INDRAPRASTHA GAS

FUTURE-READY CGD INFRASTRUCTURE

Technology Adoption, Digitalization & Sustainable Urban Gas Network Expansion

By - Roshan Madame
CGM (PNG Projects)

Building the digital foundation for the urban gas network of tomorrow

PHYSICAL INFRASTRUCTURE + DIGITAL INFRASTRUCTURE + INTELLIGENCE

CONNECTED. INTELLIGENT. SUSTAINABLE.

CITY GAS DISTRIBUTION OF IGL

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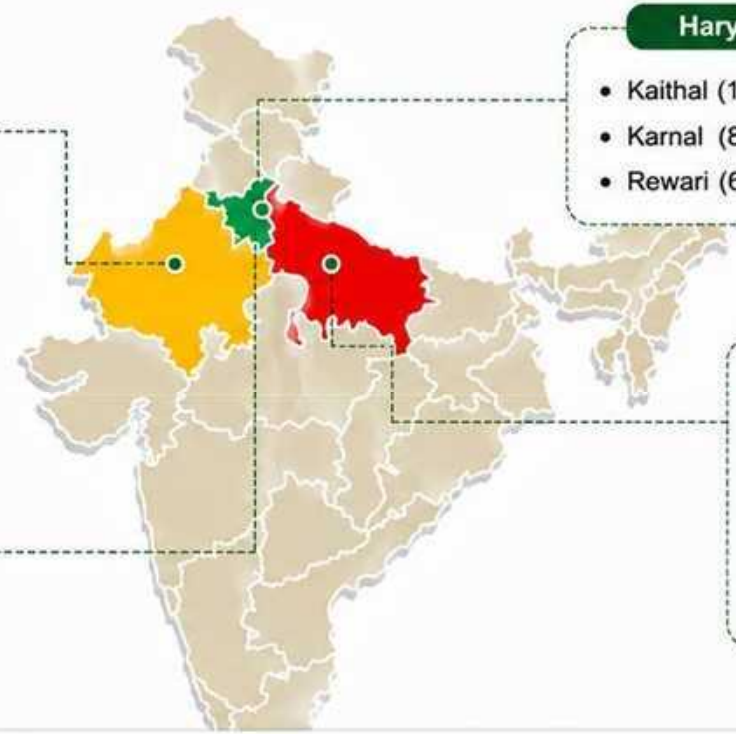
Rajasthan

- Pali (10th round)
- Raisamand
- Ajmer, Kekri, Beawar

Haryana

- Kaithal (10th round)
- Karnal (8th round)
- Rewari (6th round)



Delhi NCR

- Delhi
- Gurugram & Faridabad
- Gautam Budh Nagar
- Ghaziabad
- Hapur

Uttar Pradesh

- Kanpur, Hamirpur & Fatehpur (10th round)
- Muzaffarnagar, Meerut & Shamli (9th round)
- Banda, Chitrakoot & Mahoba, (11th round)

12 GAs	4 States	32 Districts	62,472 Sq. Km	60 Million Population

CNG

IGL INFRASTRUCTURE

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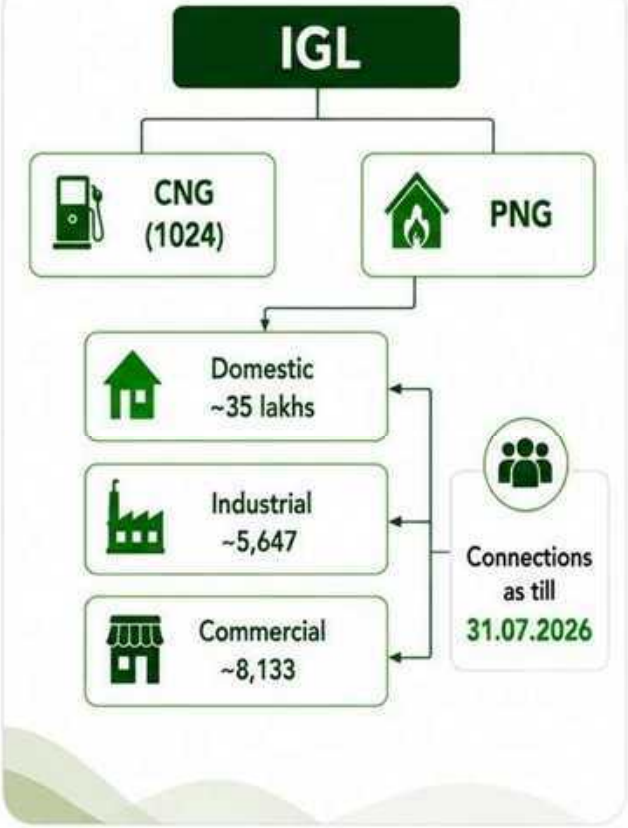

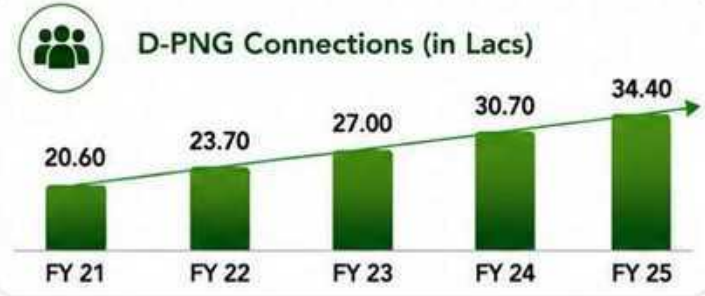

3.2 Lac
D-PNG Billed Connections added in a calendar year (2026 till Aug)

Highest Ever by any CGD in India

Particulars		PAN India	IGL
CNG Stations	Nos.	8983+	1024 (11%)
PNG Domestic	Nos., Lakhs	172+	35.2 (20%)
Industries	Nos.	22351+	5,647 (25%)
Commercials	Nos.	52854+	8,133 (15%)
Network	Lakh Inch-KM	3.25	0.82 (25%)

Note: As on 31.07.2026

WHY Future Ready CGD?

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1 URBAN COMPLEXITY

- Dense cities & complex networks

2 EXPANDING NETWORK FOOTPRINT

- Expanding to more geographies

3 CUSTOMER EXPECTATIONS

- Rising digital & service expectations

4 OPERATIONAL VISIBILITY

- Need real-time visibility & monitoring

5 SUSTAINABILITY

- Sustainable growth & efficient operations

Overview of CGD City Gas Distribution

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CITY GATE STATION (CGS)

GAIL's Upstream Source Pipeline

STEEL ISOLATION VALVE

FRS SYSTEM

- FRS METER
- REGULATOR
- VENT

VENT

CNG DISPENSER

- CNG Dispenser
- Compressor
- Priority Valve
- Storage Cascade

1 RESIDENTIAL

- PNG Connection
- Meter
- Regulator

2 COMMERCIAL

- PNG Connection
- Meter
- Regulator

3 INDUSTRIAL

- Industrial Metering Skid
- Pressure Regulating Station
- Process Gas Supply

GAIL's Upstream Source Pipeline

IGL Steel Pipeline

Flow Direction of Gas

DIGITALIZING THE COMPLETE CGD VALUE CHAIN

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From Planning to Customer Service

1 PLANNING

Spatial Analysis

2 NETWORK DESIGN

Digital Engineering/ Synergy Testing Pipeline

3 MDPE LAYING & COMMISIONING

GIS Mapping, Field Mobility, Digital Documentation

4 CUSTOMER ACQUISITION

CRM & Digital Registration

5 METER INSTALLATION & NG CONVERSION

Workflow & Approvals, Field Mobility

6 METERING & BILLING

Smart Metering & Billing

7 OPERATIONS & MAINTENANCE

SCADA, Remote Monitoring & Analytics

8 CUSTOMER SERVICE

CRM, Digital Channels for Payment & Support

Digitalization delivers maximum value when the complete CGD lifecycle is connected rather than individual activities in isolation.

IT & ERP System

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CRM

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Implementation of New Salesforce CRM Portal

salesforce

- 360° Customer View
- Digital Onboarding & Self Service
- Real-time Analytics
- Better Collaboration & Productivity
- Secure & Scalable Platform

Implementation of SCADA/Automation in CNG

Centralized Control Room

Real-time monitoring & centralized operations

Compressor Station Monitoring

Real-time monitoring of compressors & station parameters

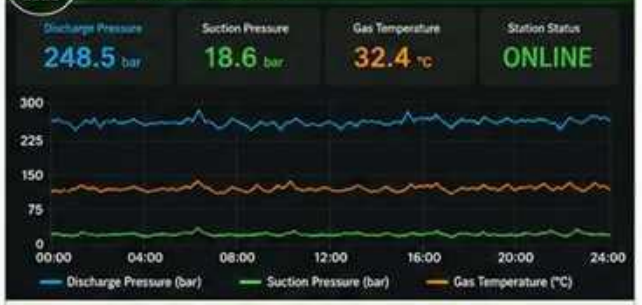
SCADA & Automation in CNG Segment

- CNG Station Equipment Monitoring & Control
- Remote Dispenser Price Change
- Logging of Parameter & Generation of Reports
- Generation of Alarms & Trends
- Remote stop of Compressors
- Bill receipt from Dispenser

GIS Based Station Monitoring

Live visibility of all CNG stations across network

Trends & Analytics



Live trends, analytics & performance insights

- Real-time Monitoring
- Operational Efficiency
- Early Alarm Detection
- Data-driven Decision Making
- Secure & Reliable Operations

Implementation of SCADA/Automation in PNG

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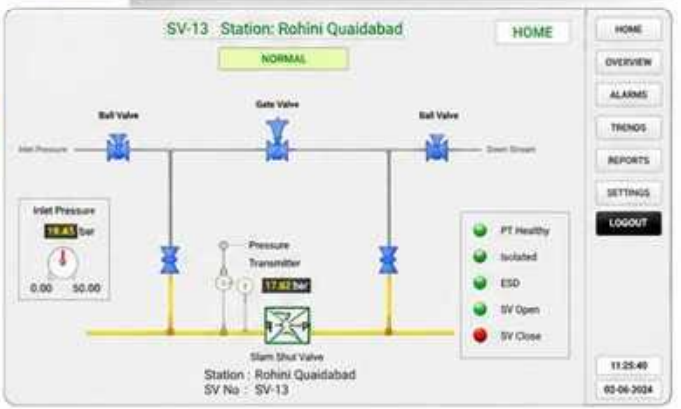
- FRS & Odorizing unit Integrated
- Implementation of smart metering solutions for PNG customers
- Monitoring & Remote Operation of SV
- **SCADA & Automation in PNG Segment**
- Generation of Reports & Trends
- Logging of critical Parameter
- Pressure Monitoring of pipe line network



Smart Metering for PNG Customers

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Retro fitment of AMR system with old/legacy meters

Mobile App based prepaid metering/Billing system

Implementation of AMR system

Smart Metering in PNG segment

Direct integration of AMR/Prepaid meters with Billing system

Implementation of Prepaid meters

Spot & Self billing for PNG customers

SMART METER (AMR / PREPAID)

COMMUNICATION NETWORK

DATA MANAGEMENT SYSTEM

BILLING & CUSTOMER INTERFACE

GPRS / 4G / NB-IoT / RF Mesh Network

Secure Data Collection & Storage

Billing, Analytics & Customer App (Web / Mobile)

Consumption Data

Tamper Detection

Prepaid Balance

Valve Control

KEY BENEFITS

- Accurate Billing
- Real-time Monitoring
- Theft Detection & Alerts
- Prepaid Convenience
- Operational Efficiency
- Better Customer Experience

Digitalization in Payment system in PNG

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Making payments easier, faster & completely digital for every PNG customer

Multiple Payment Options

Credit/ Debit Cards, E Wallets, BHIM UPI, Bharat Bill Pay, IGL Smart Card etc.

Payment Option through IGL

Connect App, IGL Website, Bank Mobile Apps, QR Code on Invoice

Payment Links and Reminders

through SMS, WhatsApp

Awareness Camps, Social Media, Call Centers etc.

Spot Billing/ Chatbot (MAITRI)

Zero Cash Transaction in PNG

Key Benefits

- Convenience for Customers
- Faster & Seamless Payments
- Transparency in Transactions
- Secure & Reliable Payments
- Supports Digital India Initiative

Self and Spot Billing

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SELF BILLING

1. Customer logs in to IGL Connect App

2. Customer uploads meter image & enters reading

3. Reading submitted for validation

4. Reading validated & bill is generated

5. Bill available in app for payment

SPOT BILLING

1. Meter reader visits customer premises

2. Meter reading captured

3. Reading sent to IGL system

4. System validates & bill is generated instantly

5. Bill printed using thermal printer

6. Bill handed over to customer with QR code for easy payment

Quick & Convenient | Accurate & Secure | Instant Bill Generation | Easy Payment with QR Code | Go Paperless, Go Green

Field Mobility Application

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Empowering our field workforce to deliver seamless end-to-end customer experience

KEY BENEFITS

- **Entire end to end process** from customer registration.
- **Allocation of work on site** through Application.
- **Updation of RFC and NG conversion.**
- **Updation of Move-in** of customer.

EXISTING MODULES ON FMA

- New Customer Acquisition – BP creation
- Feasibility Check
- Riser Installation
- Ready for Connection (RFC)
- Riser Installation
- New Gas Conversion (NG)

- Real-time Data Capture
- Online / Offline Functionality
- Faster Turnaround Time
- Increased Productivity
- Accurate & Secure Data

One App. Complete Process. Better Experience.

GSP/BA System

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- Umbrella Application
- Analytical dashboards
- Automated Reporting of Exception
- Fast & Effective Decision making
- Improve Data Governance & Data Literacy
- KPI based reporting for management

Real-time Visibility | Data Integrity & Security | Faster Insights | Improved Collaboration | Strategic Decision Support | Performance Excellence

GIS

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GIS System

- PNGRB Compliance
- Data Sharing with PM Gati Shakti and GSDL
- Multiple Asset Visualization on single platform as per Spatial Location
- Better Decision Making and Planning for Expansion
- Improved and Transparent Data Sharing across users

Total Network Mapped on GIS:

- Steel Pipeline : ~2061 KM
- MDPE Pipeline : ~24000 KM

Asset Management

- Automated Scheduling for Maintenance / Monitoring Activities.
- Historical Digital Record Keeping of Maintenance parameters for different asset class.
- System generated reports in ISO formats.

Outage Management

- Identify Valves to be closed
- Share outage location with O&M and F&S in charges and management.
- Generate Outage Report with Summary of affected customers .
- Send Notification to affected customers with estimated time of restoration.

Digitalization Challenges & Concerns

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Digitalization Challenges & Concerns

- Integration of Old/Legacy infrastructure & System
- High cost of implementation & maintenance
- Data Integrity & Cyber Security Risks
- Lack of stable eco system for digitalization
- Rapid change in technology
- Resistance to change by customers & internal stake holders

THANK YOU

Future Digitalization Plans

01 Implementation of **AI based system**

02 Predictive Maintenance & Process improvement

03 Implementation of **IOT Based** transmitters

04 Real-time pipeline Integrity Monitoring

05 Optimize resources for cost saving

Three Stages of Household PNG Infrastruture

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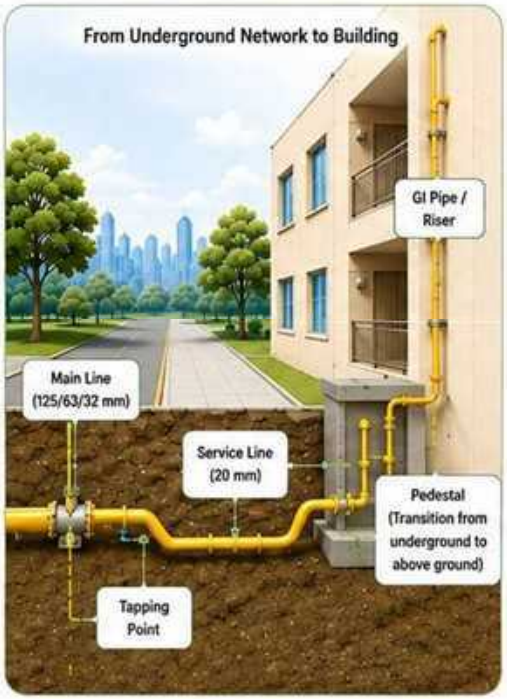
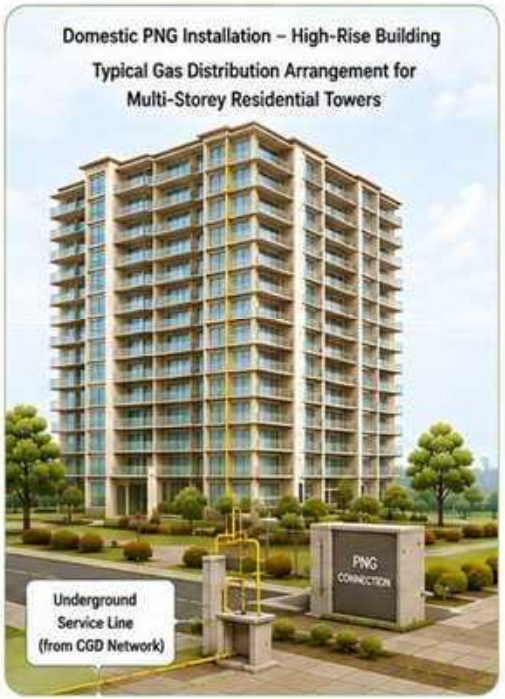
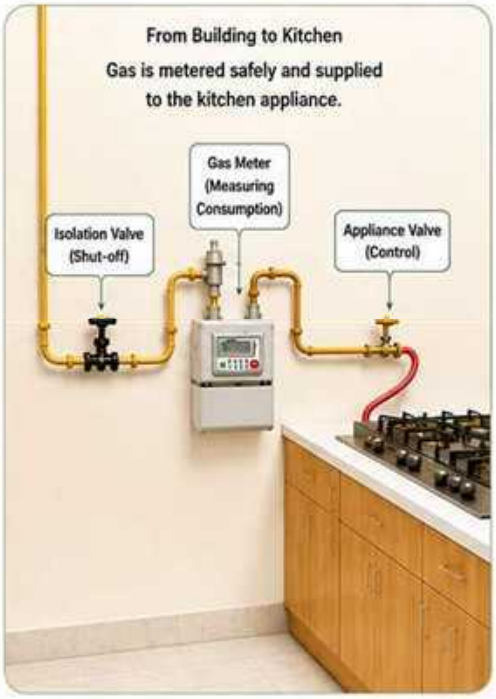
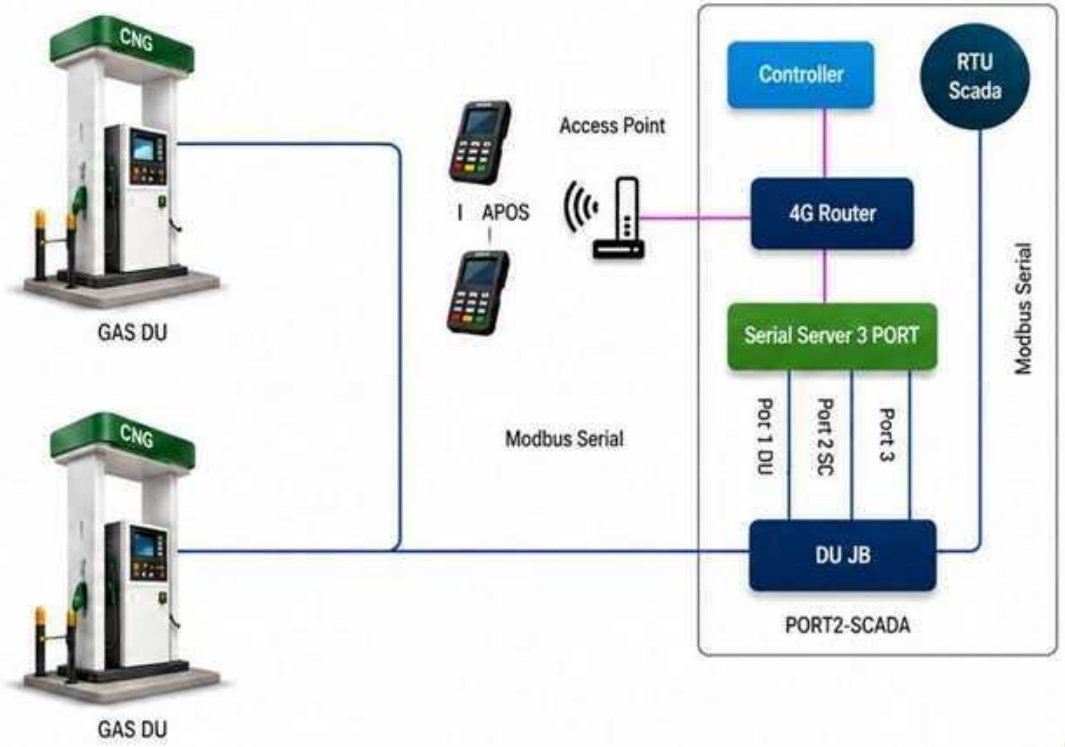
Stage I – Network Backbone → **Stage II – Service Connection** → **Stage III (Part 1) – Above Ground Installation** → **Stage III (Part 2) – Inhouse Installation**







Safe • Reliable • Efficient • Convenient • Environment Friendly

Digitalization of Payment system in CNG

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