ELECTRICAL, MECHANICAL AND INSTRUMENTATION SPECIALISTS

At Comdain Infrastructure, we take pride in doing things well. We understand best practice design, construction and maintenance delivers value on multiple levels. Our drive for total program management with complete accountability led us to the development of an internal engineering services function — the Electrical, Mechanical & Instrumentation Group.
Comdain Infrastructure delivers end-to-end engineering and asset management solutions to utility and energy providers across Australia. Our capabilities are extensive and our success is underpinned by our resolute commitment to excellence, safety, quality, innovation and sustainability.

We take pride in doing things well. The Comdain Infrastructure team believes best of project/program approach delivers value on multiple levels:

- Safety first
- Quality projects
- On time, on budget
- Excellence in environmental, customer and community outcomes

A high-performance culture and drive for continuous improvement means we are committed to innovation, challenging conventional approaches, safety, productivity to unlock real value for our clients.

The Electrical, Mechanical & Instrumentation Group provides leading engineering and asset management services and is at the forefront for providing mechanical services, electrical instrumentation and control, telemetry and SCADA technologies and renewable solutions.

Self-performing over 80% of the electrical and mechanical scope on all contracts, our dedicated team draws on the knowledge of our 200+ engineers and project management professionals to support and manage the planning, design and delivery of major utility projects across the nation.

Exceptionsal Benefits

- **Seamless delivery** - From concept design through to on-site installation you have the same team for your entire project.
- **Value** - A single margin to our services providing value engineering to decrease costs without impacting the quality of materials or processes.
- **Self-perform capability** - 100% controlled by the project owner to bring transparency throughout project delivery.
- **Innovation** - Leaders in technology, training and equipment. Our teams look to optimise projects by integrating proven, leading technologies.
- **Partner of choice** - All works are fabricated, commissioned and verified in-house and any changes required can be accommodated immediately. Our clients reduce the time and energy they spend on managing project works.
**PLC & SCADA**

Within Comdain’s self-perform capability is a team of control engineers proficient at maintaining designing and delivering PLC and SCADA integration.

From control philosophy and functional description development, RTU, PLC and SCADA integration and radio network configuration; through to commissioning, Comdain’s in-house integration engineers offer turnkey systems which are tested and proven before deployment to minimise risk and provide full end-to-end systems delivery. Our broad client base across both the water and gas industries gives our team the benefit of exposure to many different technologies.

**ACE RTU Code Upgrade: Queensland Urban Utilities**

Upgrade RTU code at over 100 sewage pumping stations as part of the Brisbane RTU replacement program:
- Develop SAT / project commissioning
- HAZID / CHAZOP
- Code and SCADA requirements for the configuration of the new RTU at each sewage pump station site to provide control and monitoring functionality as detailed in each site’s Functional Specification
- Rollout of new standard SPS Motorola ACE RTU code and reconfiguration works for Mosaic SCADA mimic.

**Gunbar Solar Booster Pump Station: Murrumbidgee Irrigation**

The design, construction and commissioning of the Gunbar Water Pipeline (725kms) is a major component of the Warrumbungle Stock and Domestic Pipeline (WSID) Project. It includes the design and construction of a solar powered pump station used to supply stock and domestic water to rural customers in outback New South Wales.
- D&C of renewable energy systems for the Booster Pump Station including 15kW solar array inverters
- Grid connection via single wire earth return (SWER)
- PLC and SCADA integration.

**Emergency Relief Structures (ERS) Sensor Installation Program: Yarra Valley Water**

These structures are installed in gravity sewers at strategic locations to act as a relief point in severe storm events. The scope of works included the installation and commissioning of sewer structure level sensors, RTUs and communications upgrades at 42 sites throughout Yarra Valley Water’s sewer network.
- Site specific design and planning
- Customer/fundowner liaison
- Instrumentation and RTU installation and commissioning.

**Intelligent Water Networks**

With access to various technology options, Comdain can bring together an Internet of Things (IoT) ecosystem to create new levels of business value by turning your data into insights. Our agnostic approach to Low Power Wide Area Network (LPWAN) technologies gives us an unbiased and best-for-project approach to device and communications selection.

Experienced in Sigfox, LoRa and Telstra NB-IOT CAT-M1 communications, our technicians are specialists in confined space entry providing a safe option for network instrumentation installation.
- Grid connection via single wire earth return (SWER)
- RTU, PLC and SCADA upgrades
- PLC & SCADA integration.

**Mechanical & Electrical**

Our team of electricians, mechanical fitters, instrumentation technicians, asset engineers and contract managers are asset management specialists able to provide reactive and scheduled maintenance and minor capital works to the water and gas industries.

Complemented by an in-house design team and an extensive pool of over 500 civil, mechanical and electrical resources, we can mobilise contracts from our operational centres located across the eastern seaboard of Australia.
- Site specific design and planning
- Customer/fundowner liaison
- Instrumentation and RTU installation and commissioning.

**Specialist Upgrades**

The EMI team is experienced in the design and construction of capital expenditure upgrades to water and gas infrastructure such as sewer and water treatment plants, pump stations, dosing facilities and pressure reduction sites.

Working with many clients whose projects or operations require specialisation in mechanical and electrical engineering services, and with in-house fabrication facilities, the benefits of engaging Comdain includes value engineering, seamless delivery, self-perform capability and training and equipment supported by the Comdain Group.

**Renewables**

Comdain is committed to seeking and delivering renewable energy initiatives and is experienced in renewable system design, installation and engineering of both grid connected and standalone ancillary systems.

Furthermore, Comdain’s in-house capability and unique blend of extensive water infrastructure experience is complemented by Clean Energy Council accreditation providing additional value through plant energy usage optimisation coupled with renewable energy generation. We produce engineering plant solutions such as optimum plant running functionality to make best use of behind the meter produced energy.

**M&E Maintenance Program: Central Highlands Water**

Scheduled, reactive and emergency (24/7) maintenance of Central Highland Water’s M&E assets across their entire sewer and water network.

A 10 year contract covering water and sewer treatment, water network and distribution, sewer pump stations and office/facilities.
- Asset management
- Mechanical, electrical and instrumentation
- RTU, PLC and SCADA upgrades
- Minor capital scopeing and delivery.

**Luggage Point Treatment Plant Upgrade: Queensland Urban Utilities**

Design and construction of a $9M upgrade to the Luggage Point Wastewater Treatment Plant:
- Modification of the sludge digestors to improve capacity and reliability
- Upgrade to dewatering process and equipment including replacement of HV, electrical, control and instrumentation systems
- D&C of additional process improvements including magnesium hydroxide and polymer dosing.

**PLC**

**SCADA**

**Mechanical**

**Electrical**

**Intelligent Water Networks**

**Renewables**

**Specialist Upgrades**

**CASE STUDIES**

**EXPERTISE**
DESIGN

- Safety in Design (SID)
- HAZOP and HAZID
- Design Management
- Design Review
- Drafting
- Isometric Development
- Electrical Schematics

- Network Overview
- Cabinet General Arrangement Diagrams
- Field Cable Termination Schedules
- Functional Description Development

- Process (PID)
- Commissioning Plants
- Renewable Energy Augmentation

- Hazardous Area
  - Installation
  - Certification
  - Dossier Development and Maintenance

PLC & SCADA

- Hardware Installation and Upgrade
- Configuration
- Integration

- Generator Set (Conset)
- Control Systems
- UPS Systems
- PLC Panels
- Operator Stations and Consoles
- RTU Panels
- Distribution I/O
- Human Machine Interface (HMI)

Renewable Energy

- Stand Alone Power Systems (Solar and Battery Storage, Hybrid Storage Systems)
- Grid Connect Power Systems (Solar, Battery Storage)
- Microhydro
- Wind

- Instrumentation Skids and Panels
- Fieldbus Networking and Calibration
- Certified Flow Meter Installation to AS4747

TELEMETRY

- Hardware Installation and Upgrade
- Configuration
- Radio Path Survey

- Instrumentation Development

CONTROL SYSTEMS

- Telemetry
- Control Systems

ELECTRICAL AND INSTRUMENTATION CAPABILITIES

- Motor Control
  - Motor Control Centres (MCC)
  - Variable Speed Drives (VSD)
  - Intelligent Motor Starters
  - Harmonic Filtration

- Instrumentation Skids and Panels
- Fieldbus Networking and Calibration
- Certified Flow Meter Installation to AS4747

- Fieldbus Networking and Calibration
- Certified Flow Meter Installation to AS4747

- Hazardous Area
  - Installation
  - Certification
  - Dossier Development and Maintenance

MECHANICAL CAPABILITIES

Fitting (Water)

- Pump Stations
- Pressure Reducing Stations
- Chemical Dosing Skids
- STP Inlet Equipment
- Digestor Diffuser Systems
- Filter Stations
- Piping Stations

Fitting (Gas)

- Transmission Gas Regulator Stations (City Gates)
- Gas Regulating Skids
- Industrial and Commercial (I&C) Metering
- Piping Stations
- Water Bath Heaters
- Coalescent Filters

Equipment & Machinery

- Lathes
- Welding Machines
- Milling Machines
- Geared Radial Drill
- Crane Truck
- Robo Cut-Off Saw
- Band Saw
- 1200m² Facility

Fabrication

- Carbon / Stainless Steel Pipe Spools
- Mild Steel Cement Lined (MSCL)
- Site Welding (Live Gas)
- Machining

EXEMPLARY SAFETY CULTURE

Our vision is for everyone at Comdain to be a leader in safety; with every person empowered and accountable for ensuring all that we do is done in a safe manner.

When you engage Comdain, you engage a partner that takes ownership and responsibility for health and safety. We understand that every action, at every moment, of every day needs to be completed without compromising the safety of themselves, or those around them.

We believe health and safety is more than just a measurable outcome - it is a benchmark of the organisational culture which defines the attitudes, perceptions and behaviours in our approach to work. To us, it is a never-ending journey of change and development so we continually learn from experiences and strive to improve the way we operate.