

commtel

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# Utilities Industry Overview

An overview of the Utilities market segment, technology trends, and why CommTel is the right partner





# Delivering comprehensive future-proof digital network transformation for power utilities.

why commtel is the right partner to supercharge your digital transformation and ensure it meets your business and customer needs today, and into the future.



# power networks are changing.

Digital technologies, the market shift towards renewable energy sources and increasing customer demands and expectations are placing enormous pressure on traditional power networks. Around the globe they are embracing digital IP-based network transformation to meet these needs.

Smart grid functionalities, distributed generation and the move to 'whole system networks' require new telecommunication management systems with increased control, real-time responsiveness, higher data flow capability and comprehensive data management. They need to be better, more agile, more flexible, faster, more capable and deliver significantly greater quantities of information while continuing to maintain at least the same if not greater reliability than your legacy network.

Designing and delivering a new digital network to meet your needs now and into the future requires an expert, experienced technology partner. As you know, any part failure in this new infrastructure can have a big impact on your business. Effectively and efficiently managing the transition from your legacy network to this new IP-based system is no simple task either.

## How CommTel can help you

CommTel is the partner to ensure your network transformation meets these next-generation requirements.

Each network transition has its own unique qualities, and we work with you to design and deliver a new digital communications network that is fit-for-purpose, effective, appropriate and

future-proof. As a leading value added reseller for technical competence, support and services, you know you will be dealing with a partner with the experience and technical know-how to design and deliver the right system for your specific needs.

We will then successfully achieve an ordered and consistent transition from your legacy systems to your new digital network using our own technology – a tried and tested, fully integrated data management platform - to ensure a simple, seamless transition of all legacy data, without compromising your business or network performance throughout.

We know that renewables are the future and have the solutions to successfully integrate large solar and wind farms into your network. We can keep these farms safe and ensure they stay in operation through remote data connection of the assets' sensors.

With over 120 employees in Australia, New Zealand and Europe, over 70 per cent of which are professional engineers, we have the market intelligence, capacity, capability and resources to deliver this transformation program as a partner with you.

CommTel has over 20 years of experience in delivering mission critical communication systems around the globe and will ensure you get the desired results from your network transformation program.

But don't just take our word for it, here's what the Telecommunications Manager of ElectraNet, which owns and operates

the high voltage network in South Australia, says about our 15-year-plus partnership:

**“The relationship with CommTel has been one characterised by increasing strength, mutual trust and open communications. They are experts in the industry and don't just walk away after the sale is done. We appreciate their strong post-sales technical support, as well as their regular roadshows, forums and presentations where they proactively keep us up-to-date with the latest industry trends, technologies and solutions.**

**“They've taken the time to understand our business and continue to expand and improve their competencies, service offerings and solutions in ways that enable our team to focus on our core business – managing the network. The relationship has delivered considerable business benefits to ElectraNet and its customers. We look forward to continuing the relationship with CommTel.”**

– David Schultz,  
Telecommunications Manager,  
Network Services, ElectraNet.

# why commtel?

## #1

value added reseller for technical competence, support and services

## 160+

people around the world in 8 locations.

## 25+

years of experience in delivering mission critical communications systems

Many power utilities rely on CommTel as their trusted, long-term partner to ensure their systems meet exacting requirements in mission and business critical areas.

As a leading provider of advanced and engineered solutions, CommTel will optimise your existing communication network and equip it to meet your future needs. We ensure your investment is protected for your network lifetime.

With our wide range of equipment, management platforms, knowledge, experience and skillsets, we are in a unique position to provide companies with solutions precisely engineered to address your objectives – delivering business advantages in a thorough, professional and cost-effective way.

### Cutting-edge capability, with extensive MPLS-TP and other technologies experience

CommTel is already partnering with power utilities across the globe to migrate their TDM to packet-based technologies (MPLS).

As the power generation profile is changing, with more renewable energy connected to the main grid, there is a requirement for efficient, wide area protection and control schemes to support connected generation, future energy systems and power flow across the boundaries to neighbouring power networks. This requires support for flexible transport to handle higher bandwidth applications and compliance to utility standards such as GOOSE (IEC61850-8-1) and RGOOSE (IEC61850-90-5).

We ensure all offered technologies and solutions have an approved use case, our solutions are thoroughly tested prior to implementation with

our technology platform and deliver against expected performance and reliability metrics.

In the past five years, we have:

- Successfully transformed TDM networks to packet-based networks (MPLS) for a range of power utilities, including SPEN, AusNet, BHP Power, PAWC (NT) and recently TransGrid.

- Completed technology validation (MPLS-TP) with third-party independent bodies – PNDC (Glasgow) and University of Strathclyde.

- Presented to CIGRE forums (Hobart & Paris e-session) - SEPAC and as well as the IEEE SmartGrid Forum.

- Delivered a range of technical papers on power utility network transformation.

CommTel has the technical knowledge, capability and industry experience to successfully transform your power network.

### The right business solution

We are experts in delivering MPLS

solutions and are also fully capable of delivering using other technologies. We always use the technology that's right for your solution, rather than making the solution fit the technology.

Our close vendor relationships and in-depth product knowledge enable us to build effective multi-vendor solutions that deliver the best and most-appropriate result for you. Our commitment to R&D means we maintain the technical and industry knowledge to deliver the best results, and we have the scale, reach and capability to deliver for your power network.

**“CommTel’s technical team has been very efficient, responsive and proficient during the whole project. Their deep product knowledge and understanding meant they were able to solve the majority of technical issues quickly and directly.”**

– Utsab Parajuli, Senior Technical Specialist, Engineering, Telecom Design, TransGrid.

### industry customers we serve

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#### Transmission Network Providers

Powerlink, TransGrid, AusNet Services, ElectraNet, TasNetworks, Powercor, Western Power, Basslink, Power and Water Corporation

10

#### Distribution Network Service Providers

Energy Queensland, Ausgrid, Essential Energy, AusNet Services, CitiPower, Powercor, United Energy, SA Power Networks, Western Power, Alinta Energy

4

#### Generation Providers

Snowy Hyrdo, AGL, Power and Water Corporation, Hydro-Electric Corporation

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#### International Power Utilities

Genesis Energy, Contact Energy, Transpower, ScottishPower, Northern Ireland Electricity, Aurora Energy (NZ), E.ON, Helen Oy, Northern Powergrid



# how our solutions solve your problems.

## key challenges in power network transformations include:

- Managing the transition from a legacy to new IP-based digital technology
- Delivering the network capacity required for intelligent devices
- Managing higher physical and cyber vulnerability from interconnectivity
- Meeting growing customer needs and expectations
- Managing a range of complex technologies for telecommunication, protection, SCADA, automation, condition monitoring, and IT

### **“We’ll achieve a smooth transition to the latest secured IP networks for your network SCADA, protection and control functions”**

We provide a thorough transition management plan – not just for the technology, but also for your people, processes and tools.

We will integrate comprehensive cyber security elements within the solution from planning, design and implementation to maintenance and reporting, and provide a future-proof data and voice network that will connect multiple devices and operate in a multi-protocol environment. It will include integrated tele-protection functionality.

We’ll ensure your network solution conforms with all regulatory requirements, is engineered and highly reliable, with high bandwidth data capacity.

### **“We offer much higher visibility of the condition and performance of your network assets”**

Our solution will have an open architecture operational support system to integrate multiple network devices, asset management platforms and applications. It will generate network condition and performance insights and reports to enable you to make better decisions using a data analytics as a factor.

The solution will include predictive maintenance analysis and suggestions, and offer you a single panel of truth at all times.

### **“We’ll help reduce your operating costs through network automation of repetitive tasks and actions”**

Many network tasks can be automated in the new digital environment using techniques such as single touch provisioning. Our solution will also provide basic network self-healing and report generation capability. It will be capable of automatically completing some aspects of scheduled maintenance such as updates or patches. That’s less for you to do on a daily basis.

### **“We can help reduce your carbon footprint, power consumption and field costs”**

We are working on future solutions today. We can help you build a virtualised server and storage environment for your data networks that support SCADA, protection and control functions. This will be a shared physical resource. This means you will be able to manage and maintain your telecommunication assets through digital twin and digital substations.

We are exploring Augmented and Virtual Reality platform solutions to help you undertake learning and maintenance work and will soon offer them as a tool to help reduce site visit costs. Soon, when you want to add to your network, we will be able to offer you easy network build and provisioning through technology such as Software Defined Wide Area Network (SD-WAN).

### **“We’ll make it easier and more economic for you to operate in remote and harsh areas”**

Whether you or your end users have telecommunication assets in remote or harsh environments, we offer a rapid deployable in-house solution for complete communications infrastructure.

Our manufactured communication shelters are a proven Bushfire Attack Level rating solution, are easily transportable, require minimum site works for installation and provide remote monitoring capability for active site components.

### **“We are a trusted, helping hand – whenever and wherever you need one”**

We can complement your skill and resource gaps, whether this is because of an introduction of new technology, legacy network maintenance or simply a lack of resources. Our architects and designers are skilled in all sorts of network build and migration scenarios and we have our own Integration Facility to conduct integration testing such as Proof-of-Concept and Factory Acceptance Testing.

We have proven project and implementation capability; we meet agreed timeliness and all necessary governance procedures.

We will also offer you a single point of contact throughout the project that will deal with multiple parties and contracts and offer outsourcing services such as remote network monitoring and network maintenance.

All of this means you can spend more of your time focused on your core business activities.





power utilities overview / our solutions

**commtel**

# partner with the experts.

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## Back to the future

In a rapidly changing market, South Australia's sole electricity distributor SA Power Networks turned to CommTel to meet its critical network requirements today, and into the future.

CommTel delivered an integrated and engineered centralised management solution consisting of high-performance hardware combined with intelligent operations management software, to create a virtualised platform with inherent scalability, redundancy and security capabilities.

This single ubiquitous operational platform delivered a significantly more secure and reliable end-to-end management system for SA Power's distribution network, enabling it to meet its operational and customer needs.

The project was delivered on time and within the three-month expected duration, within budget and at the expected quality level. All of which ensured a best-of-breed solution for a customer who was so delighted with the result that they immediately booked a second phase expansion project with us.

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## A single source of truth

TransGrid, which owns, operates and manages the NSW high voltage network, had a telecommunications network provisioning and records system that was nearing end-of-life. TransGrid asked CommTel to source and deliver a state-of-the-art

complete solution which incorporated analysis, configuration, integration, training and ongoing support services.

CommTel topped the brief, delivering a single-system future-proof design that had greater capability, quickly identified the operational impacts caused by network faults, improved accuracy and reliability of network data, and reduced the number of required data repositories.

This single system now covers 180 sites, 1000 equipment racks, 1000 network elements and over 3,500 services. The network comprises copper, optical fibre, microwave, PDH, SDH and IP-technologies, sourced from a wide range of manufacturers.

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## A very modern migration

ElectraNet is the owner and operator of the South Australian electricity transmission grid and needed a future-proof network inventory and design system that would provide network expansion and operational efficiency. It also needed to successfully and effectively migrate from its legacy network to this new solution.

CommTel delivered a turnkey network inventory and design system that was able to conduct significantly more design work, rapidly determine the operational impact of a network fault, and improved the accuracy and reliability of network data – fulfilling ElectraNet's primary objective.

There was a vast quantity of data involved in the migration, as there often is with many system

replacements, and this presented considerable challenges. But, by using sophisticated data validation and integrity checking tools, data was identified that needed correction before it could be migrated, enabling a trouble-free transition to the new system.

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## Ensuring Sydneysiders can keep the lights on

Energy Australia delivers the power to Australia's biggest city, and has done for over 100 years. When it needed a communications backbone to transport the critical data needed to effectively operate Sydney's electricity grid, it turned to CommTel and Avara Technologies.

With an extensive electricity distribution network in the central business district of Sydney spanning hundreds of underground and basement substations, a robust communications network was required, supporting both voice and data services. The system also needed to accommodate demand for power growing at 3 per cent per year.

Working in partnership, CommTel and Avara met all the design constraints with an integrated unit, providing full fibre-path redundancy to all 550 nodes with single-fibre-working operation, and capability in a harsh substation environment (a maximum operating temperature of 65 degrees Celsius was required). The Sydney substations are now equipped with fast Ethernet bandwidth supporting the SCADA and other data applications.



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