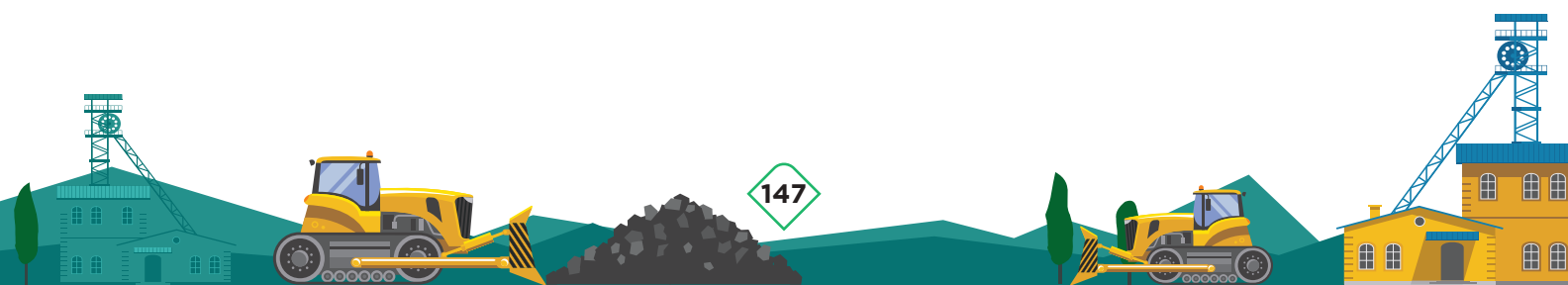


PROMOTIONAL AND DETAILED EXPLORATION

12

CHAPTER



Promotional and Detailed Exploration

12.1 Promotional Exploration

Mineral Exploration Corporation Limited (MECL), State Governments and Central Mine Planning and Design Institute (CMPDI) and other contractual agencies of CMPDI conducted Promotional Exploration under the Ministry of Coal's Plan scheme of "Promotional Exploration for Coal & Lignite".

During 2025-26 (till Nov.'25), a total of 0.756 lakh meters of Promotional (Regional) drilling was carried out in Coal and Lignite by CMPDI.

The details of actual drilling in Promotional Blocks over recent years are as follows:

(Drilling in Lakh Metre)

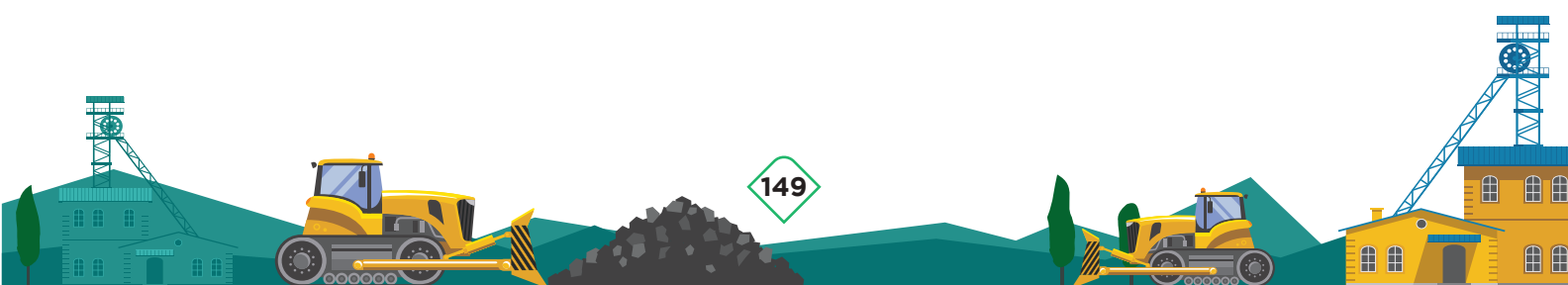
Command Area	2021-22 Actual	2022-23 Actual	2023-24 Actual	2024-25 Actual	2025-26 (Apr'25-Nov'25) (Prov.)	2025-26 (Dec'25-Mar'26) (Proj.)	2025-26 (Proj.)	(Jan'25 - Nov'25) (Prov.)
Drilling in CIL Command Area	1.552	0.768	1.530	2.508	0.756	0.710	1.466	1.604
Drilling in SCCL Command Area	0.000	0.000	0.025	0.021	-	0.010	0.010	-
Drilling in Lignite Areas	0.140	0.000	0.188	0.038	-	0.030	0.030	-
Total	1.691	0.768	1.743	2.567	0.756	0.750	1.506	1.604
Growth %	34%	-54%	126%	47%				

12.2 Detailed Drilling in Non-CIL Blocks-

CMPDI carries out Detailed Exploration in CIL, Non-CIL, and consultancy blocks as per strict timelines to upgrade coal resources from Indicated and Inferred categories to the Measured (Proved) category. Exploratory drilling in non-CIL blocks is conducted under the Ministry of Coal's Plan scheme of "Detailed Drilling in Non-CIL Blocks."

During 2025-26 (till Nov'25), CMPDI and its contractual agencies achieved a total of 4.109 lakh metres of exploratory drilling. Out of this, 1.361 lakh metres were drilled by CMPDI's departmental rigs, while 2.748 lakh metres were achieved through outsourcing.

The details of actual drilling in Non-CIL Blocks over recent years are as follows:



(Drilling in Lakh Metre)

Agency Type	2020-21 Actual	2021-22 Actual	2022-23 Actual	2023-24 Actual	2024-25 Actual	2025-26 (Apr'25- Nov'25) (Prov.)	2025-26 (Dec'25- Mar'26) (Proj.)	2025-26 (Proj.)	(Jan'25 - Nov'25) (Prov.)
Departmental	1.746	0.876	0.932	0.983	1.807	1.361	0.400	1.761	2.159
Outsourcing	4.700	1.718	0.890	1.565	2.655	2.748	0.750	3.498	3.944
Total	6.446	2.593	1.822	2.547	4.463	4.109	1.15	5.259	6.103
Growth %	-4%	-60%	-30%	40%	75%			-	

12.3 Drilling Performance in 2025-26:

CMPDI deployed its departmental resources for detailed exploration of CIL, Non-CIL, Promotional, NMET, and Consultancy blocks. Under MoU with CMPDI, MECL deployed its resources in CIL, Non-CIL, Promotional, NMET funded and Captive blocks. DGM (Nagaland), DGM (Assam) and DMG (Sikkim) deployed their departmental resources in Promotional exploration. DGM (Assam), DGM (Nagaland), DGM (Arunachal Pradesh), DGM (Mizoram) and DMR (Meghalaya) have participated in exploration in Non-CIL/ Promotional blocks through their outsourced agencies. Besides, nine contractual agencies also deployed resources for detailed /regional exploration in CIL, Non-CIL,

Promotional, Consultancy & NMET blocks.

In 2025-26, as of November 2025, CMPDI, along with its contractual and MoU agencies, has conducted exploratory drilling in 117 coal blocks/mines across 26 coalfields and 4 lignite blocks in 3 lignite fields, spread over 13 states. Of the 117 coal blocks/mines, 43 are CIL, 45 are Non-CIL blocks, 23 are Promotional blocks, 5 are Consultancy blocks, and 1 is NMET-funded blocks.

The overall performance of exploratory drilling during FY 2025-26 (till Nov'25), during Jan'25 - Nov'25 (actual) and Dec'25-Mar'26 (projected) is given below:

(Drilling in Lakh Metre)

Agency	Annual Target 25-26 (Lakh m)	Detailed Drilling in FY 2025-26 (till Nov'25)			Achieved Prev. Year: FY 24-25 (till Nov'24) (Lakh m)	Growth (%)	2025-26 (Dec'25-Mar'26) (Proj.) (Lakh m)	2025-26 (Proj.) (Lakh m)	(Prov.) Jan'25 - Nov'25 (Lakh m)
		Target (Lakh m)	Achiev. (Lakh m)	Achiev. (%)					
I. Departmental	4.300	2.438	2.422	99%	2.491	-3%	1.900	4.322	4.164
II. Outsourcing	6.700	3.708	4.072	110%	2.808	45%	2.700	6.772	6.168
Grand Total	11.000	6.146	6.494	106%	5.299	23%	4.600	11.094	10.332

12.4 Geological Reports -

In 2025-26, till Nov'25, 21 Geological Reports were prepared based on detailed/ regional exploration conducted in previous years. About 6.06 billion tonnes of coal resources are expected

to be added to the Measured Category through Detailed Exploration covering an area of about 199 sq km through 15 Geological Reports. While, about 0.63 billion tonnes of new coal resources (in Indicated and Inferred categories) are expected to be added Promotional (Regional) Exploration



covering an area of about 94 sq km through 6 Geological Reports.

During December 2025 to March 2026, CMPDI is expected to submit 10 Geological Reports, covering about 250 sq km area and another 5 billion tonnes of measured resources expected to be added to the inventory.

Overall, during Jan'25 – Nov'25, CMPDI submitted 22 Geological Reports of Detailed Exploration in CIL/ Non-CIL/ Consultancy blocks, covering an area of about 295 sq km and with proved resource of about 8.4 billion tonnes, and 11 Geological Reports of Regional Exploration covering an area of about 368 sq km with about 6.2 billion tonnes of new coal resources (in Indicated and Inferred categories).

Geophysical Studies -

(a) 2D/3D Seismic Survey

During 2025-26, till Nov'25, CMPDI achieved 153.80 line km of 2D/3D seismic survey against the cumulative target of 130-line km. Out of 153.80 line km of 2D/3D seismic survey, about 69.97 line km of survey was carried out departmentally against the cumulative target of 30 line km and additionally 83.83 line km of 2D/3D seismic survey was also carried out through outsourced resources.

From December 2025 to March 2026, CMPDI is expected to conduct seismic surveys of about 231 line kilometers using departmental resources and about 68 line kilometers through outsourced services.

Overall, during the period between Jan'2025 to Nov'2025, CMPDI carried out 359.39 line km of 2D/3D seismic survey, out of which 219.74 line km through departmental & 139.65 Line KM through outsourcing has been carried out.

(b) Other Geophysical work

During the year 2025-26, till Nov'25, a total of 0.120 lakh meters of geophysical logging has been carried out in CIL, Non-CIL, Promotional, and Consultancy projects with multi-parametric geophysical logging equipment through

departmental resources. About 19.07 line km Resistivity Imaging and 1.12 Line km of Magnetic survey have also carried out departmentally.

Overall Geophysical surveys carried out departmentally during Jan'2025 to Nov'2025 are as follows:

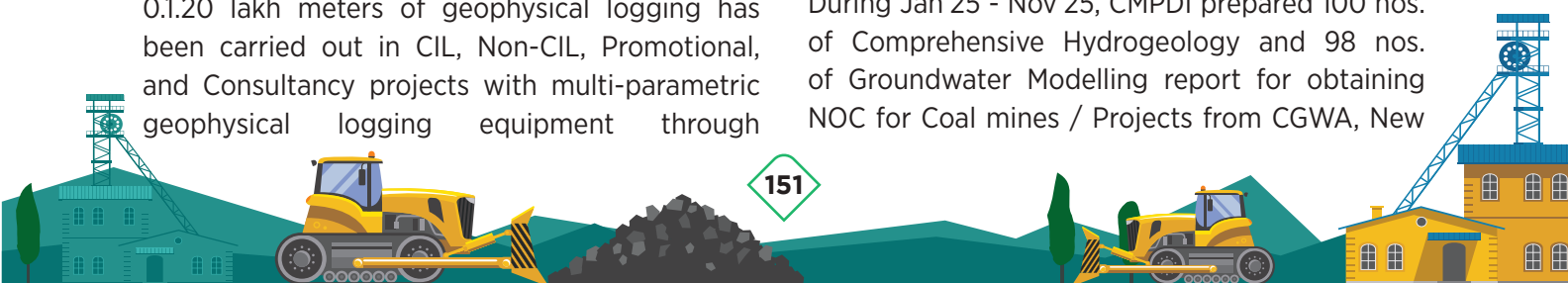
- 1) Geophysical Logging: 2.28 Lakh meters
- 2) Magnetic Survey: 69.12 Line Km
- 3) Resistivity Survey: 66.00 Line Km
- 4) Gravity Survey: 147 stations

(c) Hydrogeological Studies

In 2025-26, till Nov'25, CMPDI prepared 89 nos. of Comprehensive Hydrogeology Report (CHR) of Coal Mine / Projects and 87 nos. of Groundwater Modelling report (GWM) have been prepared for obtaining NoC for Coal mines / Projects from CGWA, New Delhi. 10 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 15 nos. of other hydrogeological studies (i.e., chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have been prepared. Quarterly ground water level & quality monitoring of 5 nos. of Coalfields i.e. ECL, BCCL, CCL, NCL & MCL command area are ongoing.

During Dec'25 to March'26, CMPDI is expected to prepare 49 nos. of CHR of Coal Mine / Projects and 49 nos. of GWM will be prepared for obtaining NoC for Coal mines / Projects from CGWA, New Delhi. 10 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 10 nos. of other hydrogeological studies (i.e. chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have been prepared. Quarterly ground water level & quality monitoring of 5 nos. of Coalfields i.e. ECL, BCCL, CCL, NCL & MCL command area will be completed.

During Jan'25 - Nov'25, CMPDI prepared 100 nos. of Comprehensive Hydrogeology and 98 nos. of Groundwater Modelling report for obtaining NOC for Coal mines / Projects from CGWA, New



Delhi. About, 20 nos. of Hydrogeological study report have been incorporated in EIA / EMP studies of Coal mines / Projects. 20 nos. of other hydrogeological studies (i.e. chapter for GR / PR, Piezometers, Pumping Tests, Damage Assessment Reports etc.) have also been prepared. Quarterly ground water level & quality monitoring of 5 nos. of Coalfields i.e., ECL, BCCL, CCL, NCL & MCL command area completed.

12.5 COAL RESOURCES

Inventory of Geological Resources of coal in

India -

State-wise distribution of Indian coal shows that Odisha tops the list with 100975.78 million tonne followed successively by Jharkhand (93254.06 million tonne), Chhattisgarh (85263.22 million tonne), West Bengal (34386.09 million tonne), Madhya Pradesh (33563.62 million tonne), Telangana (23288.62 million tonne), Maharashtra (13586.70 million tonne) and others.

STATE-WISE GEOLOGICAL RESOURCES OF COAL IN INDIA AS ON 01.04.2025

(Coal Resources in million tonne)

State	Measured (331)	Indicated (332)	Inferred (333)	Resource
ODISHA	55009.74	38780.51	7185.53	100975.78
JHARKHAND	60290.47	27121.64	5841.95	93254.06
CHHATTISGARH	45462.69	38340.18	1460.35	85263.22
WEST BENGAL	18752.33	11424.79	4208.97	34386.09
MADHYA PRADESH	16414.28	11795.57	5353.77	33563.62
TELANGANA	11256.78	8626.94	3404.90	23288.62
MAHARASHTRA	8338.52	3264.65	1983.53	13586.70
BIHAR	2346.36	6970.42	36.66	9353.44
ANDHRA PRADESH	1024.65	2368.94	778.17	4171.76
UTTAR PRADESH	884.04	177.76	0.00	1061.80
MEGHALAYA	96.98	16.65	469.59	583.22
ASSAM	464.78	57.21	3.02	525.01
NAGALAND	8.76	21.83	479.62	510.21
SIKKIM	0.00	58.25	42.98	101.23
ARUNACHAL PRADESH	61.96	22.74	6.00	90.70
Total	220412.34	149048.07	31255.04	400715.45

Source: Geological Survey of India's Inventory of Coal and Lignite Resources as on 1.4.2025. The inventory did not take into account the mined-out reserves.

12.6 Categorization of Resources -

The coal resources of India are available in older Gondwana formations of peninsular India and younger tertiary formations of north eastern

region. Based on the results of Regional/Promotional Exploration, where the boreholes are normally placed 800-1600 m apart, the resources are classified into 'Indicated' or 'Inferred' category.



Subsequently, Detailed Exploration in selected blocks, where boreholes are less than 400 meter apart, upgrades the resources into more reliable 'Measured' category.

The age-wise and category-wise coal resources of India as on 1.4.2025 are given in table below:

(Resource in million tonnes)

Age	Measured (331)	Indicated (332)	Inferred (333)	Total	%
Gondwana	219779.87	148944.13	30296.80	399020.81	99.58%
Tertiary	632.49	103.94	958.23	1694.65	0.42%
Total	220412.35	149048.07	31255.03	400715.46	100.00%
%	55.00%	37.20%	7.80%	100.00%	

Source: Geological Survey of India's Inventory of Indian Coal and Lignite Resources as on 1.4.2025.

The Type and Category-wise resources of India as on 1.4.2025 are given in table below:

(Resource in million tonnes)

Coal Type	Measured (331)	Indicated (332)	Inferred (333)	Total	% share
Prime Coking	5132.65	310.76	0.00	5443.41	1.36%
Medium Coking	17815.46	10394.95	1921.68	30132.09	7.52%
Semi Coking	529.68	1081.47	186.33	1797.48	0.45%
Sub-Total of Coking	23477.79	11787.18	2108.01	37372.98	9.33%
Non-Coking	196302.08	137156.95	28188.79	361647.83	90.25%
High Sulphur	632.49	103.94	958.23	1694.65	0.42%
Grand Total	220412.35	149048.07	31255.03	400715.46	100.00%
% share	55.00%	37.20%	7.80%	100.00%	

Source: Geological Survey of India's Inventory of Indian Coal and Lignite Resources as on 1.4.2025.

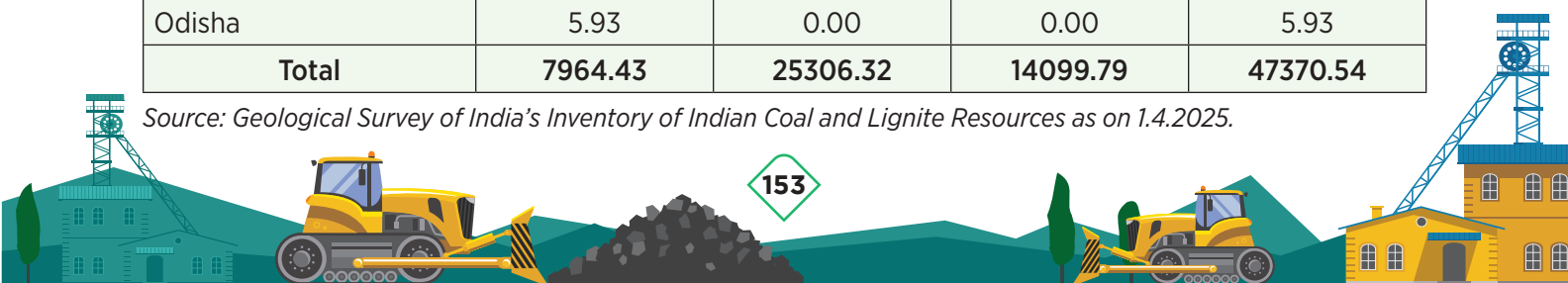
12.7 Lignite Resources in India

Lignite reserves in India have been currently estimated at around 47370.54 million tonnes as on 01.04.2025. The state wise distribution of lignite reserves as on 01.04.2025 is as follows:

(Resource in million tonnes)

State	Measured (331)	Indicated (332)	Inferred (333)	Resource
Pondicherry	0.00	405.61	11.00	416.61
Tamilnadu	5476.00	21412.16	10635.49	37523.65
Rajasthan	1203.85	3183.47	2273.85	6661.17
Gujarat	1278.65	283.70	1159.70	2722.05
Jammu & Kashmir	0.00	20.25	7.30	27.55
Kerala	0.00	0.00	9.65	9.65
West Bengal	0.00	1.13	2.80	3.93
Odisha	5.93	0.00	0.00	5.93
Total	7964.43	25306.32	14099.79	47370.54

Source: Geological Survey of India's Inventory of Indian Coal and Lignite Resources as on 1.4.2025.



12.8 New Policies/ Initiatives/ Activities undertaken during the year -

- i. CMPDI has initiated efforts to analyze the potential for Rare Earth Element (REE) deposits in the Gondwana basins. Significant progress has been made in this regard, with non-coal samples from various blocks being collected for REE studies, analyzing samples from 28 coal blocks (32 boreholes) for baseline data generation of mineral commodities other than coal under CSS/CIL-funded coal exploration projects.
- ii. CMPDI has also initiated a project on REE and other critical mineral concentration studies using samples collected from mining waste/overburden dumps. It has identified several sites for collecting samples from mining waste/overburden dumps and has submitted proposals to all CIL subsidiary companies.
- iii. CMPDI has developed and deployed an in-house developed data processing software, C-Mind. This innovation has significantly reduced data processing time and enhanced the efficiency of Geological Report preparation.
- iv. Hydrogeology Section of Exploration Division of CMPDI, Ranchi has developed in-house capacity building in the domain

of Ground Water Modelling (GWM) reports. Aiming towards development of Surface water modeling integration with GWM to cater future demands in Water Resource domain in the country.

- v. CMPDI has developed machine models for automatic lithology identification, Predicting coal proximate parameters and Gross Calorific Value (GCV) from Geophysical logs such as Natural Gamma, Coal Density and Resistivity logs. Also, CMPDI has developed Dynamic Time Wrapping (DTW) technique based models to well correlation technique. Above developed ML models are tested and produced encouraging results in boreholes from blocks located in Talcher, IB Valley, Jharia and Bisampur Coalfields.
- vi. Models can also be deployed for boreholes drilled in the other blocks located in Talcher, IB Valley, Jharia and Bisampur Coalfields. These ML models can produce faster, optimized and consistent interpretation of geophysical log datasets.

12.9 Central Sector Schemes -

12.9.1 Summary of Proposed Demands for Grants 2025-26 -

Scheme-wise funds provisions are as per the details given below-

	Revenue		BE 2025-26 (Rs. in crore)	RE 2025-26 (Rs. in crore)	Released till 24.12.2025 (Rs. in crore)
1	Research & Development Programme		30	20	9.45
3	Exploration of Coal and Lignite	Regional Exploration	250	NA	128.01
		Detailed Drilling	500	NA	416.10

12.9.2 Explanatory notes on the Central Sector Schemes and Establishment and other Central Sector expenditure -

12.9.2.1 Research and Development -

Research and Development is a key business component for accomplishing the business objectives. Changing geo-mining conditions, evolution of newer technologies & tools, changing socio-economic & socio-political perspectives etc.



further necessitates need based and site-based research for resolving complex operational issues.

The S&T projects in MoC have been categorized into following major categories:

- Advanced technology/methodology for improvement of production & productivity from underground mining and opencast Mining
- Improvement of safety, health and environment
- Waste to Wealth
- Alternative use of coal and clean coal technologies
- Coal beneficiation and utilization
- Exploration
- Innovation and indigenization (Under Make-in-India Concept)

12.9.2.2 Exploration of Coal and Lignite –

A. Regional Exploration: The Demand for Grants for the scheme of Promotional Exploration in Coal & Lignite is met through Gross Budgetary Support from Government of India. This plan-to-plan scheme assists in enhancing the pace of coal-lignite regional exploration undertaken by Geological Survey of India on regular basis. The aim of the scheme is to undertake preliminary drilling to assess the availability of coal and lignite in various areas. New coal and lignite resources are added to the national inventory through these efforts. The scheme is implemented by CMPDI.

B. Detailed Drilling: The Demand for Grant for Detailed Drilling in Non-CIL block is met through Gross Budgetary Support from Government of India. This plan-to-plan scheme assists prospective investors in taking investment decisions regarding coal mining and reduces time in preparation of Mine Plan/Project Report. This step has promoted private investment in coal mining industry. Existing resources of Indicated/Inferred category are upgraded to 'Proved' category through detailed drilling undertaken by CMPDI, MECL and contractual agencies. The scheme is implemented by CMPDI.

12.10 Coal Gasification Project

Underground Coal Gasification - An R&D project titled “A Pilot Project on Underground Coal Gasification (UCG) to establish technology in Indian Geo-Mining Conditions” is being implemented by ECL, CMPDI and EETI Canada. The project is being implemented in Two Phases.

Phase-I involving Site Selection, Characterization & Pre-Feasibility Study completed on 31st May, 2025 and this study has concluded that the Pilot UCG Plant at Kasta West will be safe, environmentally clean, and technically feasible.

Phase-II of the Project comprising of Pilot Plant Design, Construction, Commissioning, Operations, Shutdown and Post-Shutdown Monitoring commenced on 20th June, 2025. The Pilot Plant shall demonstrate UCG process for at least 1500 hours including steady production of syngas at the flow rate up to 2500 Nm³ /h and UCG process.

