



Application of Innovative Ideas in CGD Business



Presented by : -
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Vice President - IGL

IGL Presence in City Gas Distribution

Delhi and NCR

NCT of Delhi

Gautam Buddha Nagar

Ghaziabad & Hapur

Gurugram

Haryana

Karnal

Kaithal

Rewari



Uttar Pradesh

Kanpur (part),
Hamirpur and
Fatehpur

Muzaffarnagar, Meerut
& Shamli

Chitrakoot, Banda &
Mahoba

Rajasthan

AJMER

PALI

RAJASAMAND

11

GAs

4

States

32

Districts

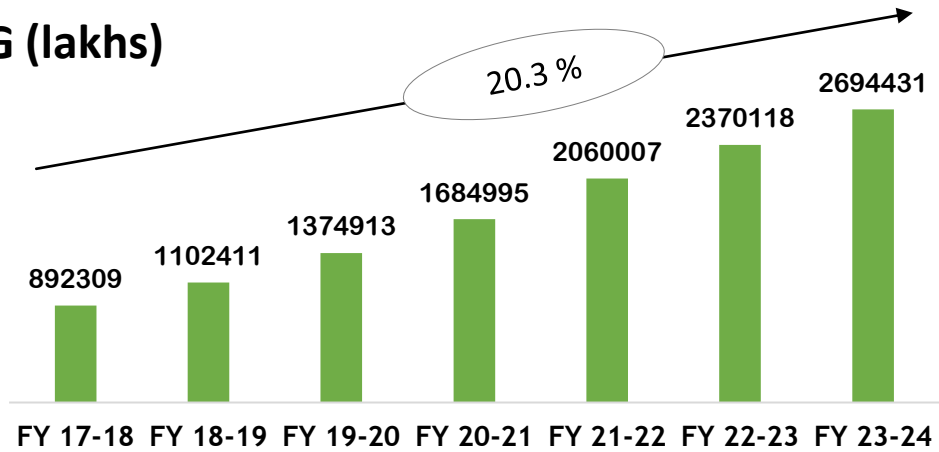
NATURE OF BUSINESS	TOTAL NO.
No. of CNG Stations	882
No. of Domestic Customers	27 Lakhs Approx.
No. of Commercial Customers	6058
No. of Industrial Customers	4819

Note: Above data contains value till 31.05.2024

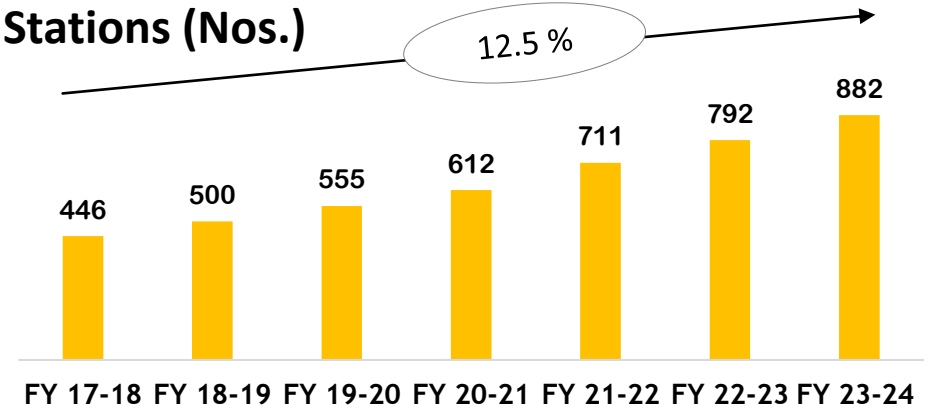


Physical Performance (Cumulative)

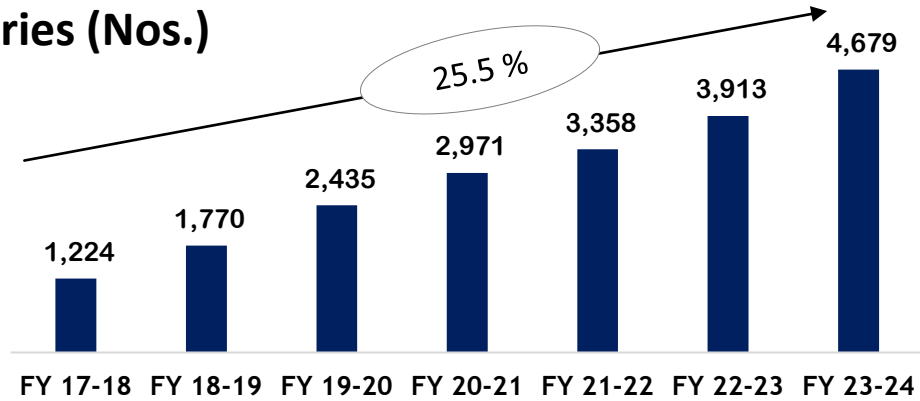
DPNG (lakhs)



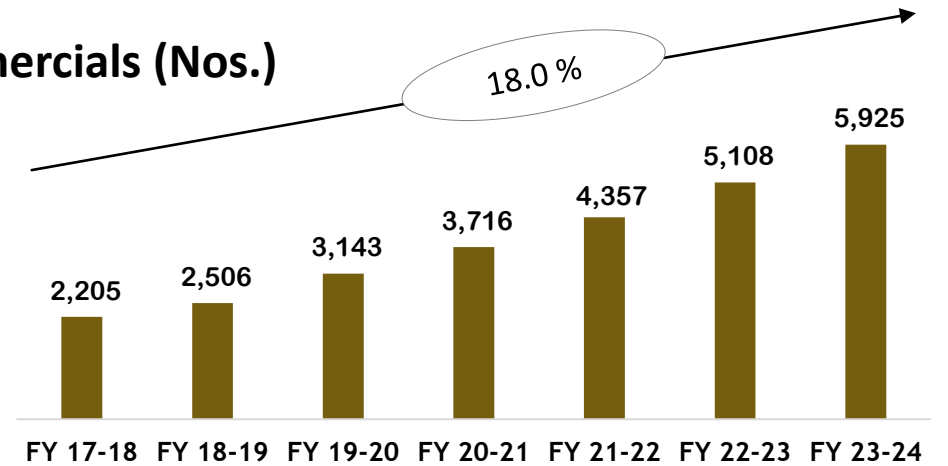
CNG Stations (Nos.)



Industries (Nos.)

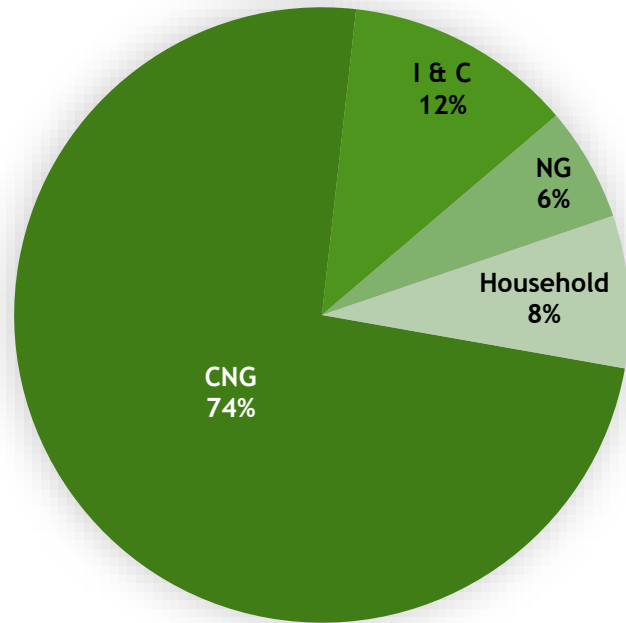


Commercials (Nos.)

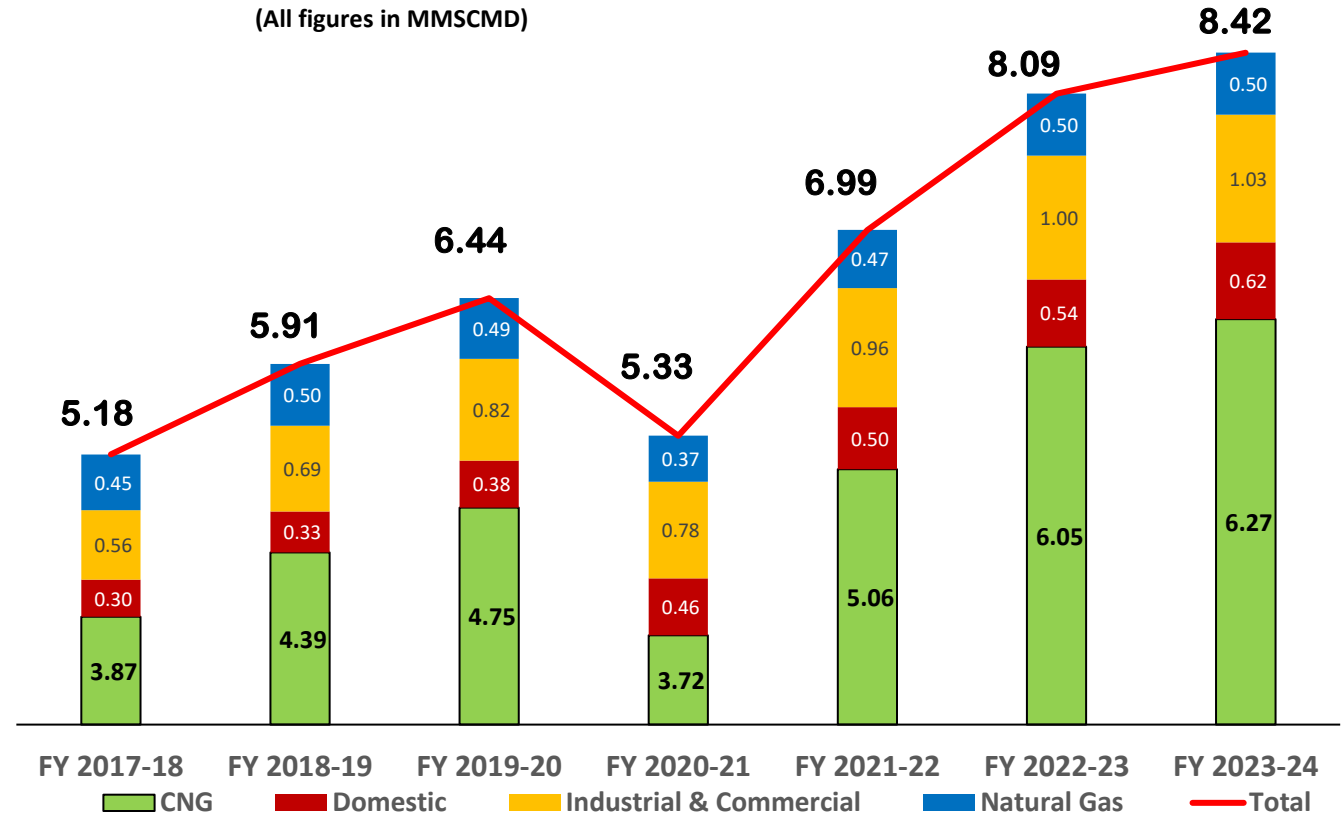


Sales Volume Mix

Total Sales – 8.42 mmcmd (FY2023-24)



(All figures in MMSCMD)



Delhi : 5.0 mmcmd

UP : 1.86 mmcmd

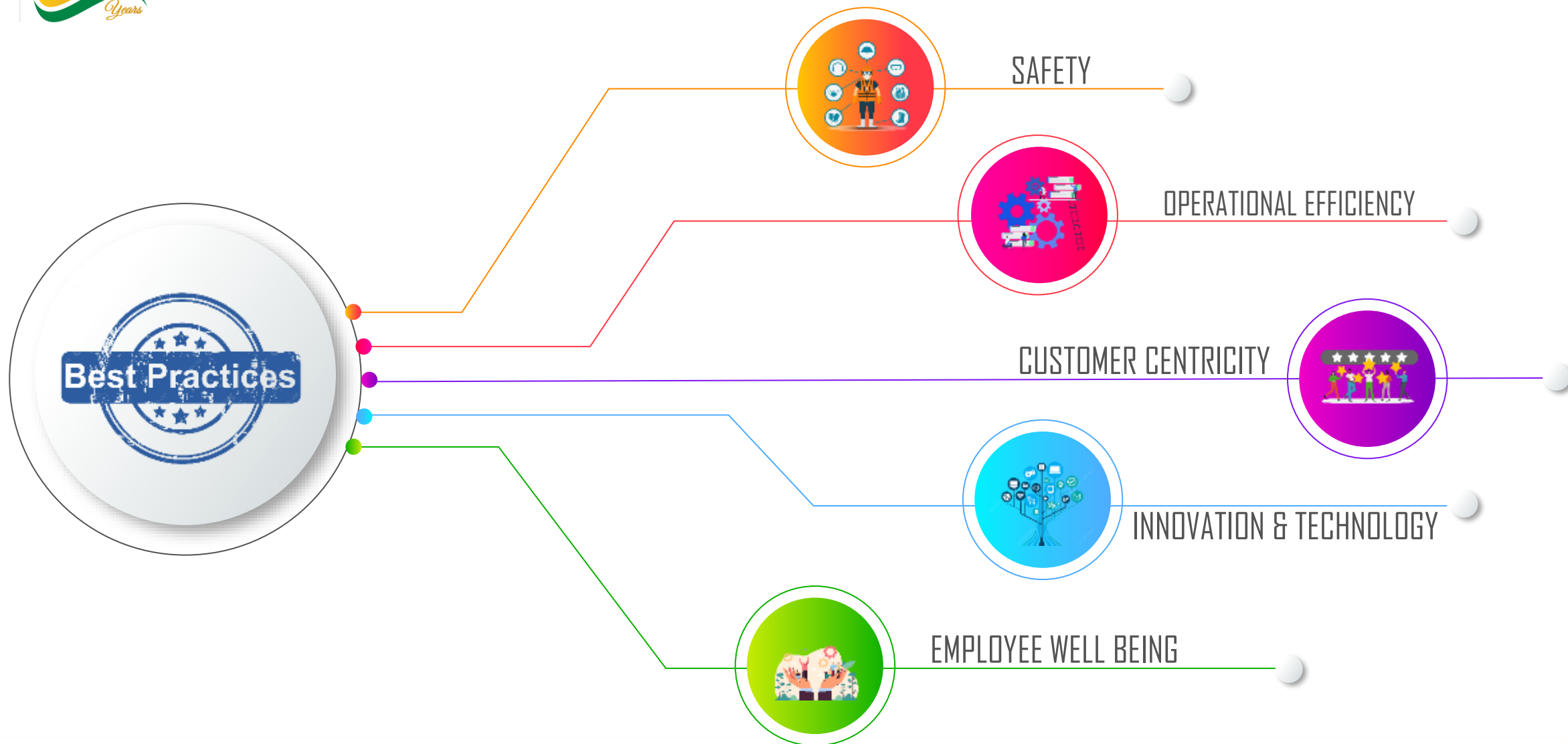
Haryana: 1.01 mmcmd

Rajasthan : 0.05 mmcmd

NG: 0.50 mmcmd



BEST PRACTICES IN CGD



CHALLENGES IN CNG OPERATIONS

LAND SPACE CONSTRAINT FOR CNG STATION

TRAFFIC MANAGEMENT AT CNG STATIONS

UTILIZATION OF COMPRESSORS AT BUS DEPOT

UTILIZATION OF BUS DISPENSERS

ENGINE OR MOTOR DRIVEN PACKAGE

PRICE CHANGE ACTIVITY IN DISPENSER

INTRODUCTION OF SMART CARD

CNG RECEIPTS THRU POS MACHINE

QUEUE MANAGEMENT AT CNG STATIONS (AAVEG)

HIGH CAPACITY CYLINDERS FOR VEHICLES

DATA COLLECTION AT ONE PLATFORM



LAND SPACE CONSTRAINT FOR CNG STATION

- ▶ Due to non-availability of costly real estate space, IGL tried “Equipment on RCC Canopy” concept, where the equipment like compressors, cascades & metering skid etc. are placed at the RCC canopy. This leaves space at the forecourt for installation of more dispensers resulting in increased dispensing capacity. The model has helped and we have revamped 4-5 CNG stations.

NANGLAMACHI CNG STATION





celebrating
25
Years

TRAFFIC MANAGEMENT, BUS DISPENSER UTILISATION, COMPRESSORS UTILIZATION

Dual dispensing Arm

(Bus/Non Bus)

- *Effective utilization of bus dispenser to fill non bus vehicles when bus fill is not taking place*



Dispensing Heavy Vehicles at Night

Effective Asset utilization and better traffic management

Hybrid CNG station

- *CNG dispensing facility outside Bus Depot utilizing Common Compression capacity and maximizing land use for dispensing*



Integrated CNG Compressing & Dispensing unit

Effective Utilization of limited land space



USE OF MOTOR DRIVEN COMPRESSOR

- Installation of Motor driven compressors/packages in the geographical areas where electricity charges are low.
- Planning electricity through open access
- Optimizing the operational cost.
- The limit of Open Access Transaction has been reduced from 1 MW to 100 kW for energy needs, Consumers are entitled to demand supply of Electricity from Discoms.

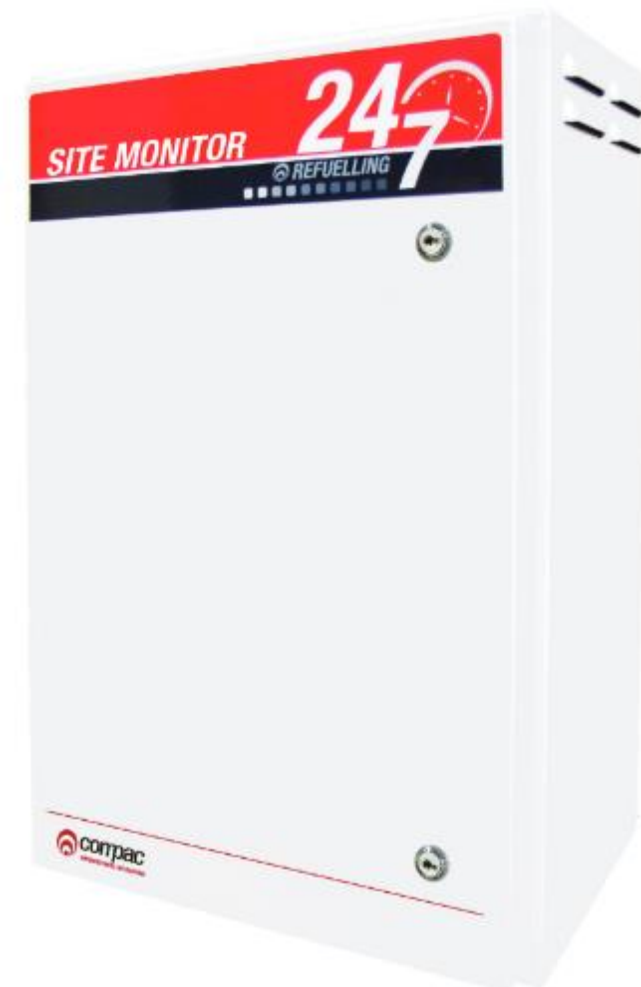




PRICE CHANGE IN DISPENSERS

Used in conjunction with CompacOnline, Compac's Site Monitor connects to dispensers for easy site monitoring & management

- ▶ **Adjust Pump Pricing** - select the price you want and when you want this to change
- ▶ **View Transactions** - view the transactional data by dispenser, site or network.
- ▶ **View Faults** - view the faults and error code data by dispenser, site or network.
- ▶ **Run Reports** - Export information from CompacOnline in PDF or Excel format





SITE MONITOR ONLINE DATA

SHIFT TOTAL S

	Dispenser	Inlet
Start Date	21/06/2024 08:00	21/06/2024 08:00
End Date	22/06/2024 08:00	22/06/2024 08:00
Shift (A)	6AM - 2PM	6AM - 2PM
Total	1313.843	
Shift (B)	2PM - 10PM	2PM - 10PM
Total		
Shift (C)	10PM - 6AM	10PM - 6AM
Total		
DAY TOTAL	1313.843	0.0000

INLET METER

Total

0

Flow Rate (Kg / Hr)

0

CAR

A

3286601.37

Totals

5.436

Last batch

74.09

Unit Price

08X-12856501-04

B

2277020.39

Totals

6.319

Last batch

74.09

Unit Price

C

2493165.90

Totals

4.613

Last batch

74.09

Unit Price

11X-13250601-03

D

2257660.47

Totals

2.052

Last batch

74.09

Unit Price

Last 10 Transactions

▼

Last 10 Events

▼

E

2257660.47

Totals

2.052

Last batch

74.09

Unit Price

Last 10 Transactions

▼

Last 10 Events

▼



IGL Smart Card

- To upgrade the payment facilities at IGL CNG stations, "IGL Smart Card Program" was launched in 2017 wherein prepaid cards were provided to CNG customers.
- Number of IGL Smart card users also surged up with approx. **1.65 Lacs cards in operation at present** which in turn adds to the brand value of IGL in digital platforms.
- **Up to 80% of business transactions** of IGL CNG sales volume is through Digital Modes



CNG RECEIPTS THRU POS MACHINE

IGL has engaged pine labs

- 1) For integrating dispensers with their system
- 2) For mapping live transactions & automatic generation of receipts from the POS machine.

Compatible to cater every digital transaction

IGL smart card
Credit / debit card
UPI etc.

Successfully implemented printing of transaction receipt automatically post filling of CNG, from the POS machine/ CNG dispensers

Ensuring transparency in transactions.

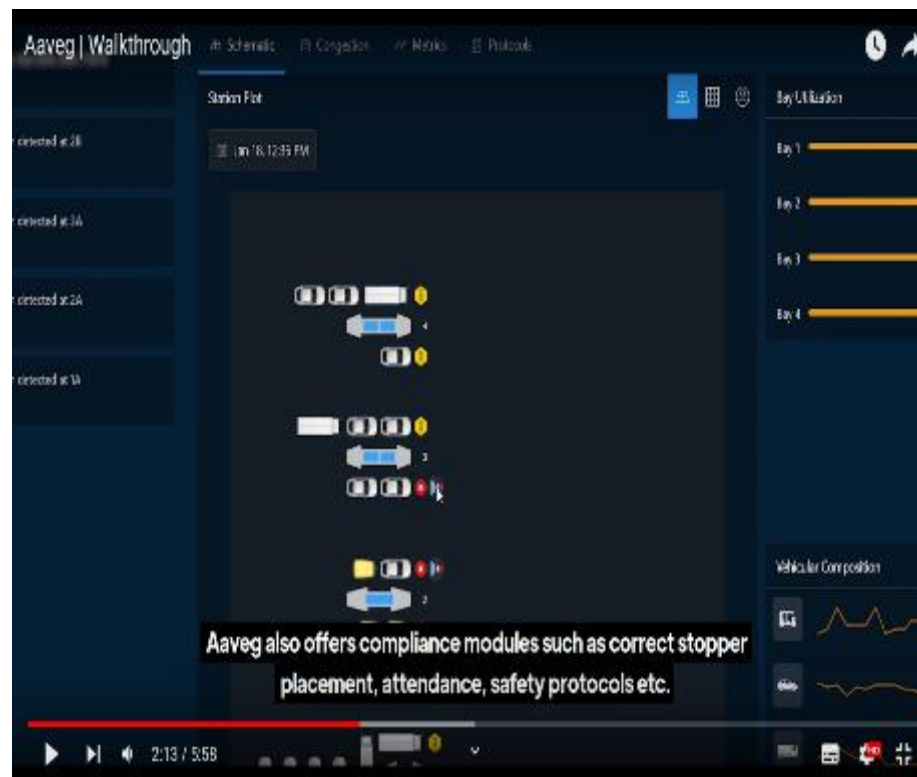
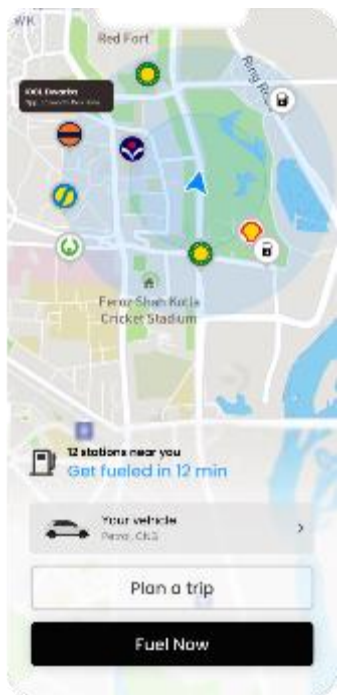


Pine Labs



AAVEG – QUEUE MANAGEMENT

In order to reduce the waiting time in the long queues of CNG filling, IGL has successfully implemented a AAVEG - Queue Management for CNG, which helps in increasing the operational efficiency at CNG Stations through queue management. It uses existing CCTV and dispenser infrastructure of the CNG Station



- Automatically verify hydro test dates (Pilot Project at 1 CNG Station)
- Automatically detect queues,
- Aggregate vehicles
- Measure resource utilization,





celebrating
25
Years

Mobile CNG Station and Type-IV Cylinders



- **Type IV Cylinders fitted Bus** commenced running from Dec 2020. 340 Water liters capacity cylinder can store up to 272 Kgs of CNG & can go 1000 kms in single fill.
- **5 Buses** have been introduced initially with the State of Uttarakhand. Talks in progress with other States

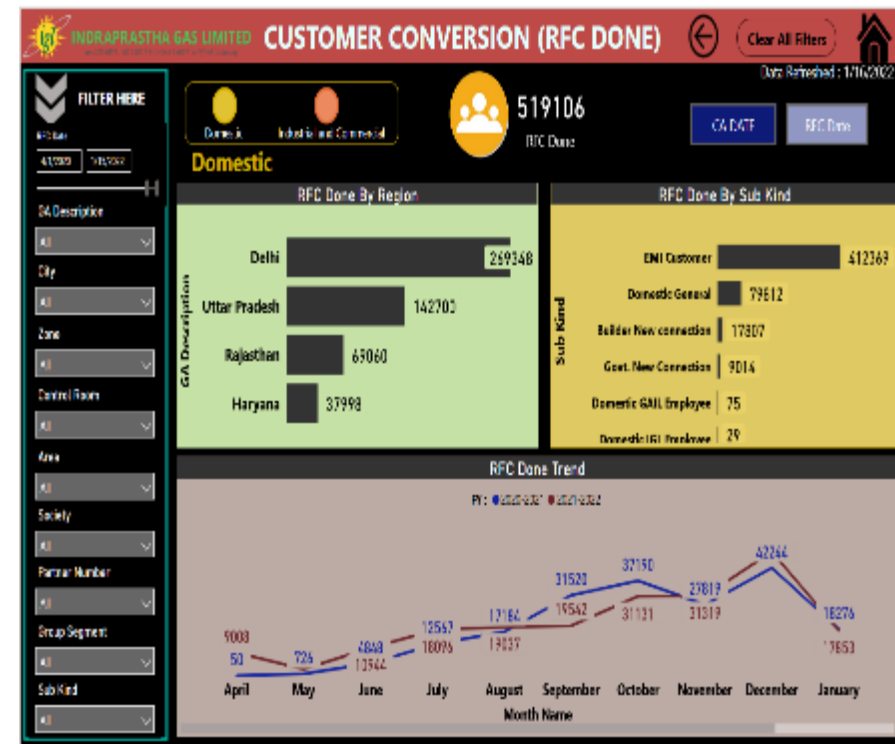


GSP (General Service Platform)



Benefits & Utilization

- Better Decision making backed by data
- Digital Transformation
- Time Saving
- Predictive Analysis
- Dynamic Reporting
- One stop Solution
- Data Reliability



CHALLENGES IN PNG OPERATIONS

DOMESTIC METER READINGS

DIGITALIZE DOMESTIC PNG REGISTRATION AND TRACKING

ELIMINATING PAPER BASED WORK PERMIT SYSTEM

SAFETY OF PIPELINE FROM THIRD PARTY DIGGING ACTIVITIES

- DEPLOYMENT OF PATROLLERS
- DEPOYMENT OF (ERV) EMERGENCY RESPONSE VEHICLE
- IMPLEMENTATION OF CBUD

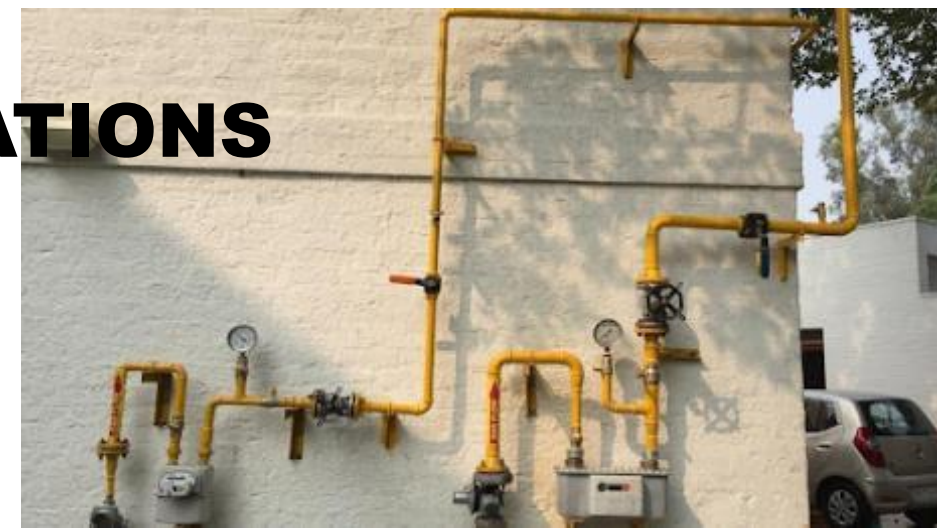
CONVENTIONAL TO DIGITAL MODES

- DIGITALIZE CUSTOMER PAYMENT EXPERIENCE
- ONE STOP SOLUTION
- HANDLING OF CUSTOMER COMPLAINTS
- PLANNING OF NEW CONTROL ROOMS
- PAPER BILLS TO E-BILLS

IMPLEMENTATION OF SCADA SYSTEM

MAPPING OF ASSETS IN GIS

GAS LEAKAGE TESTING/INDENTIFICATION



AMR DEVICES FOR DOMESTIC METER READING

- ▶ Provide a solution to improve meter reading efficiency and eliminate billing data manipulation without having to intrude into the consumer premises .
- ▶ Eliminate manual meter reading.
- ▶ Better quality of data.

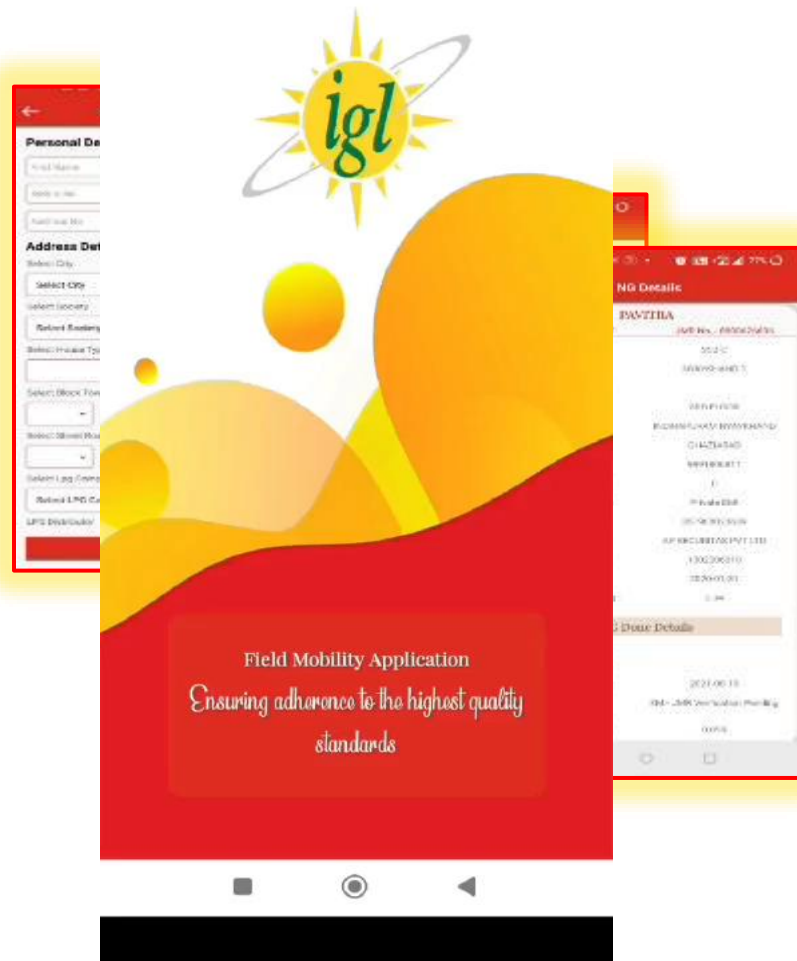




Field Mobility Application

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)





APP BASED SAFETY WORK PERMIT SYSTEM

▶ Safety Work Permit System

As per IGL's approved Safety work Permit Policy, all activities are done through

- Hot work Permit
- Cold work Permit

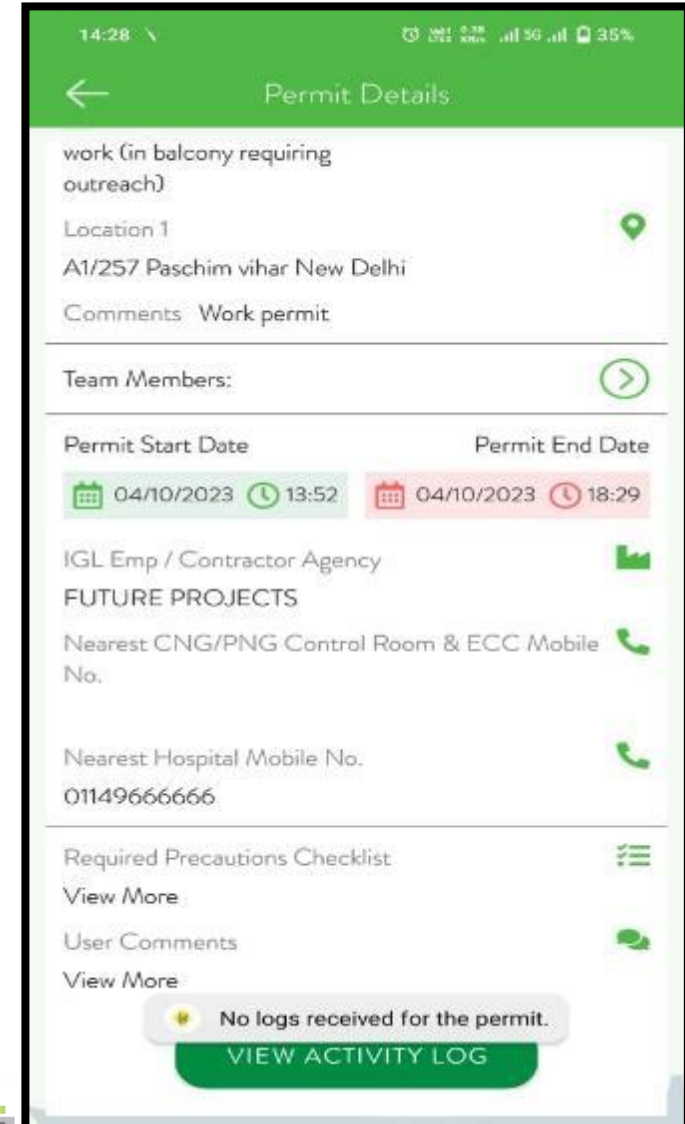
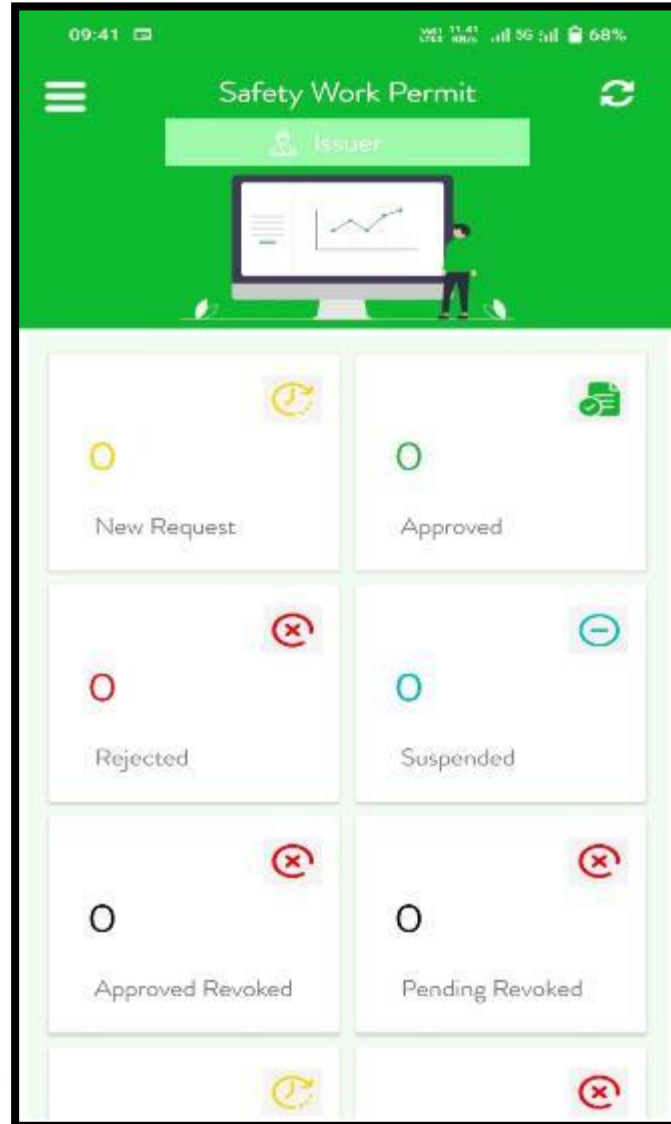
▶ IGL Safety Work Permit App

Authorized personnel is able to request permit as unique Training ID is the log-in ID.

Real time validation of as it captures site Geo-coordinates.



apture of site photographs.





celebrating
25
Years

THIRD PARTY DIGGING ACTIVITIES



PATROLLING

Around **900 security guards** ensure safety of pipelines



ERV

Strategically located round the clock manned by qualified, skilled and experienced staff State of Art **Emergency Response Vehicles**



APP BASED SAFETY WORK PERMIT SYSTEM

All activities are done through
- **Hot work Permit & Cold work Permit**



CBUD

Call Before you dig initiative in line with GOI directive



Digital Initiatives for Customers

Field MobilityApp

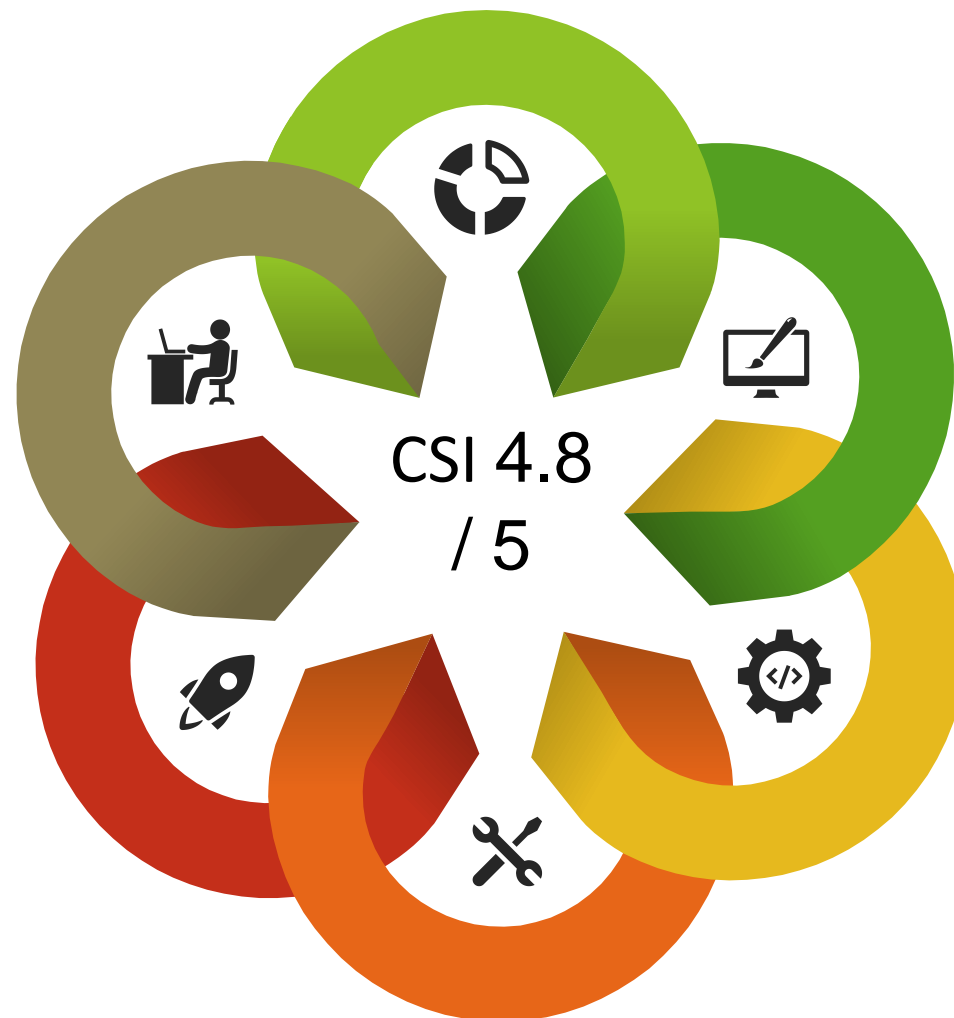
End to end process for customer registration for **domestic connections**

E-billing

70% customer subscribed e-bill/WhatsApp bill – **Saving Rs. 7 cr. yearly**

Online Payments

Online payments by 97% PNG Domestic customers & nearly 50 % CNG customers.



Communication Channel

Mobile App, IGL Website, 24*7 Customer Care Centre, Social Media Platforms such as Facebook, Twitter, Koo etc.

Industrial Customers

Online Registration, AMR (> 70%), Online payments facility through IGL Portal, Net Banking, E-bill facility, etc..

Call Centre

8000 call per day, Complaint Closure TAT Ach- 97%

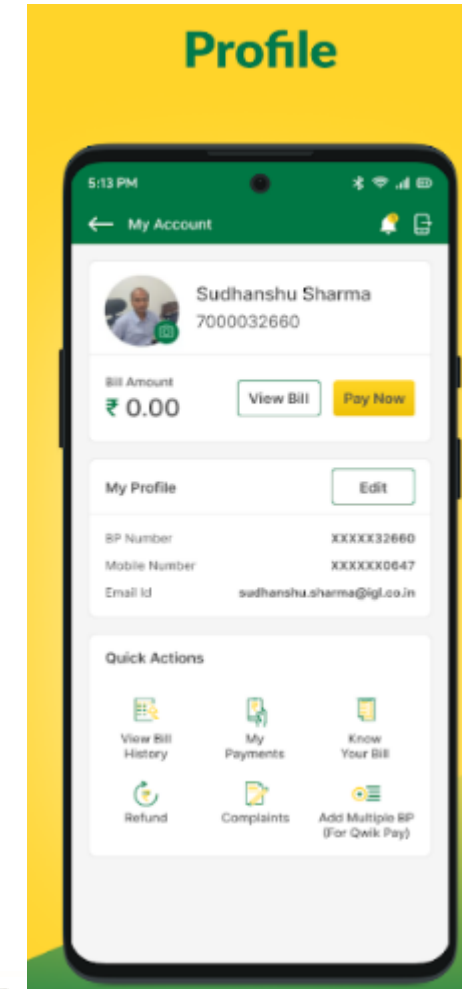
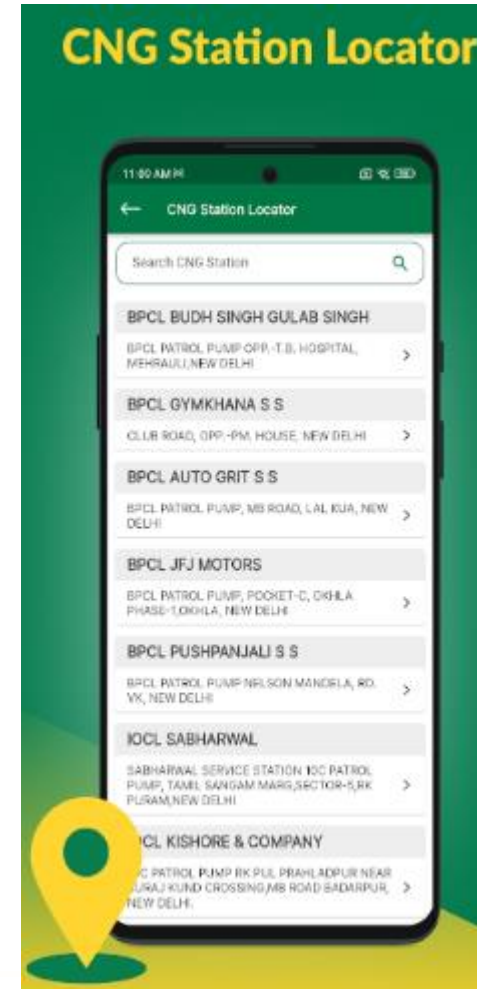




ONE STOP SOLUTION FOR CUSTOMERS IGL Connect Application

IGL connect serve as a one stop solution for Natural Gas Customers of IGL.

- ✓ New customer registration request for PNG connection
- ✓ Self billing through app without any meter reader intervention
- ✓ Special Meter Reading facility through book an appointment option
- ✓ Registration and tracking of Customer Service Requests/ Complaints
- ✓ Payment of gas bills through app
- ✓ CNG queue information at CNG station

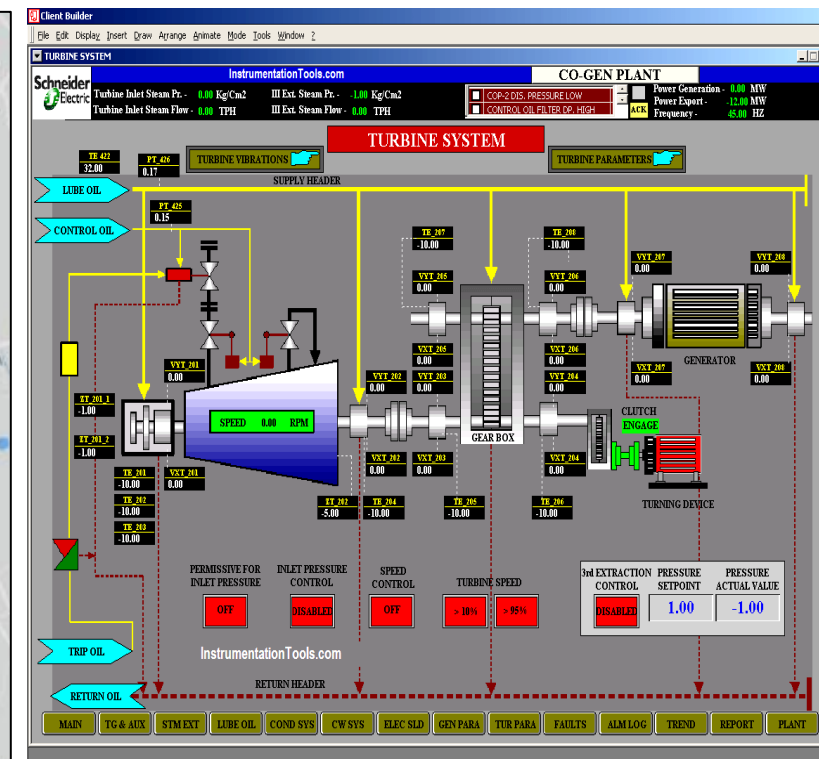
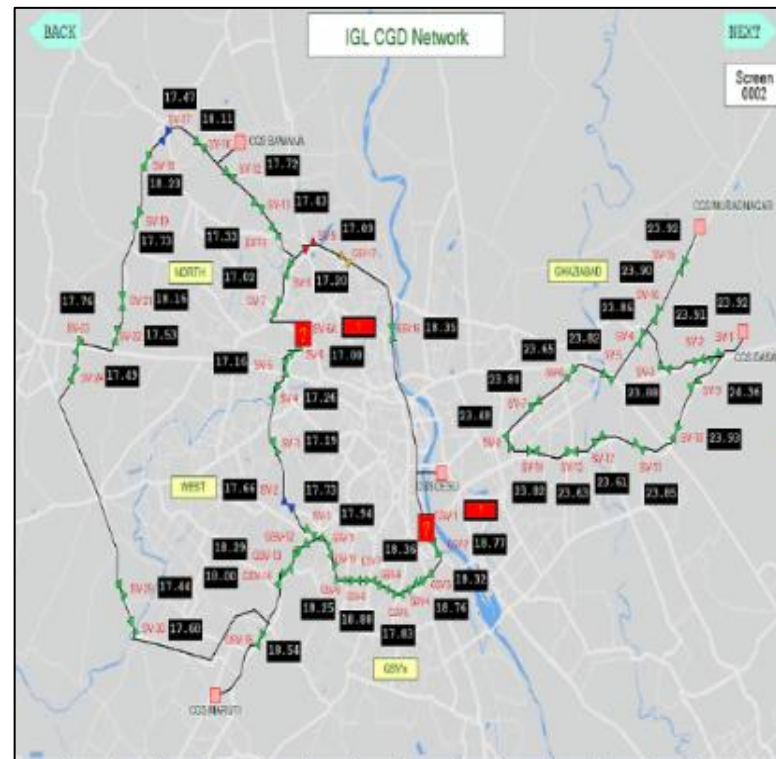


IMPLEMENTATION OF SCADA

Remote Pressure Monitoring and Operation of Sectionalizing Valves

► SCADA coverage:

- 622 CNG Stations are integrate with SCADA for Data Monitoring, Data Reporting and Remote Rate Change of Prices of CNG.
- 56 SVs are online on SCADA which can be operated (Open/Close) from central control room in case of exigencies.





TRU SCADA PORTAL

TRU Summary

Station Name	Date Time	TRV (Volts)	TRI (Amps)	Ref (Volts)	ACV (Volts)	TR Run Hrs (Hrs)	TR Door Status	Ovr Prot	Und Prot	Ref Fail
Pushpa Bhawan CNG										
DKKPL Metcalfe CNG										
Gail Desu										
Chatarpur Do Do	21/06/2024 09:00:08	0.88	0.28	-1.09	210.1	8923.7	OPEN	Normal	Normal	Normal
Naglamachi	21/06/2024 09:00:22	0.9	0.07	-1.132	197.3	8925.4	OPEN	Normal	Normal	Normal
DSIDC OKHLA PHASE 2										
Sawada Ghevara	21/06/2024 08:00:08	1.15	0.67	-1.217	256.8	8936.2	CLOSE	Normal	Normal	Normal
Shakrpur										
AANAND PRABAT										
DIMMS Dwarka										
Nanakpayau										
Mayur Vihar										
Gourav Ent, Sidhrwali, Anita DODO										





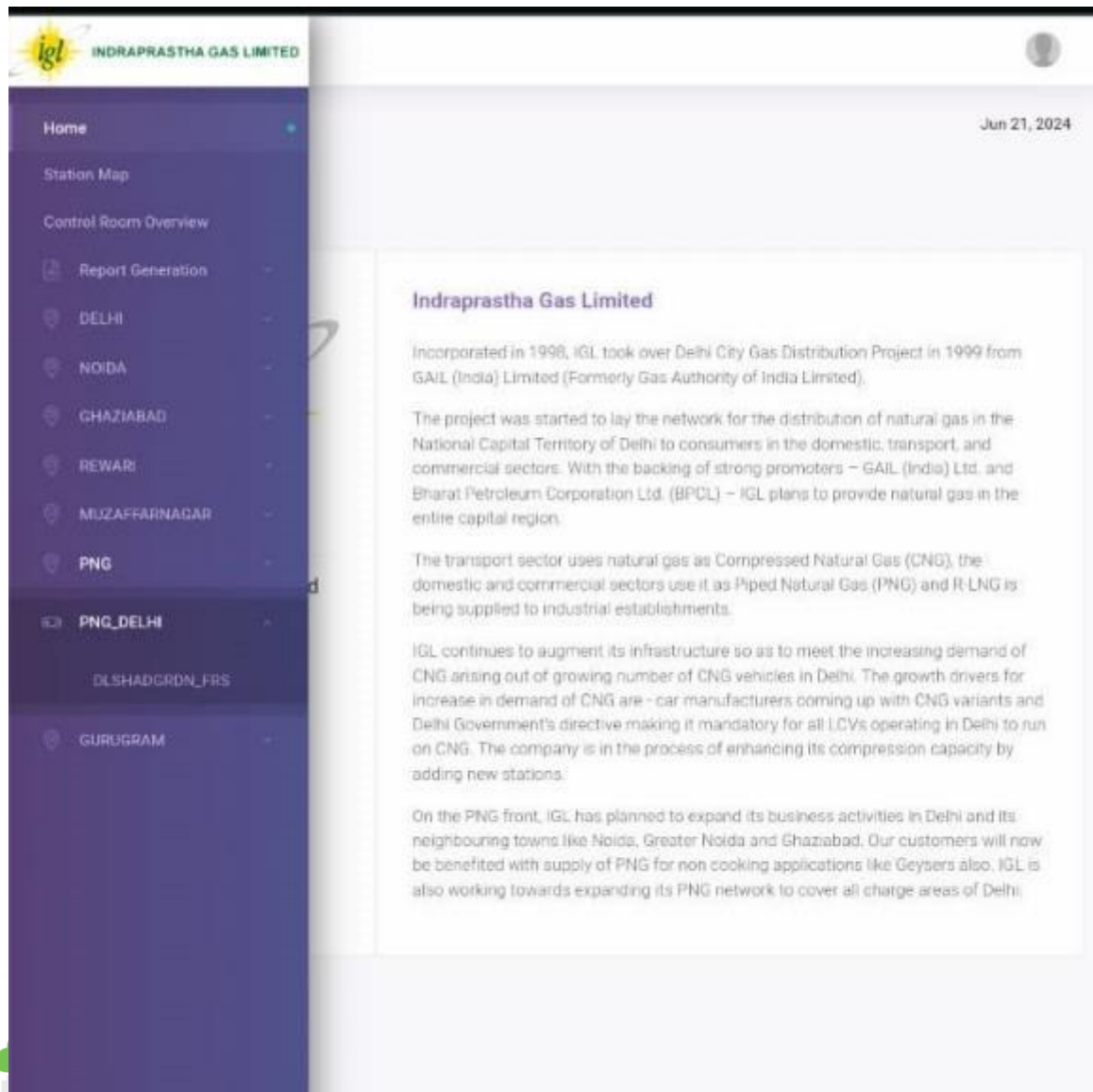
TRU SCADA PORTAL

TRU Summary

Station Name	Date Time	TRV (Volts)	TRI (Amps)	Ref (Volts)	ACV (Volts)	TR Run Hrs (Hrs)	TR Door Status	Ovr Prot	Und Prot	Ref Fail
Anita DODO										
IT CITY										
BETA II CNG	21/06/2024 09:00:21	1.15	0.26	-1.088	202.7	5537.5	CLOSE	Normal	Normal	Normal
NTPC DADRI										
HAPUR CNG	20/06/2024 00:00:04	1.34	0.24	-1.182	240.7	4638.2	CLOSE	Normal	Normal	Normal
OM CNG Filling St										
Dharuhera CGS										
GURU CHHAYA	20/06/2024 00:00:00	3.38	2.01	-1.695	234.9	3245.7	CLOSE	Normal	Normal	Normal
HP PUMP REWARI 3										
CGS KARNAL										
Mahaveer Pump										
Royal Pump										
Transp Muzaffar Nagar	21/06/2024 09:00:00	1.56	0.68	-1.227	250.6	539.5	OPEN	Normal	Normal	Normal
CGD M.nagar	21/06/2024 07:24:29	0	0	0.027	0	2055.3	OPEN	Normal	Und Prot	Ref Fail
CP-TRI-02R										



FRS SCADA PORTAL



INDRAPRASTHA GAS LIMITED

Home Jun 21, 2024

Station Map

Control Room Overview

Report Generation

DELHI

NOIDA

HAZIABAD

REWARI

MUZAFFARNAGAR

PNG

PNG_DELHI

DLSHADGRDN_FRS

GURUGRAM

Indraprastha Gas Limited

Incorporated in 1998, IGL took over Delhi City Gas Distribution Project in 1999 from GAIL (India) Limited (Formerly Gas Authority of India Limited).

The project was started to lay the network for the distribution of natural gas in the National Capital Territory of Delhi to consumers in the domestic, transport, and commercial sectors. With the backing of strong promoters – GAIL (India) Ltd. and Bharat Petroleum Corporation Ltd. (BPCL) – IGL plans to provide natural gas in the entire capital region.

The transport sector uses natural gas as Compressed Natural Gas (CNG), the domestic and commercial sectors use it as Piped Natural Gas (PNG) and R-LNG is being supplied to industrial establishments.

IGL continues to augment its infrastructure so as to meet the increasing demand of CNG arising out of growing number of CNG vehicles in Delhi. The growth drivers for increase in demand of CNG are - car manufacturers coming up with CNG variants and Delhi Government's directive making it mandatory for all LCVs operating in Delhi to run on CNG. The company is in the process of enhancing its compression capacity by adding new stations.

On the PNG front, IGL has planned to expand its business activities in Delhi and its neighbouring towns like Noida, Greater Noida and Ghaziabad. Our customers will now be benefited with supply of PNG for non cooking applications like Geysers also. IGL is also working towards expanding its PNG network to cover all charge areas of Delhi.

#	Parameter	Value	#	Parameter	Value
1	SKID INLET PRESSURE	18.30 Bar	2	STREAM 1 METERING PRESSURE	3.93 Bar
3	STREAM 2 METERING PRESSURE	3.87 Bar			

Temperature Parameters

#	Parameter	Value	#	Parameter	Value
1	STREAM 1 METERING TEMPERATURE	27.04 Deg C	2	STREAM 2 METERING TEMPERATURE	27.75 Deg C

Other Parameters

#	Parameter	Value	#	Parameter	Value
1	STREAM 1 CORR VOL FLOW RATE	1,148.79 scmh	2	STREAM 2 CORRE VOL FLOW RATE	1,140.00 scmh
3	STREAM 1 CORR VOL TODAY TOTAL	13,696.25 scm	4	STREAM 2 CORR VOL TODAY TOTAL	13,583.81 scm
5	STREAM 1 CORR VOL YST TOTAL	25,039.45 scm	6	STREAM 2 CORR VOL YST TOTAL	25,206.02 scm
7	STREAM 1 CORR VOL TOTAL	23,380,480.00 scm	8	STREAM 2 CORR VOL TOTAL	23,918,670.00 scm
9	STREAM 1 UNCRR VOL TOTAL	4,701,897.50 m3	10	STREAM 2 UNCRR VOL TOTAL	880,024.88 m3





ODORISATION UNIT PORTAL

ODORIZING UNITS (DELHI-NCR)										
UNIT NAME	DESU CGS	NOIDA CGS	MARUTI CGS	DASNA CGS	KASHA CGS	HTPC DADRI	BAWARA CGS	GT KARNAL DTC	NANGLOI DTC	SAKATPUR CGS
UNIT LOCATION	DELHI	NOIDA	GURUGRAM	GHAZIABAD	GREATER NOIDA	GREATER NOIDA	DELHI	DELHI	DELHI	GURUGRAM
VENDOR	CPL	CPL	CPL	VARICON	VARICON	VARICON	VARICON	VARICON	VARICON	VARICON
UNIT STATUS	RUNNING	RUNNING	RUNNING	RUNNING	RUNNING	RUNNING	RUNNING	RUNNING	STOPPED	RUNNING
ODORANT INJECTION MODE	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED	FLOW BASED
ODORANT TANK LEVEL	0 Kg	861 Kg	0 Kg	0 %	0 %	0 %	35 %	0 %	0 %	0 %
NG FLOW RATE	14.08 m3/s	0.00 m3/s	2.30 m3/s	3.50 m3/s	1.84 m3/s	8.99 m3/s	0.00 m3/s	0.14 m3/s	0.00 m3/s	0.12 m3/s
ODORANT INJECTION RATE	25.0 mg/m3	25.0 mg/m3	10.0 mg/m3	25.0 mg/m3	25.0 mg/m3	25.0 mg/m3	8.0 mg/m3	8.0 mg/m3	6.0 mg/m3	25.0 mg/m3
STROKE COUNT	3923196	1802087	1920915	3932293	1826299	2957196	963208	878315	794132	2868573
ODORANT INJECTION TOTALIZER	0 g	58322148 g	2024551 g	249111 g	956596 g	1937261 g	1537554 g	40927 g	138373 g	248654 g
YESTERDAY'S INJECTION TOTAL	0 g	29796 g	0 g	3450 g	8639 g	15096 g	5788 g	0 g	0 g	1320 g
LAST 10 DAY'S INJECTION AVERAGE	-2147483648 g	543982 g	-2147483648 g	1371 g	4832 g	14991 g	5785 g	-2147483648 g	-2147483648 g	1200 g





GIS (Geographical Information System)



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



Asset Management



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

Outage Management

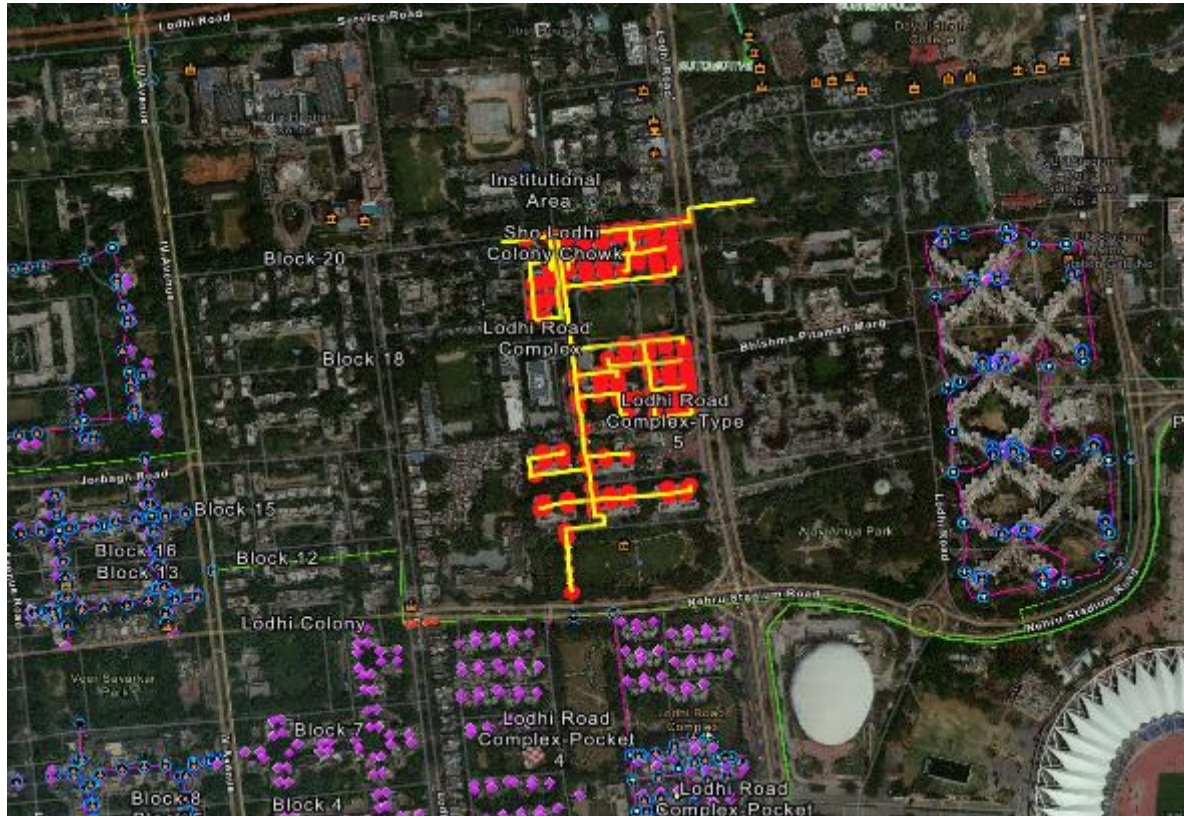


- ✓ Identify Valves to be closed
- ✓ Share outage location with O&M and F&S in charges and management.
- ✓ Generate Outage Report with Summary of affected customers .
- ✓ Send Notification to affected customers with estimated time of restoration.



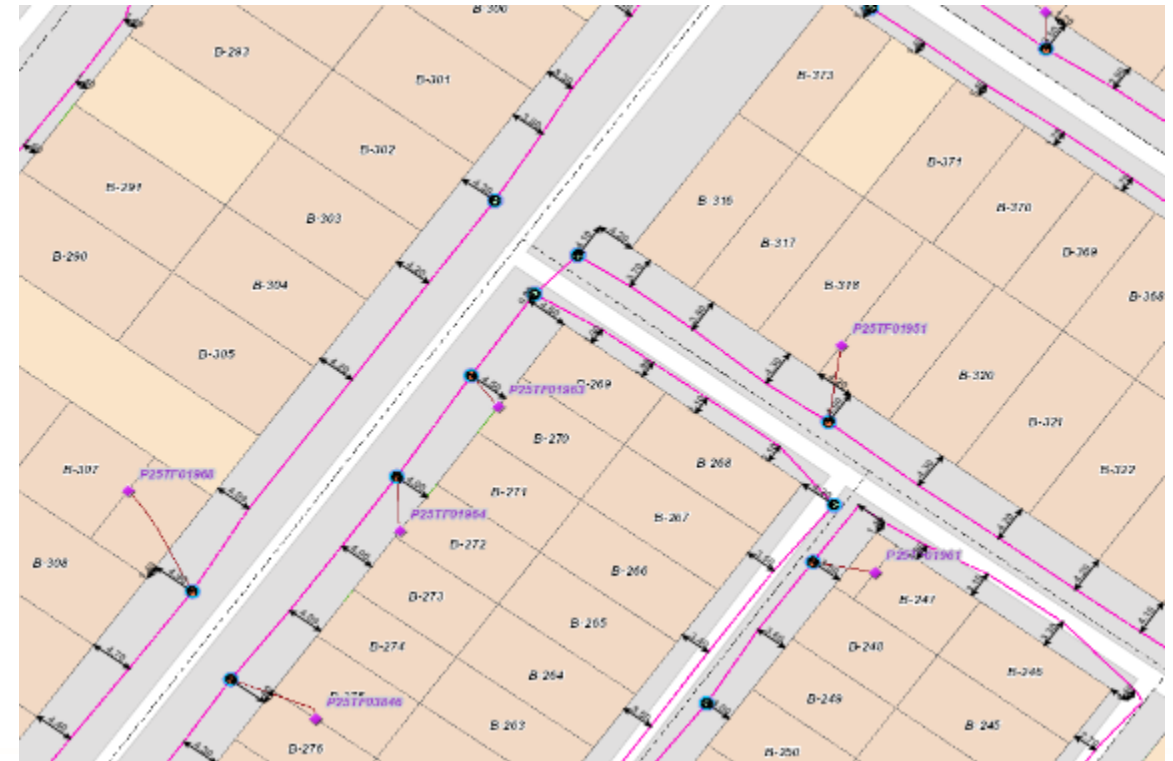


GIS (Geographical Information System)



Network Tracing:

- ✓ Identifying Valves to be closed in case of Outage
- ✓ Identifying impacted network & Customers in case of outage



ABD Digitization :

- ✓ Reducing Dependency on paper based maps.
- ✓ Accessibility from everywhere



LASER DETECTOR GAS LEAKAGE

- ▶ Laser Gas Detector is based on utilization of laser absorption spectrophotometer of methane gas for gas measurement.
- ▶ Detection Distance range is 0.5 - 30 Meters.
- ▶ Detection Limits for methane column density (ppm-m) is 1 - 50,000 (ppm-m) methane density (ppm) multiplied by the thickness (m)
- ▶ OEM of these detectors are
 - ▶ TOKYO GAS ENGG, JAPAN
 - ▶ HENAN ZHONG, CHINA





THANK YOU

