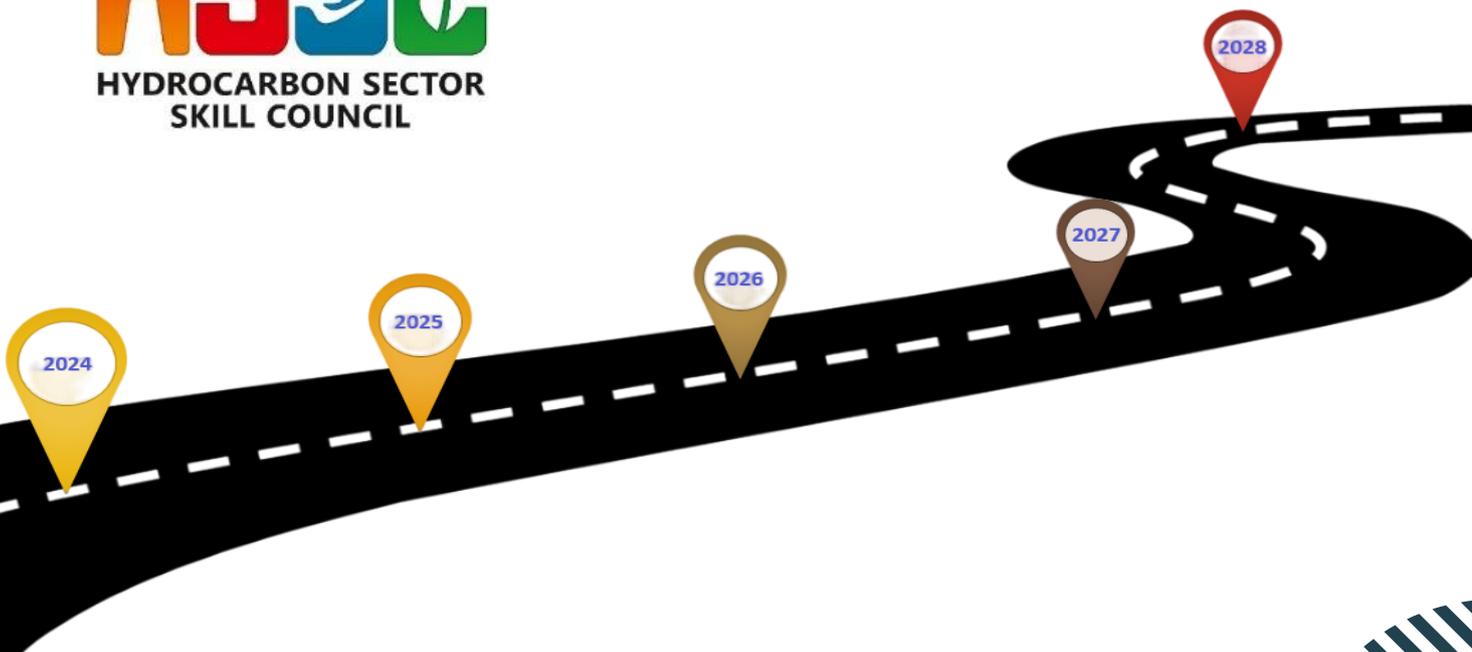




# Skill Gap Assessment across Hydrocarbon Sector in India

- September-2024



*Creating future ready workforce*

## Vision



We are a world class skill council meeting diverse skill requirement of the Hydrocarbon Industry and enhancing employability and opportunities, locally and globally.

## Mission



- ✓ Creating a pool of skilled manpower for hydrocarbon sector
- ✓ Benchmarking new skills and up-skilling National Occupational Standards (NOS)
- ✓ Promoting inclusive growth through economic and social equity
- ✓ Reaping 'Demographic Dividend'
- ✓ Improve productivity and sector competitiveness

# Skill Gap Study

**Skilling Roadmap for next  
5-years**





## TABLE OF CONTENTS

<b>Executive Summary:</b> .....	<b>5</b>
<b>1.0 LPG Business in India</b> .....	<b>7</b>
1.1 LPG Delivery Personnel (HYC/Q3201), NSQF level – 3 .....	8
1.2 LPG Mechanic (HYC/Q3401) NSQF level-3.....	9
1.3 Operator LPG Bottling Plant (HYC/Q6601) NSQF level-4 .....	10
1.4 Tank Lorry Driver-Petroleum Products (HYC/Q3301) NSQF level-4.....	11
<b>2.0 Retail Business in India</b> .....	<b>12</b>
2.1 Retail Outlet Attendant (Oil & Gas) (HYC/Q3101) NSQF level-3.....	13
2.2 Retail Outlet Attendant (Electric Vehicle Charging, Maintenance, Battery Swapping) (HYC/Q3101) NSQF level-3	14
<b>3.0 Fire &amp; Safety program at Construction/Project sites</b> .....	<b>15</b>
3.1 Fire Safety Supervisor-Oil & Gas (HYC/Q3602) NSQF level-5 .....	16
3.2 Fire Safety Technician (Oil & Gas) (HYC/Q3601) NSQF level-4.....	17
3.3 Process Safety Supervisor - Oil & Gas (HYC/Q3602) NSQF level-4.....	18
3.4 Fire & Safety Technician (Oil & Gas) (HYC/Q3601) NSQF level-4 .....	19
<b>4.0 City Gas Distribution Business in India</b> .....	<b>20</b>
4.1 Plumber Technician (City Gas Distribution-Oil & Gas) (HYC/Q6105) NSQF level-4 .....	21
4.2 Pipe Fitter – CGD/Oil & Gas (HYC/Q6103) NSQF level-4 .....	22
<b>5.0 Compressed Bio-Gas</b> .....	<b>23</b>
5.1 Compressed Bio-Gas Plant Operator (City Gas Distribution-Oil & Gas) (HYC/Q4401) NSQF level-3.5 .....	23
5.2 Compressed Bio-Gas Plant Technician (HYC/Q4402) NSQF Level-4.....	23
<b>6.0 Green Hydrogen</b> .....	<b>24</b>
6.1 Green Hydrogen Plant Operator (HYC/Q4001) NSQF Level – 4.5 .....	24
6.2 Green Hydrogen Plant Supervisor (HYC/Q4003) NSQF Level – 5 .....	24
6.3 Green Hydrogen Assistant Plant Supervisor (HYC/Q4002) NSQF Level – 4.5.....	24
6.4 Green Hydrogen Storage Assistant Technician (HYC/Q4005) NSQF Level – 3.5 .....	24
6.5 Fundamental of Green Hydrogen Storage & Transportation (HYC/MCr0005) NSQF Level – 4 .....	24
6.6 Concept of Green Hydrogen (HYC/MCr0002) NSQF Level – 3 .....	24
6.7 Advance Course on Green Hydrogen (HYC/MCr0009) NSQF Level – 4.5.....	24
<b>7.0 National Green Hydrogen Mission</b> .....	<b>25</b>
<b>8.0 Petrochemical</b> .....	<b>26</b>
8.1 Petrochemical Plant Operator – Production (HYC/Q 4501) NSQF Level – 4.5 .....	26
<b>9.0 Skill Development Training at Skill Development Institutes (Skilling):</b> .....	<b>27</b>
<b>10.0 HSSC Governing Council Members</b> .....	<b>28</b>
<b>11.0 Member Organization</b> .....	<b>29</b>

## EXECUTIVE SUMMARY:

The Hydrocarbon Sector Skill Council (HSSC) presents its comprehensive skill gap study across Oil & Gas sector in India and a roadmap next five years, aimed at skilling, re-skilling, and upskilling individuals across various domains within the hydrocarbon sector. This strategic plan focuses on addressing the evolving demands of the industry while aligning with national skilling objectives.

The HSSC's 5-year training roadmap reflects a proactive approach towards addressing the skill gaps within the hydrocarbon sector. By focusing on innovation, inclusivity, and industry collaboration, we aim to empower individuals with the requisite skills to thrive in a rapidly evolving industry landscape. Together, we can build a skilled workforce that drives the growth and sustainability of the hydrocarbon sector.

Sl. No	Skill Gap: (Skilling/Re-Skilling/Upskilling)	NSQF Level	2024-25	2025-26	2026-27	2027-28	2028-29	Total Nos.
1	LPG Delivery Personnel	3	8,000	10,000	10,000	12,000	12,000	52,000
2	LPG Mechanic	3	1,000	2,000	2,000	2,000	2,000	9,000
3	Operator LPG Bottling Plant	4	2,000	2,000	2,000	2,500	2,500	11,000
4	Tank Lory Driver- Petroleum Product	4	3,000	5,000	5,000	6,000	6,000	25,000
5	Retail Outlet Attendant (Oil & Gas)	3	11,000	15,000	20,000	20,000	20,000	86,000
6	Retail Outlet Attendant (Electric Vehicle Charging, Maintenance, Battery Swapping)	3	2,000	5,000	5,000	10,000	10,000	32,000
7	Fire Safety Supervisor – (Oil & Gas)	5	1,000	1,000	2,000	2,000	2,000	8,000
8	Fire Safety Technician (Oil & Gas)	4	1,500	1,500	3,000	3,000	3,000	12,000
9	Process Safety Supervisor – (Oil & Gas)	4	1,500	2,000	3,000	3,000	3,000	12,500
10	Fire Safety Technician (Oil & Gas) – O&M Setup	4	1,500	1,500	3,000	3,000	3,000	12,000
11	Plumber Technician (CGD/Oil & Gas)	4	10,000	10,000	10,000	15,000	15,000	60,000

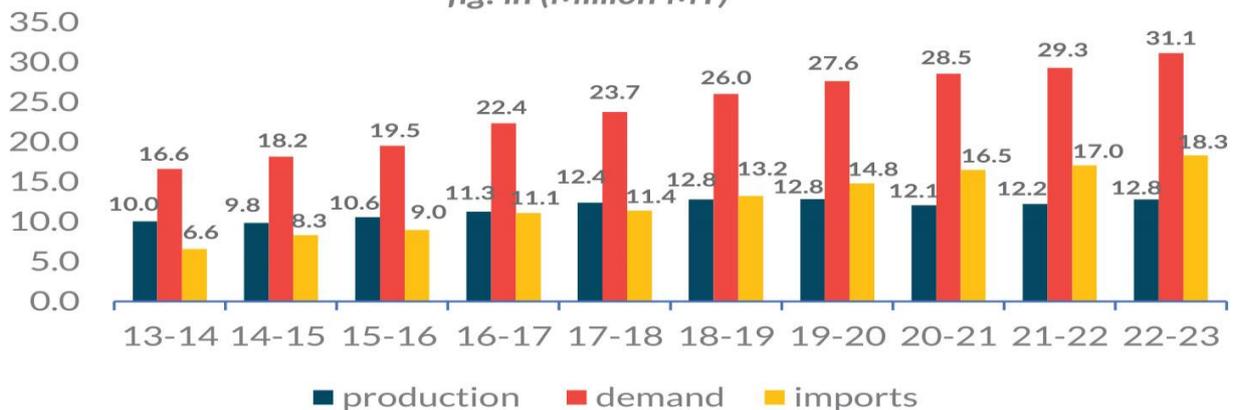
Sl. No	Skill Gap: (Skilling/Re-Skilling/Upskilling)	NSQF Level	2024-25	2025-26	2026-27	2027-28	2028-29	Total Nos.
12	Pipe Fitter – CGD/Oil & Gas	4	2,850	2,850	2,550	2,800	2,800	13,850
13	a. CBG Plant Operator (CGD/Oil & Gas)	3.5	500	1,000	1,000	1,500	1,500	5,500
	b. CBG Plant Technician	4						
<b>Special Skill Development Initiatives: Roadmap for skilling based on skill gap (Upskilling/Re-skilling)</b>								
14	Green Hydrogen Training for Industries	3 – 7	1,500	3,000	5,000	5,000	8,000	22,500
15	Green Hydrogen Training for ITIs	3 – 5	2,000	3,000	5,000	7,000	10,000	27,000
16	Green Hydrogen Training for Colleges	4 - 5	3,000	5,000	10,000	15,000	20,000	53,000
17	Green Hydrogen Training for Schools	3 – 4	5,000	8,000	10,000	12,000	15,000	50,000
18	Training Plan for Petrochemicals	3 – 5	500	1,000	1,000	1,500	1,500	5,500
19	Training at SDIs for HSSC Job Role	3 – 7	5,710	5,740	6,620	7,110	7,110	32,290

## 1.0 LPG BUSINESS IN INDIA

- LPG Production -12.8 MMTPA
- LPG Consumption -29.6 MMTPA
- LPG Distributors (PSUs) -25489
- LPG Bottling Plants (PSUs) -210
- LPG Bottling Capacity (PSUs)-22843 TMTPA
- LPG Active Domestic Consumers - 32.6 Crore
- Auto LPG – 572 nos.
- LPG - Pack Domestic -1938 thousand metric ton (9.1% growth in 2023-24)
- LPG Pack Non domestic: 191.4 thousand metric ton) Growth rate 1.9%)
- LPG Bulk – 17.5 (growth 136.1%)
- Auto LPG – 7.1 thousand metric ton (growth -12.6%)
- Total PSU Sales – 2154 thousand metric ton (Growth rate 9.4%)
- No of Delivery Personnel: - 2.5 Lac

\*Information Source – Petroleum Planning & Analysis cell (MoP&NG), 2023-24 (provisional data)

LPG Supply Demand – Outlook  
fig. in (Million MT)



## 1.1 LPG DELIVERY PERSONNEL (HYC/Q3201), NSQF LEVEL – 3

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

Target Participants: LPG Delivery Personnels engaged in LPG Distributorship.

S. No	Year	Region	Location	Area Office/ Territory			Total	Number of Delivery Personnel
				HPCL	BPCL	IOCL		
1	2024-25	N/E/W/S	TBD	4	4	8	16	8,000
2	2025-26	N/E/W/S	TBD	5	5	10	20	10,000
3	2026-27	N/E/W/S	TBD	5	5	10	20	10,000
4	2027-28	N/E/W/S	TBD	6	6	12	24	12,000
5	2028-29	N/E/W/S	TBD	6	6	12	24	12,000
<b>Total</b>				26	26	52	104	52,000

- ❖ N- North, E-East, W-West and S-South
- ❖ Each Area Office/Territory = 500 Delivery Personnel (Assumption)
- ❖ TBD- Location to be decided by respective OMCs based on criticality
- ❖ Calculation: - 16 (AO/Territory) x 500 (Delivery Personnel) = 8,000



## 1.2 LPG MECHANIC (HYC/Q3401) NSQF LEVEL-3

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

**Target Participants:** Contractual workforce engaged in LPG Business.

S. No	Year	Region	Location	Area Office/ Territory			Total	Number of LPG Mechanic
				HPCL	BPCL	IOCL		
1	2024-25	N/E/W/S	TBD	13	13	24	50	1,000
2	2025-26	N/E/W/S	TBD	26	26	48	100	2,000
3	2026-27	N/E/W/S	TBD	26	26	48	100	2,000
4	2027-28	N/E/W/S	TBD	26	26	48	100	2,000
5	2028-29	N/E/W/S	TBD	26	26	48	100	2,000
<b>Total</b>				117	117	216	450	9,000

- ❖ N- North, E-East, W-West and S-South
- ❖ Each Area Office/Territory = 20 LPG Mechanic
- ❖ TBD- Location to be decided by respective OMCs
- ❖ SDI Ahmedabad, Bhubaneswar, Kochi, Raebareli, Visakhapatnam & Guwahati shall also conduct LPG Mechanic training Program
- ❖ Calculation: - 50 (AO/Territory) x 20 (LPG Mechanic) = 1000



## 1.3 OPERATOR LPG BOTTLING PLANT (HYC/Q6601) NSQF LEVEL-4

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

*Target Participants: Contractual workforce engaged in LPG Bottling Plant*

S. No	Year	Region	Location	Area Office/ Territory			Total	Number of candidates
				HPCL	BPCL	IOCL		
1	2024-25	N/E/W/S	TBD	5	5	10	20	2,000
2	2025-26	N/E/W/S	TBD	5	5	10	20	2,000
3	2026-27	N/E/W/S	TBD	5	5	10	20	2,000
4	2027-28	N/E/W/S	TBD	6	6	13	25	2,500
5	2028-29	N/E/W/S	TBD	6	6	13	25	2,500
<b>Total</b>				27	27	56	110	11,000

- ❖ N- North, E-East, W-West and S-South
- ❖ Number of LPG Bottling Plant Operator/ Contract worker (Outsources) = 100 per plant (approx.)
- ❖ TBD- Location of Bottling plant to be decided by respective OMCs
- ❖ Calculation: - 20 (AO/Territory) x 100 (Operator per Plant) = 2,000



## 1.4 TANK LORRY DRIVER-PETROLEUM PRODUCTS (HYC/Q3301) NSQF LEVEL-4

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

**Target Participants:** Contractual Tank Truck Lorry Drivers engaged in Oil & Gas Sector. Tank Truck cleaners/ helpers, contract workers engaged in tank wagon loading/decantation, and fire and safety system maintenance. Contract workers engaged in unloading/loading ocean tankers.

S. No	Year	Region	Location	Area Office/ Territory			Total	Number of Tank Lorry Drivers
				HPCL	BPCL	IOCL		
1	2024-25	N/E/W/S	TBD	19	19	37	75	3,000
2	2025-26	N/E/W/S	TBD	31	31	63	125	5,000
3	2026-27	N/E/W/S	TBD	31	31	63	125	5,000
4	2027-28	N/E/W/S	TBD	37	37	76	150	6,000
5	2028-29	N/E/W/S	TBD	37	37	76	150	6,000
<b>Total</b>				155	155	315	625	25,000

- ❖ N- North, E-East, W-West and S-South
- ❖ Number of Tank Lorry Drivers at each plant = 40 per (approx.)
- ❖ TBD- Location of Bottling plant to be decided by respective OMCs
- ❖ Calculation: - 75 (AO/Territory) x 40 (Driver per Plant) = 3000



## 2.0 RETAIL BUSINESS IN INDIA

- Number of Retail Outlets: - 90165
- Out of Which Rural ROs: - 25572
- POL Terminals/Depots: - 310
- CNG/LNG: - 5926
- EV Charging Stations: - 17466
- Compressed Bio-Gas Outlets (CBG): - 148
- Solarization at Retail Outlets: - 68485
- MS Consumption in India: - 37.2 MMTPA
- HSD Consumption in India: - 89.7 MMTPA
- No of Pump Attendant: - 5.5 Lac

\*Information Source – Petroleum Planning & Analysis cell (MoP&NG), 2023-24 (provisional data)



## 2.1 RETAIL OUTLET ATTENDANT (OIL & GAS) (HYC/Q3101) NSQF LEVEL-3

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

*Target Participants: Contractual Workforce at Fuel Stations.*

S. No	Year	Region	Location	No of Retail Outlet				Total	Number of Pump Attendants
				HPCL	BPCL	IOCL	Others (RIL, MRPL)		
1	2024-25	N/E/W/S	TBD	250	250	500	100	1,100	11,000
2	2025-26	N/E/W/S	TBD	350	350	700	100	1,500	15,000
3	2026-27	N/E/W/S	TBD	475	475	950	100	2,000	20,000
4	2027-28	N/E/W/S	TBD	475	475	950	100	2,000	20,000
5	2028-29	N/E/W/S	TBD	475	475	950	100	2,000	20,000
<b>Total</b>				2,025	2,025	4,050	500	8,600	86,000

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 10 at each Retail Outlet is considered
- ❖ TBD- Location to be decided by respective OMCs at Divisional Offices/Territory
- ❖ Others: (1) RIL: - 1,709 (2) NEL: - 6,587 (3) Shell: - 340 (4) MRPL & Others: - 103
- ❖ Calculation: - 1,100 (Nos. of Outlet) x 10 (No per Batch) = 11,000



## 2.2 RETAIL OUTLET ATTENDANT (ELECTRIC VEHICLE CHARGING, MAINTENANCE, BATTERY SWAPPING) (HYC/Q3101) NSQF LEVEL-3

Skill Gap & Training Plan (Skilling/Upskilling):

*Target Participants: Contractual Workforce at Fuel Stations.*

S. No	Year	Region	Location	No of Retail Outlet				Total	Number of Pump Attendants
				HPCL	BPCL	IOCL	Others		
1	2024-25	N/E/W/S	TBD	237	237	476	50	1000	2,000
2	2025-26	N/E/W/S	TBD	600	600	1200	100	2500	5,000
3	2026-27	N/E/W/S	TBD	600	600	1200	100	2500	5,000
4	2027-28	N/E/W/S	TBD	1200	1200	2400	200	5000	10,000
5	2028-29	N/E/W/S	TBD	1200	1200	2400	200	5000	10,000
<b>Total</b>				<b>3,837</b>	<b>3,837</b>	<b>7,676</b>	<b>650</b>	<b>16,000</b>	<b>32,000</b>

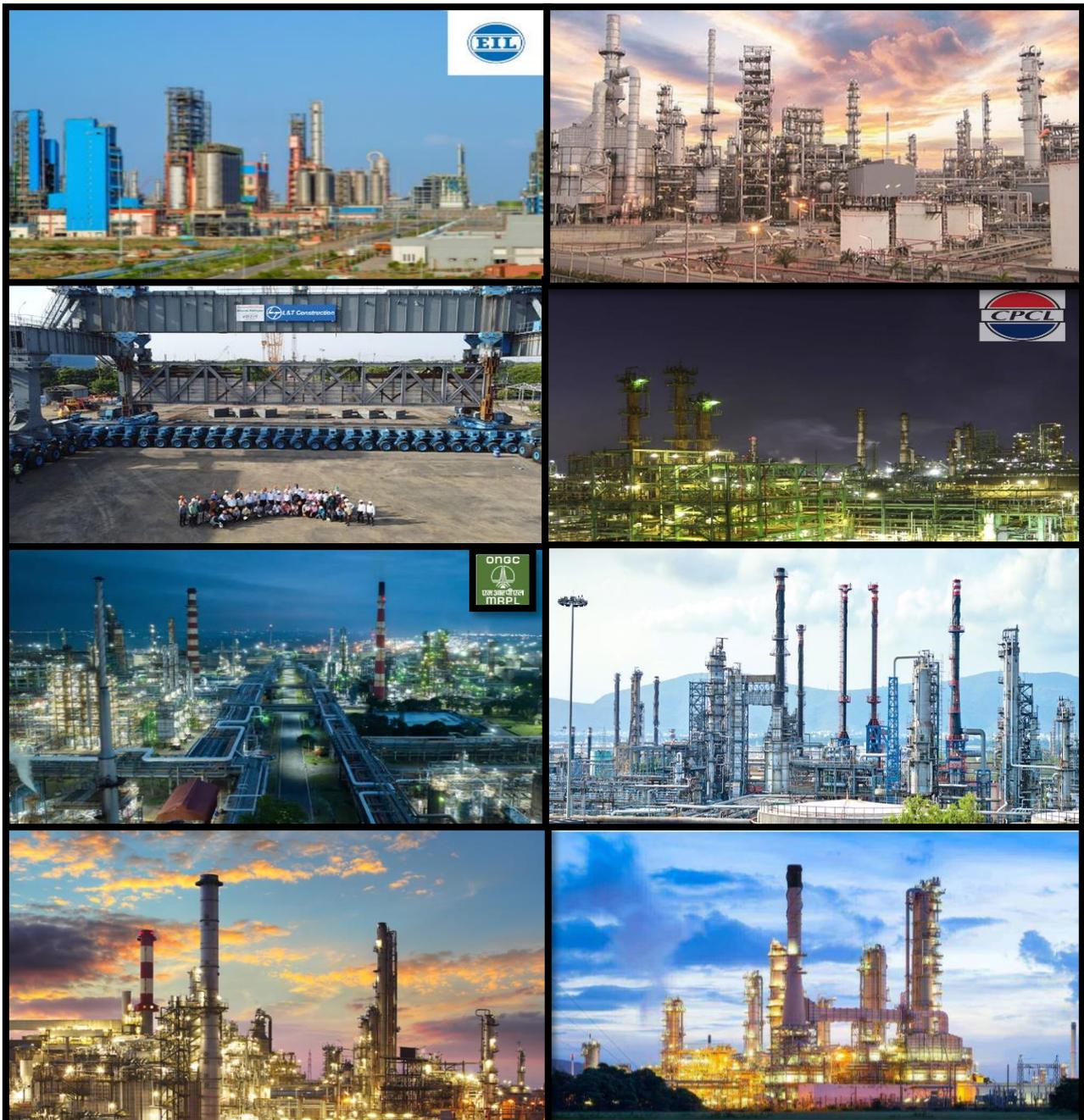
- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch size of 2 at each Retail Outlet is considered
- ❖ TBD- Location to be decided by respective OMCs at Divisional Offices/Territory
- ❖ Others: (1) IOCL: - 9,847                      (2) BPCL: - 3,141                      (3) HPCL: - 3,603  
(4) RBML/RSIL: - 81                      (5) NEL: - 518                      (6) Shell: - 255  
(7) MRPL: - 21
- ❖ Calculation: - 1,000 (Nos. of EV Charging Outlet) x 2 (No of Attendant per Batch) = 2,000



## 3.0 FIRE & SAFETY PROGRAM AT CONSTRUCTION/PROJECT SITES

- Construction/ Project Sites
  - Panipat Refinery & Petrochemical Complex
  - Barauni Refinery
  - Gujarat Refinery
  - Barmer Refinery
  - Bina Refinery
  - Narimanam Refinery (CBR)
  - Visakhapatnam Refinery
  - Kochi Refinery

\*Information Source – Petroleum Planning & Analysis cell (MoP&NG), 2023-24 (provisional data)



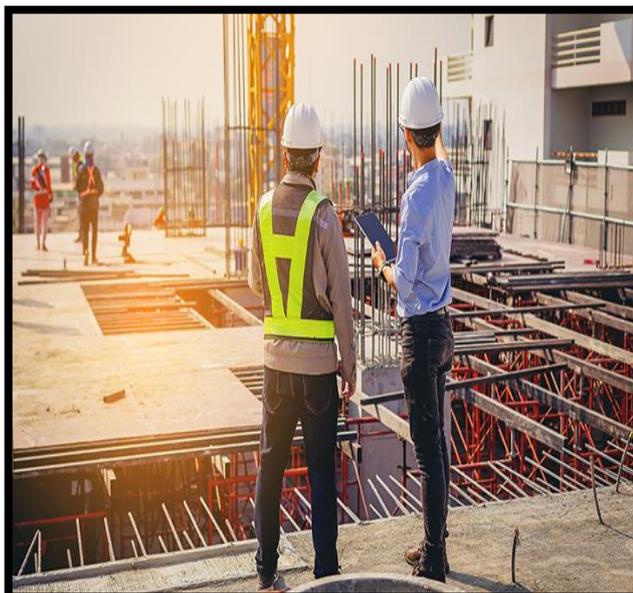
### 3.1 FIRE SAFETY SUPERVISOR-OIL & GAS (HYC/Q3602) NSQF LEVEL-5

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

*Target Participants: Supervisors engaged by the contractors at Project/Construction sites.*

S. No	Year	Region	Location	No of training program				Total	Nos. of Fire Safety Supervisor
				HPCL	BPCL	IOCL	Others (EIL, OIL, ONGC, GAIL, PLL etc.)		
1	2024-25	N/E/W/S	TBD	10	10	20	10	50	1,000
2	2025-26	N/E/W/S	TBD	10	10	20	10	50	1,000
3	2026-27	N/E/W/S	TBD	22	22	46	10	100	2,000
4	2027-28	N/E/W/S	TBD	22	22	46	10	100	2,000
5	2028-29	N/E/W/S	TBD	22	22	46	10	100	2,000
<b>Total</b>				<b>86</b>	<b>86</b>	<b>178</b>	<b>50</b>	<b>400</b>	<b>8,000</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 20 at each Refinery Location
- ❖ TBD- Location to be decided by respective OMCs at Refinery Location/Construction Sites
- ❖ Calculation: - 50 (Nos. of Program) x 20 (Batch size) = 1,000



## 3.2 FIRE SAFETY TECHNICIAN (OIL & GAS) (HYC/Q3601) NSQF LEVEL-4

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

**Target Participants:** Contract workforce, Contract Technicians, Outsourced workforce engaged in projects/construction sites. Outsourced and Contract workers engaged in O&M activities. Contract workers engaged in Quality Control (QC) labs, electrician working under contractors.

S. No	Year	Region	Location	No of training program				Total	Number of Technicians
				HPCL	BPCL	IOCL	Others (EIL, OIL, ONGC, GAIL, PLL etc.)		
1	2024-25	N/E/W/S	TBD	10	10	20	10	50	1,500
2	2025-26	N/E/W/S	TBD	10	10	20	10	50	1,500
3	2026-27	N/E/W/S	TBD	21	21	43	15	100	3,000
4	2027-28	N/E/W/S	TBD	21	21	43	15	100	3,000
5	2028-29	N/E/W/S	TBD	21	21	43	15	100	3,000
<b>Total</b>				<b>83</b>	<b>83</b>	<b>169</b>	<b>65</b>	<b>400</b>	<b>12,000</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 30 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: - 50 (No of Program) x 30 (No of Participants per Batch) =1,500



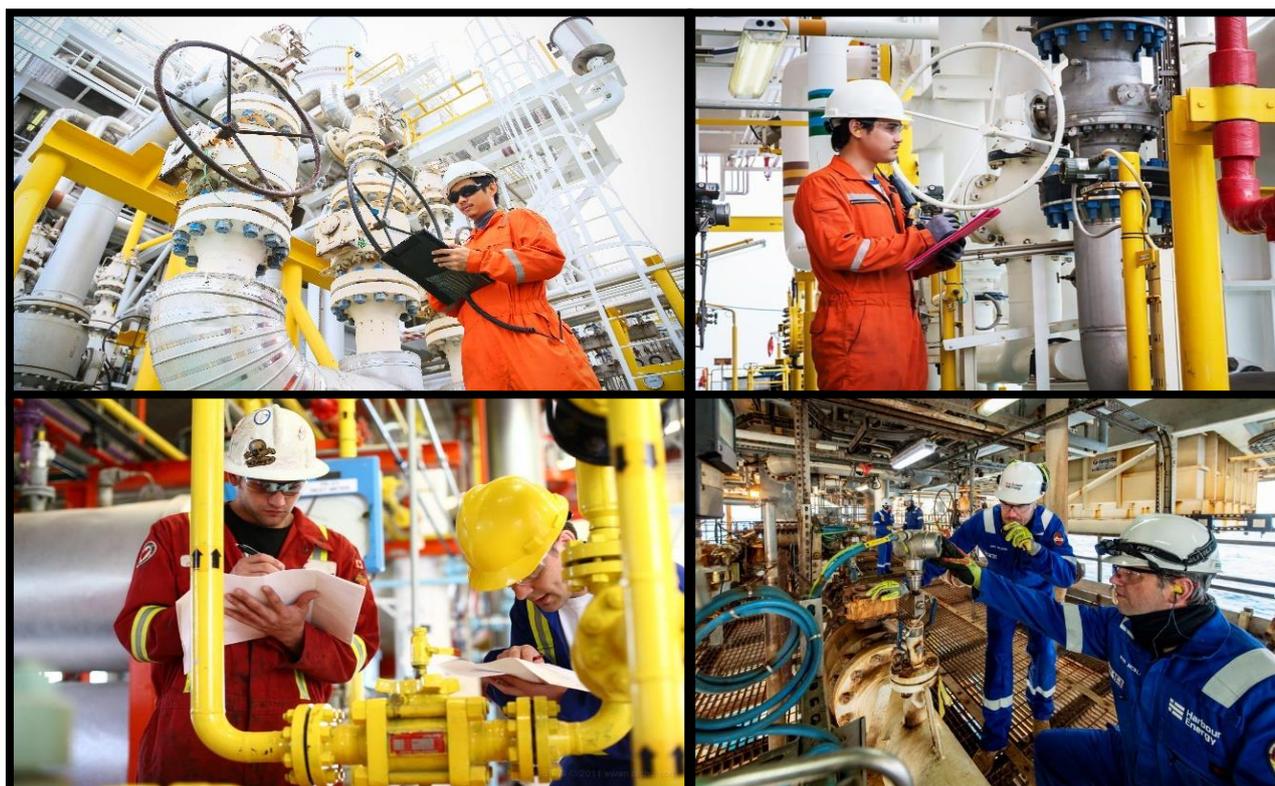
### 3.3 PROCESS SAFETY SUPERVISOR - OIL & GAS (HYC/Q3602) NSQF LEVEL-4

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

**Target Participants:** Supervisors engaged by contractors at project/Construction sites for construction activities, project management consultant (PMCs), licensors, and owners. Safety supervisors handling safety.

S. No	Year	Region	Location	No of training program				Total	Number of participants
				HPCL	BPCL	IOCL	Others (EIL, OIL, ONGC, GAIL, PLL, MRPL, CPCL etc.)		
1	2024-25	N/E/W/S	TBD	12	12	26	10	60	1,500
2	2025-26	N/E/W/S	TBD	16	16	33	15	80	2,000
3	2026-27	N/E/W/S	TBD	25	25	50	20	120	3,000
4	2027-28	N/E/W/S	TBD	25	25	50	20	120	3,000
5	2028-29	N/E/W/S	TBD	25	25	50	20	120	3,000
<b>Total</b>				<b>103</b>	<b>103</b>	<b>209</b>	<b>85</b>	<b>500</b>	<b>12,500</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 25 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: - 60 (No of Training Program) x 25 (No of Participants per Batch) = 1,500



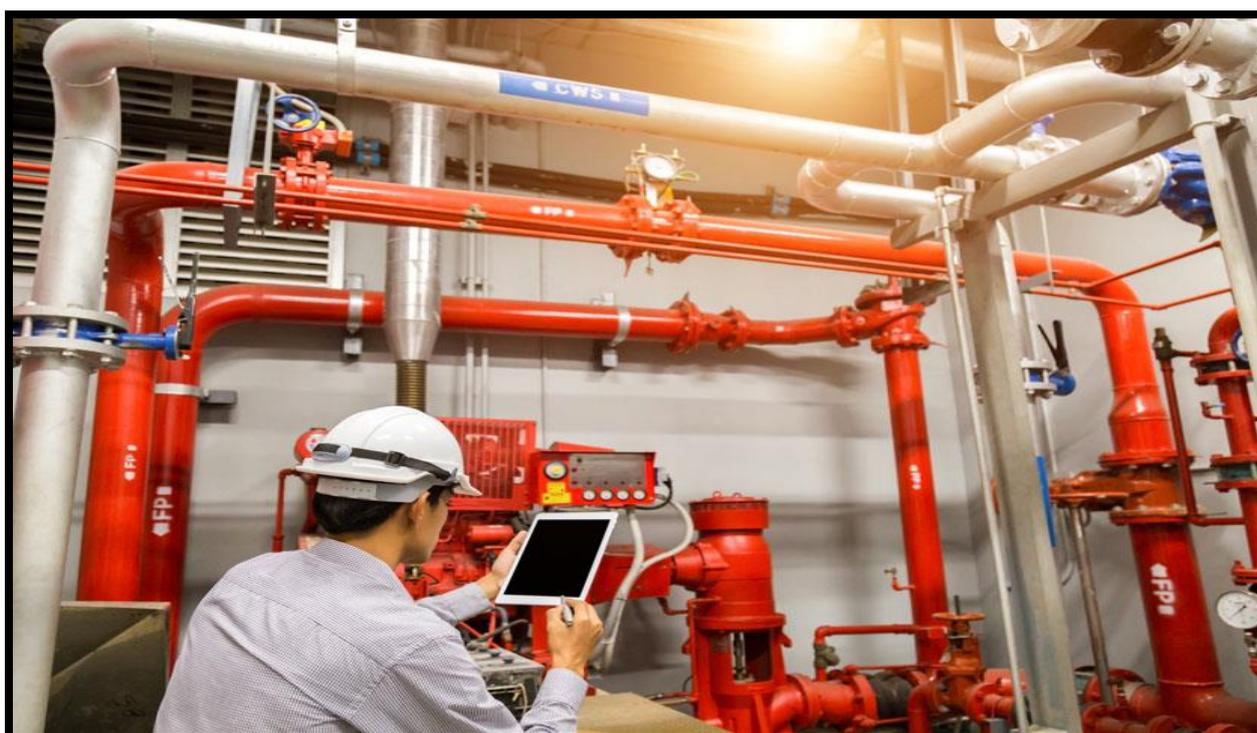
### 3.4 FIRE & SAFETY TECHNICIAN (OIL & GAS) (HYC/Q3601) NSQF LEVEL-4

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

*Target Participants: Contract workforce engaged by the contractors at Project/Construction sites, and O&M Setup.*

S. No	Year	Region	Location	No of training program				Total	Number of participants
				GAIL	HPCL	IOCL	Others (EIL, OIL, ONGC, BPCL, PLL, MRPL, CPCL etc.)		
1	2024-25	N/E/W/S	TBD	15	10	25	10	60	1,500
2	2025-26	N/E/W/S	TBD	15	10	25	10	60	1,500
3	2026-27	N/E/W/S	TBD	30	20	30	40	120	3,000
4	2027-28	N/E/W/S	TBD	30	20	30	40	120	3,000
5	2028-29	N/E/W/S	TBD	30	20	30	40	120	3,000
<b>Total</b>				<b>120</b>	<b>80</b>	<b>140</b>	<b>140</b>	<b>480</b>	<b>12,000</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 25 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: - 60 (Nos. of Training Program) x 25 (Nos. of Participants per Batch) =1,500

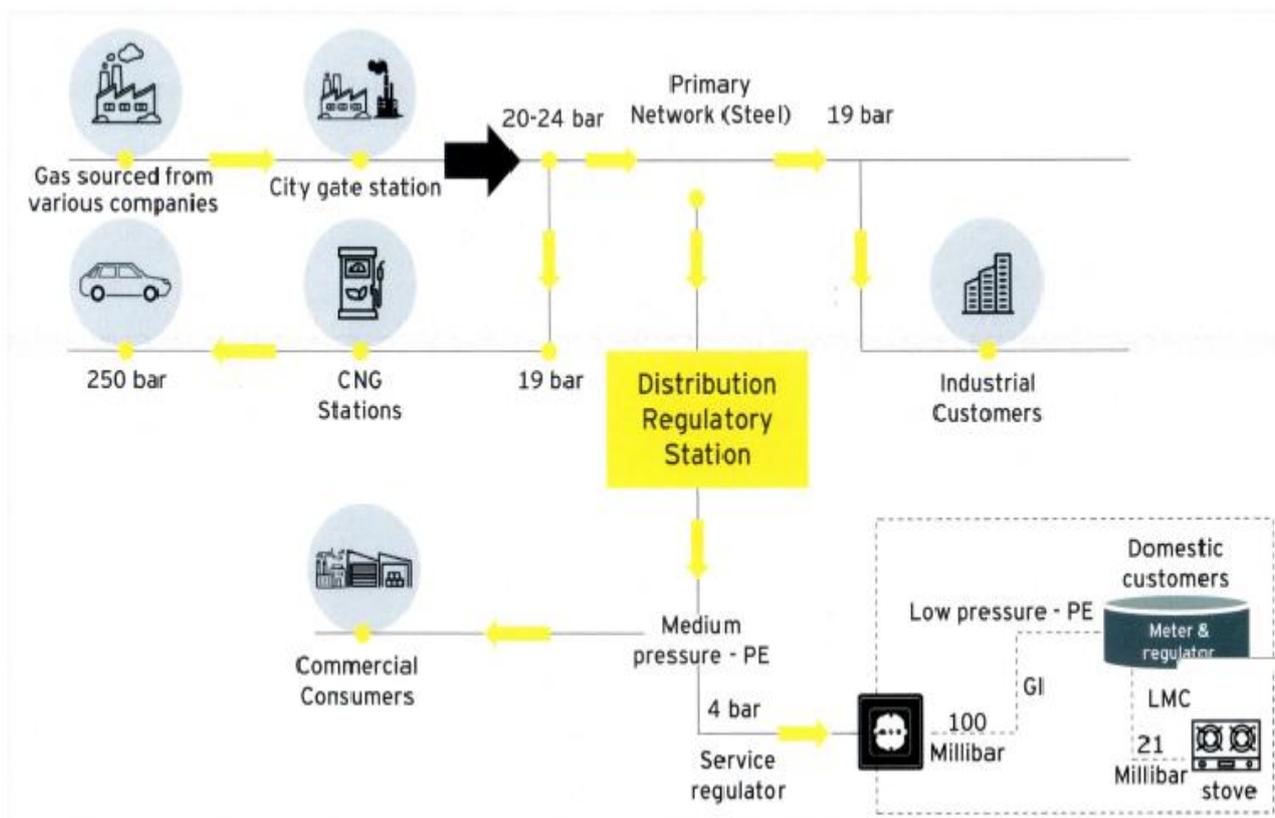


## 4.0 CITY GAS DISTRIBUTION BUSINESS IN INDIA

- Total No of PNG Connections (Domestic): - 1.29 Cr
- Total No of PNG Connections (Commercials): - 41,360
- Total No of PNG Connections (Industrial): - 18,756
- Total No of Geographical Areas (GA): - 300
- Total No of CNG Stations: - 6,861
- Major States with Domestic PNG Connections: -
  - Maharashtra: - 34.29 Lac
  - Gujarat: - 32.82 Lac
  - NCT of Delhi (UT): - 15.64 Lac
  - Uttar Pradesh: - 16.19 Lac
  - Haryana: - 3.68 Lac
  - Karnataka: - 4.40 lac
  - Rajasthan: - 3.08 Lac

\*Information Source – Petroleum Planning & Analysis cell (MoP&NG), 2023-24 (provisional data)

### City Gas Distribution Value Chain – Infrastructure and Process Flow



## 4.1 PLUMBER TECHNICIAN (CITY GAS DISTRIBUTION-OIL & GAS) (HYC/Q6105) NSQF LEVEL-4

Skill Gap & Training Plan: (Skilling/Re-Skilling/Upskilling):

*Target Participants: New Plumber Joining the Workforce and Existing Plumber.*

S. No	Year	Region	Location	No of training program							Total	Number of Participants
				HPCL	BPCL	IOCL	GAIL	IOGPL	IGL	Others (PLL, Torrent, MGL, GGL)		
1	2024-25	N/E/W/S	TBD	60	60	80	110	20	20	50	400	10,000
2	2025-26	N/E/W/S	TBD	60	60	80	110	20	20	50	400	10,000
3	2026-27	N/E/W/S	TBD	60	60	80	110	20	20	50	400	10,000
4	2027-28	N/E/W/S	TBD	85	85	120	150	50	50	60	600	15,000
5	2028-29	N/E/W/S	TBD	85	85	120	150	50	50	60	600	15,000
<b>Total</b>				<b>350</b>	<b>350</b>	<b>480</b>	<b>630</b>	<b>160</b>	<b>160</b>	<b>270</b>	<b>2,400</b>	<b>60,000</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 25 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: -  $400 \text{ (No of Training Program)} \times 25 \text{ (No of Participants per Batch)} = 10,000$



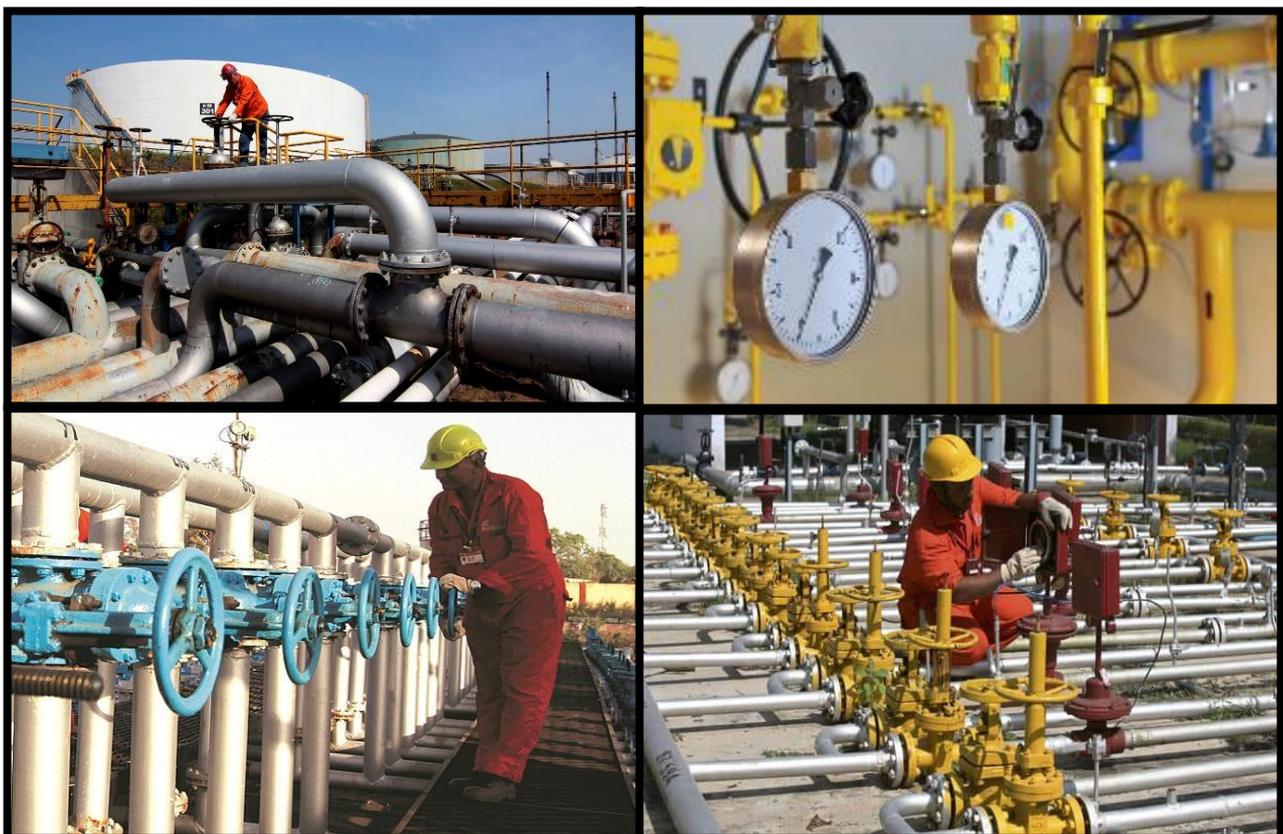
## 4.2 PIPE FITTER – CGD/OIL & GAS (HYC/Q6103) NSQF LEVEL-4

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

**Target Participants:** Pipe Fitter, Plumber & Helper in CGD sector, CNG refuelling person/Dispenser attendant, compressor attendant, MDP technician.

S. No	Year	Region	Location	No of training program								Total Nos. of Training Program	Nos. of Targets
				HPCL	BPCL	IOCL	GAIL & Gail Gas	IGL	Torrent Gas	IGGL	Others		
No. of GA'				21	50	26	25	30	15	7	38		
1	2024-25	N/E/W/S	TBD	20	20	100	100	30	5	5	5	285	2,850
2	2025-26	N/E/W/S	TBD	20	20	100	100	30	5	5	5	285	2,850
3	2026-27	N/E/W/S	TBD	20	20	100	50	45	5	10	5	255	2,550
4	2027-28	N/E/W/S	TBD	30	30	100	50	45	5	15	5	280	2,800
5	2028-29	N/E/W/S	TBD	30	30	100	50	45	5	15	5	280	2,800
<b>Total</b>				<b>120</b>	<b>120</b>	<b>500</b>	<b>350</b>	<b>195</b>	<b>25</b>	<b>50</b>	<b>25</b>	<b>1,385</b>	<b>13,850</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 10 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: - 285 (No of Training Program) x 10 (No of Participants per Batch) = 2,850



## 5.0 COMPRESSED BIO-GAS

5.1 COMPRESSED BIO-GAS PLANT OPERATOR (CITY GAS DISTRIBUTION-OIL & GAS) (HYC/Q4401) NSQF LEVEL-3.5

5.2 COMPRESSED BIO-GAS PLANT TECHNICIAN (HYC/Q4402) NSQF LEVEL-4

Skill Gap & Training Plan (Skilling/Re-Skilling/Upskilling):

*Target Participants: CBG Operator, Technician & Technical Assistant*

S. No	Year	Region	Location	No of training program						Total	No of participants
				HPCL	BPCL	IOCL	GAIL	IGL	Others		
<b>No. of CBG Plants Commissioned</b>				9	8	32	15	6			
1	2024-25	N/E/W/S	TBD	3	3	10	5	2	2	25	500
2	2025-26	N/E/W/S	TBD	5	5	20	10	5	5	50	1,000
3	2026-27	N/E/W/S	TBD	5	5	20	10	5	5	50	1,000
4	2027-28	N/E/W/S	TBD	8	7	30	15	5	10	75	1,500
5	2028-29	N/E/W/S	TBD	8	7	30	15	5	10	75	1,500
<b>Total</b>				<b>29</b>	<b>27</b>	<b>110</b>	<b>55</b>	<b>22</b>	<b>32</b>	<b>275</b>	<b>5,500</b>

- ❖ N- North, E-East, W-West and S-South
- ❖ Training Batch Size of 20 at each Location
- ❖ TBD- Location to be decided by respective OMCs at Project/Construction Sites
- ❖ Calculation: - 25 (No of Training Program) x 20 (No of Participants per Batch) = 500



## 6.0 GREEN HYDROGEN

- 6.1 Green Hydrogen Plant Operator (HYC/Q4001) NSQF Level – 4.5
- 6.2 Green Hydrogen Plant Supervisor (HYC/Q4003) NSQF Level – 5
- 6.3 Green Hydrogen Assistant Plant Supervisor (HYC/Q4002) NSQF Level – 4.5
- 6.4 Green Hydrogen Storage Assistant Technician (HYC/Q4005) NSQF Level – 3.5
- 6.5 Fundamental of Green Hydrogen Storage & Transportation (HYC/MCr0005) NSQF Level – 4
- 6.6 Concept of Green Hydrogen (HYC/MCr0002) NSQF Level – 3
- 6.7 Advance Course on Green Hydrogen (HYC/MCr0009) NSQF Level – 4.5

**Target Participants:** Employees from Energy Sector, ITI students, Students (Science/Engineering), School students (11<sup>th</sup> & 12<sup>th</sup>)

Sl. No.	Target Group	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
1	Industry	1,500	3,000	5,000	5,000	8,000
2	Industrial Training Institute (ITI)	2,000	3,000	5,000	7,000	10,000
3	Colleges	3,000	5,000	10,000	15,000	20,000
4	Schools	5,000	8,000	10,000	12,000	15,000
<b>Total nos. of Target</b>		<b>11,500</b>	<b>19,000</b>	<b>30,000</b>	<b>39,000</b>	<b>53,000</b>

- ❖ Training Batch Size of 30-40 at each Job Role is considered.
- ❖ Location- Training to be conducted in consultation with Skill Development Institutes

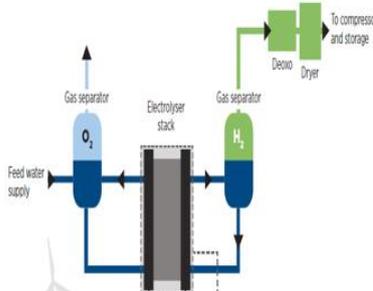


## 7.0 NATIONAL GREEN HYDROGEN MISSION



At least <b>5 MMT GH<sub>2</sub></b> annual Production	<b>60-100 GW</b> Electrolyser capacity	<b>125 GW</b> RE Capacity for GH <sub>2</sub> Generation & associated Transmission network
<b>₹ 1 lakh crore</b> Import Savings	<b>50 MMT CO<sub>2</sub></b> Annual Emissions Averted	<b>6 lakh</b> Jobs
		<b>₹ 8 lakh cr</b> Investment

### Green Hydrogen Value Chain

UPSTREAM	MIDSTREAM	DOWNSTREAM		
Green Power Supply	GH <sub>2</sub> Production & Transformation Process	Storage	Transportation	End Users
  <p><b>1) Renewable Energy Projects</b></p> <ul style="list-style-type: none"> <li>Solar</li> <li>Wind</li> <li>Hydel</li> </ul> <p>Plus [Energy Storage]</p> <p><b>2) Grid Infrastructure (Power Wheeling)</b></p>	<p><b>Electrolyser</b></p>  <p><b>GH<sub>2</sub> Production &amp; transformation</b></p> 	  <ul style="list-style-type: none"> <li>Storage tanks</li> <li>Cascades</li> <li>Underground storage</li> <li>Hydrides etc</li> </ul>	  <ul style="list-style-type: none"> <li>Ship</li> <li>Pipelines</li> <li>Loading trucks</li> <li>Cascades</li> </ul>	  <p><b>Industry</b></p> <ul style="list-style-type: none"> <li>Steel</li> <li>Oil Refinery</li> <li>Fertilizers</li> <li>Chemical</li> <li>Power generation</li> <li>Cement</li> </ul> <p><b>Mobility</b></p> <ul style="list-style-type: none"> <li>Shipping</li> <li>Aviation</li> <li>Cars</li> <li>Trucks/Buses</li> <li>Trains</li> </ul>

## 8.0 PETROCHEMICAL

### 8.1 PETROCHEMICAL PLANT OPERATOR – PRODUCTION (HYC/Q 4501) NSQF LEVEL – 4.5

**Target Participants:** Contract workforce engaged by the contractors at Petrochemical Plant and educational institutes.

S. No	Year	Location	No of training program						Total	Number of Participants
			HPCL	BPCL	IOCL	GAIL	CIPET	ITI		
1	2024-25	TBD	3	3	4	2	4	4	20	500
2	2025-26	TBD	6	6	8	5	6	9	40	1,000
3	2026-27	TBD	6	6	8	5	6	9	40	1,000
4	2027-28	TBD	8	8	15	8	6	15	60	1,500
5	2028-29	TBD	8	8	15	8	6	15	60	1,500
<b>Total</b>			<b>31</b>	<b>31</b>	<b>50</b>	<b>28</b>	<b>28</b>	<b>52</b>	<b>220</b>	<b>5,500</b>

- ❖ Training Batch Size of 25 at each location
- ❖ TBD- Location to be decided by respective Industries
- ❖ Calculation: - 20 (No of Training Program) x 25 (No of Participants per Batch) = 500



## 9.0 SKILL DEVELOPMENT TRAINING AT SKILL DEVELOPMENT INSTITUTES (SKILLING):

- 9.1 Retail Outlet Attendant (Oil & Gas) (HYC/Q3101) NSQF level-3
- 9.2 LPG Delivery Personnel (HYC/Q3201), NSQF level – 3
- 9.3 LPG Mechanic (HYC/Q3401) NSQF level-3
- 9.4 Pipe Fitter-(City Gas Distribution/Oil & Gas) (HYC/Q6103) NSQF level-4
- 9.5 Fire & Safety Technician (Oil & Gas) (HYC/Q3601) NSQF level-4
- 9.6 Industrial Welder (Oil & Gas) (HYC/Q9101) NSQF Level 4
- 9.7 Industrial Electrician (Oil & Gas) (HYC/Q6101) NSQF Level 4
- 9.8 Retail Outlet Roof Top Solar Installer - Oil & Gas (HYC/Q3103) NSQF 4
- 9.9 And other NSQC approved job roles of HSSC.

**Target Participants:** Fresh Candidates. Besides, Short Term Training (3 to 6 Months Program) SDIs shall continue to conduct RPL and mandated program.

No.	Skill Development Institute (SDI)	Total trainees trained 2023-24	2024-25	2025-26	2026-27	2027-28	2028-2029
1	Bhubaneswar	1,095	1,200	1,200	1,400	1,500	1,500
2	Guwahati	120	150	150	180	220	220
3	Kochi	161	160	190	240	240	240
4	Raebareli	532	500	500	600	650	650
5	Visakhapatnam	2,622	2,500	2,500	2,800	3,000	3,000
6	Ahmedabad	1,205	1,200	1,200	1,400	1,500	1,500
<b>Total</b>			<b>5,710</b>	<b>5,740</b>	<b>6,620</b>	<b>7,110</b>	<b>7,110</b>

- ❖ Training Batch Size of 30-40 at each Job Role is considered.
- ❖ Location- Training to be conducted in consultation with Skill Development Institutes



## 10.0 HSSC GOVERNING COUNCIL MEMBERS



**Shri Satish Kumar Vaduguri**  
**Chairman**

Indian Oil Corporation Limited  
Hydrocarbon Sector Skill Council



**Shri Arun Kumar Singh**  
**Chairman**

Oil & Natural Gas Corporation  
Limited



**Shri Prabh Das**  
**MD & CEO**

HMEL



**Shri Gurmeet Singh**  
**Director General**  
Federation of Indian  
Petroleum Industry



**Shri M S Prasad Kamath**  
**Managing Director**  
Mangalore Refinery &  
Petrochemicals Ltd



**Shri Rajeev Gupta**  
**Director - Projects**  
[Additional charge of  
**Dir. (HR)**]  
Engineers India Ltd



**Shri Kuldip Goel**  
**Group Advisor**  
Larsen & Toubro  
limited



**Shri Kapil Verma**  
**Financial Advisor & Chief  
Accounts Officer**  
Oil Industry Development  
Board



**Shri Rishikesh Patankar**  
**Nominee Director**  
National Skill Development  
Corporation



**Shri Deepak Srivastava**  
**Director**  
Ministry of Petroleum  
and Natural Gas



**Shri Ayush Gupta**  
**Director (HR)**  
GAIL (India) Ltd



**Shri Ashok Das**  
**Director (HR & BD)**  
Oil India Ltd



**Shri K S Shetty**  
**Director (HR)**  
Hindustan Petroleum  
Corporation Ltd



**Shri Manish Patil**  
**Director (HR)**  
Oil & Natural Gas  
Corporation Ltd



**Shri Raj Kumar Dubey**  
**Director (HR)**  
Bharat Petroleum  
Corporation Ltd



**Ms Rashmi Govil**  
**Director (HR)**  
Indian Oil  
Corporation Ltd



**Shri R K Agrawala**  
**Director (Finance)**  
Chennai Petroleum  
Corporation Ltd



**Shri Alok K Singh**  
**Director**  
Rajiv Gandhi Institute of  
Petroleum Technology



**Shri Sanjiban Deb**  
**GGM & President (HR)**  
Petronet LNG



**Shri Rakesh Kohli**  
**VP (Corporate Affairs)**  
Reliance Industries Ltd



**Shri Pushkar Kumar**  
**Chief (HR)**  
Vedanta Oil & Gas  
Business



**Shri SK Bose**  
**Chief Executive Officer  
(CEO)**  
Hydrocarbon Sector  
Skill Council

## 11.0 MEMBER ORGANIZATION

### Government



**पेट्रोलियम एवं प्राकृतिक गैस मंत्रालय**  
**MINISTRY OF PETROLEUM AND NATURAL GAS**  
Government of India

### Academic/Association



### Industry



## Report Prepared by HSSC with input from Oil & Gas and associated Industries:

### References:

- i. Snapshot of India's Oil & Gas data by Petroleum Planning & Analysis Cell
- ii. Skill Gap Study for Hydrocarbon Sector – 2025 and 2030
- iii. Annual Report 2022-23 of Ministry of Petroleum and Natural Gas, GoI
- iv. GOBARdhan Portal, Ministry of Jal Shakti and Department of Drinking Water and Sanitation
- v. Input from Oil & Gas companies





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