirements of the *Utilities Act 2000* for the 'provision of safe, reliable, efficient and high quality utility services at reasonable prices' are fully realised through:

- compliance of all LTW installations, which rely on serviceable devices, being monitored and reported
- monitoring supported by a program of random field audits and testing of LTW discharged by customers to confirm continuing compliance with Icon Water Liquid Waste Acceptance Guidelines and
- the costs of LTW compliance borne by the users, rather than being allocated across the entire Icon Water customer base.

7.6 AUDIT OF GREENFIELD ASSETS

Implementation of the 13 actions resulting from the auditor's recommendations is ongoing. Five of the actions have been completed, including a major project to align Icon Water's technical standards with the nationally accepted WSAA standards. Icon Water has also created a clear process for asset approval and requires gifted assets to be delivered under the responsibility of a Chartered Engineer. These achievements have been transformational for Icon Water in the area of gifted asset acceptance.

Three of the actions are on track to completion with agreed allowances for the time required to develop and implement processes.

The remaining five actions are either not substantially started or delayed for corporate reasons, including resource allocation and policy development. Three of these items have 2–3 year time frames and delivery as agreed is a realistic expectation. Icon Water has declined to place a time frame on the final two actions, which are based on user pays principles.

7.7 FIRE FLOWS MODERNISATION PROJECT

In its 2015–16 annual return Icon Water first advised that during periods of peak water network demand it was unable to simultaneously provide full fire flow capability to approximately 4,000 water customers (3% of customers) as required by its 2004 agreement with the ACT Fire Brigade.

During 2017–18 Icon Water engaged an external consultant to review the basis on which it designs its water network, including the fire flows required by its 2004 agreement with ACT Fire & Rescue. The consultant concluded that the basis for design of the water network was in need of review to reflect current peak rates of water usage by Icon Water customers, and fire flow capability typically provided from Australian urban water networks. This is a reasonable conclusion as the basis for design of the Icon Water potable water network has not changed for perhaps 40–50 years while peak instantaneous domestic consumption by customers has reduced by 30–50% in response to pricing signals and increased environmental awareness.

Following receipt of the external consultant's report Icon Water committed to complete a thorough review of its basis for design and modelling of the water network by 30 June 2020 and to remediate non-complying sections of the water network by 30 June 2023. UTR is encouraged that Icon Water has committed to completing its Fire Flows Modernisation Project, which includes aligning with minimum requirements of the Australian Standard AS2419 2017 Fire Hydrant Installations Part 1: System Design, Installation and Commissioning. However, UTR is concerned that Icon Water is willing to allow non-complying sections of its water network to remain in service for a further five years, and a full seven years from when the shortcomings in the water network were first reported to UTR.

At completion of the Fire Flows Modernisation Project, Icon Water will be in a position to amend the basis for its design of the water network, confident in the knowledge that it will not unduly increase the risk to customers when the water network is required to supply water from one or more hydrants to fight a fire in the ACT urban area. Amending the basis for design also has potential long-term benefits for Icon Water in that it should demonstrate an increased resilience in much of the existing water network, thereby permitting some level of urban infill without the need to augment the existing water network. However this will need confirmation using Icon Water's hydraulic models of the network on a case by case basis as urban infill occurs.



8. UNLICENSED REGULATED UTILITIES

MOUNT MAJURA SOLAR FARM

8.1 SOLAR FARMS

Four solar farms were operational in the ACT during 2017–18. They operated under provisions of their operating certificates issued under the Act.

It has been previously reported that the four solar farms combined would be capable of producing around 85MWh of energy per year. During 2017–18, close to 89 MWh of energy was produced for the ACT.

Two minor incidents were reported for Williamsdale Solar Farm, both involving an inverter tripping, neither of which caused injury to a person. It was reported that steps have been put in place to ensure the incidents do not recur. No other incidents were reported from solar farms in the ACT.

8.2 STORMWATER HARVESTING – INNER NORTH RETICULATION NETWORK

The Inner North Reticulation Network (INRN) is a significant stormwater harvesting and irrigation scheme, utilising public assets under the control of Transport Canberra and City Services (TCCS). INRN operates under a five year Ministerial exemption and a Provision of Service Operating Certificate, as required by the Act.

The INRN is required to implement all the requirements of its Regulatory Plan and undergo an external audit, under the conditions of the operating certificate. These actions need to be completed prior to the application for renewal of the Ministerial exemption, due in December 2019. UTR expects that matters including:

- systematic operating procedures
- monitoring and action plans to maintain water quality standards and
- asset management driven maintenance program

will be clearly demonstrated through implementation of the Regulatory Plan.

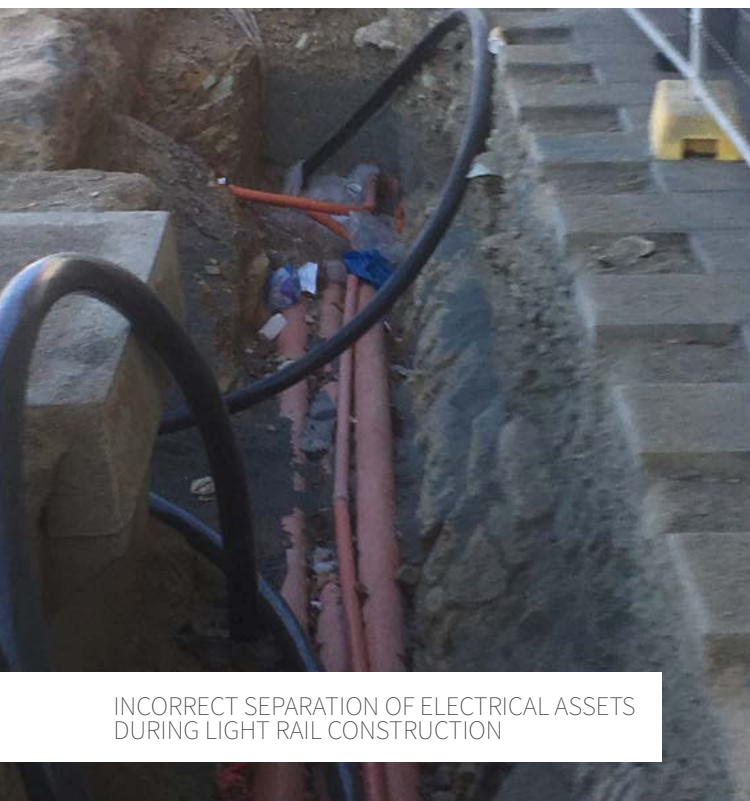
The INRN represents a significant stormwater reuse scheme, with the potential to contribute up to 500ML per annum savings on the ACT Net Water Cap, which has the potential to provide a significant contribution in planning and delivering other water reuse schemes.

8.3 TRANSPORT CANBERRA AND CITY SERVICES DAMS

Eighteen of the ACT Government owned stormwater retardation ponds and water quality control ponds managed by TCCS are registrable dams under the Act.

Fourteen of these are dams that also meet the criteria for listed dams under the recently approved ACT Dam Safety Code 2018 in that they have the potential to cause loss of life or severe damage within the community in the event of failure of the dam. TCCS, as custodian of these dams on behalf of the ACT Government, is co-operating with UTR to have the dams listed, and a Provision of Service Operating Certificate including Regulatory Plan approved to confirm TCCS ownership responsibilities for the dams.

TCCS has also initiated a program of surveillance, monitoring and studies for its dams in order to transition to compliance with the Dam Safety Code. The program for completing the transition is consistent with that permitted by the code, and prioritises higher risk dams in the first instance.



INCORRECT SEPARATION OF ELECTRICAL ASSETS
DURING LIGHT RAIL CONSTRUCTION

8.4 LIGHT RAIL

During 2017–18 work continued on the construction of the first stage of the Light Rail network from Gungahlin to the City under the Design and Construct Operating Certificate issued to Canberra Metro in 2017.

Canberra Metro provided a regulatory plan outlining the scope of the project at the time the operating certificate was issued. During the reporting period, and as the project progressed, Canberra Metro made significant changes to the initial project plan resulting in UTR requesting Canberra Metro to vary its Design and Construct Operating Certificate, with the addition of 18 items to be actively coordinated by Canberra Metro during the design, construction, testing and commissioning phase of the project.

Of particular note was the requirement for an independent electrical certifier to review and approve all electrical apparatus before energisation, and audit and verify both high voltage and low voltage electrical installations prior to energisation. In January 2018 an independent electrical certifier was engaged to fulfil these requirements under the amended operating certificate.

During 2017–18 there was also an ongoing dispute between Evoenergy and Canberra Metro regarding the proposed augmentation of two 132kV transmission lines that crossed the light rail network at Flemington Road opposite the EPIC Showgrounds. The dispute was subsequently resolved.

UTR held a number of concerns during the 2017–18 reporting period in relation to the installation of electrical cabling. The project experienced a number of LV electrical cable strikes, and there were incidents involving damage to other utilities such as the streetlight and gas networks. UTR continues to investigate electrical safety performance. Considerations regarding the adequacy of Safety Management Systems for the project remain ongoing.



LIGHT RAIL TRACK WORKS

9. FOCUS FOR 2018-19 WORK PROGRAM

- Continue utility code review.
- Implement the Powerline Vegetation Management Technical Code.
- Undertake audit of Evoenergy's quality of supply.
- Undertake follow-up audit into Evoenergy's progress in resolving issues identified in Evoenergy's 2017-18 audit on earthing, safety reporting and training.
- Continue to monitor light rail electrical safety concerns.
- Work with TCCS and Icon Water toward full compliance with the Dam Safety Code.
- Develop a revised process for assessing applications for operating certificates for rooftop generators of 200kW and more.
- Continue to monitor TransGrid's performance in delivering the second point of transmission supply.
- Review findings of gas meter safety inspections undertaken in apartments with internal gas meter sets.

The background is a solid purple color. Overlaid on this are several thin white lines that intersect at a single point in the upper right quadrant. These lines extend across the page, creating a series of triangles and other geometric shapes. The lines vary in length and angle, some extending towards the edges of the frame.

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