Scaling CBG Integration into PNG Networks

Opportunities, Challenges & Way Forward

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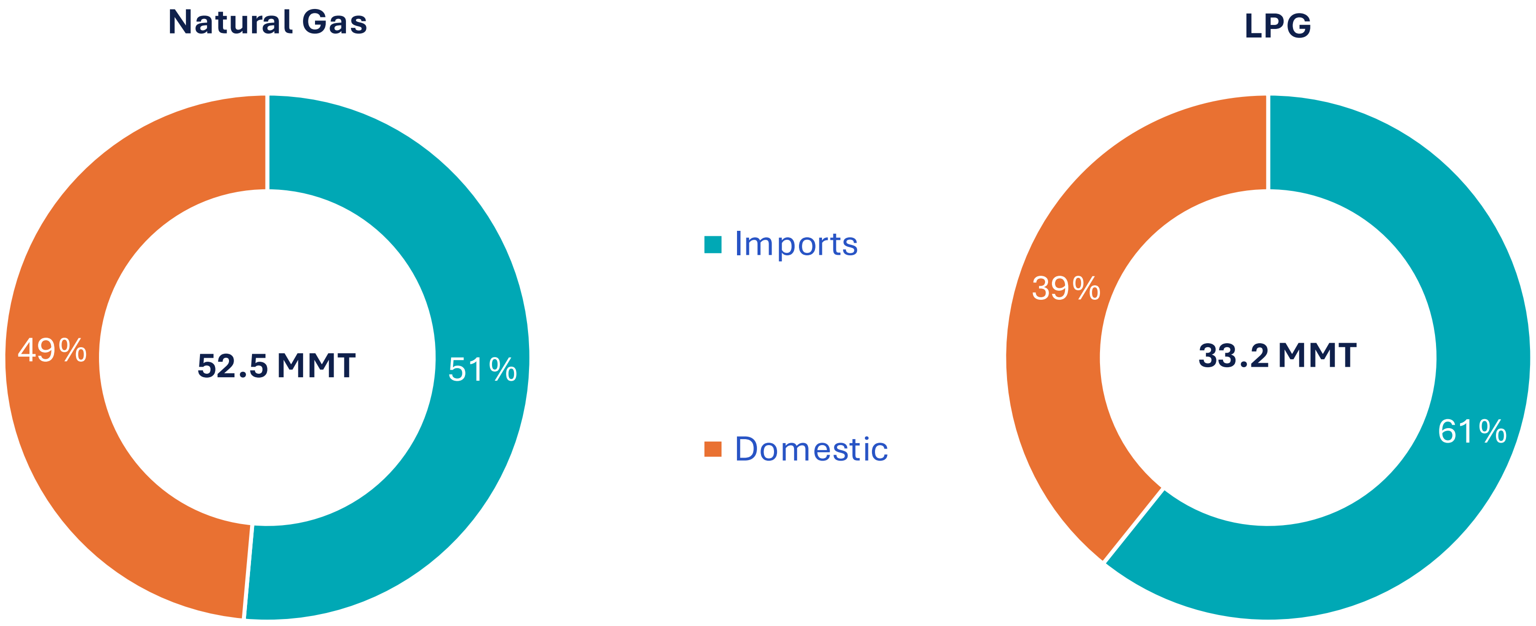
India's Dependence on Imported LPG and NG



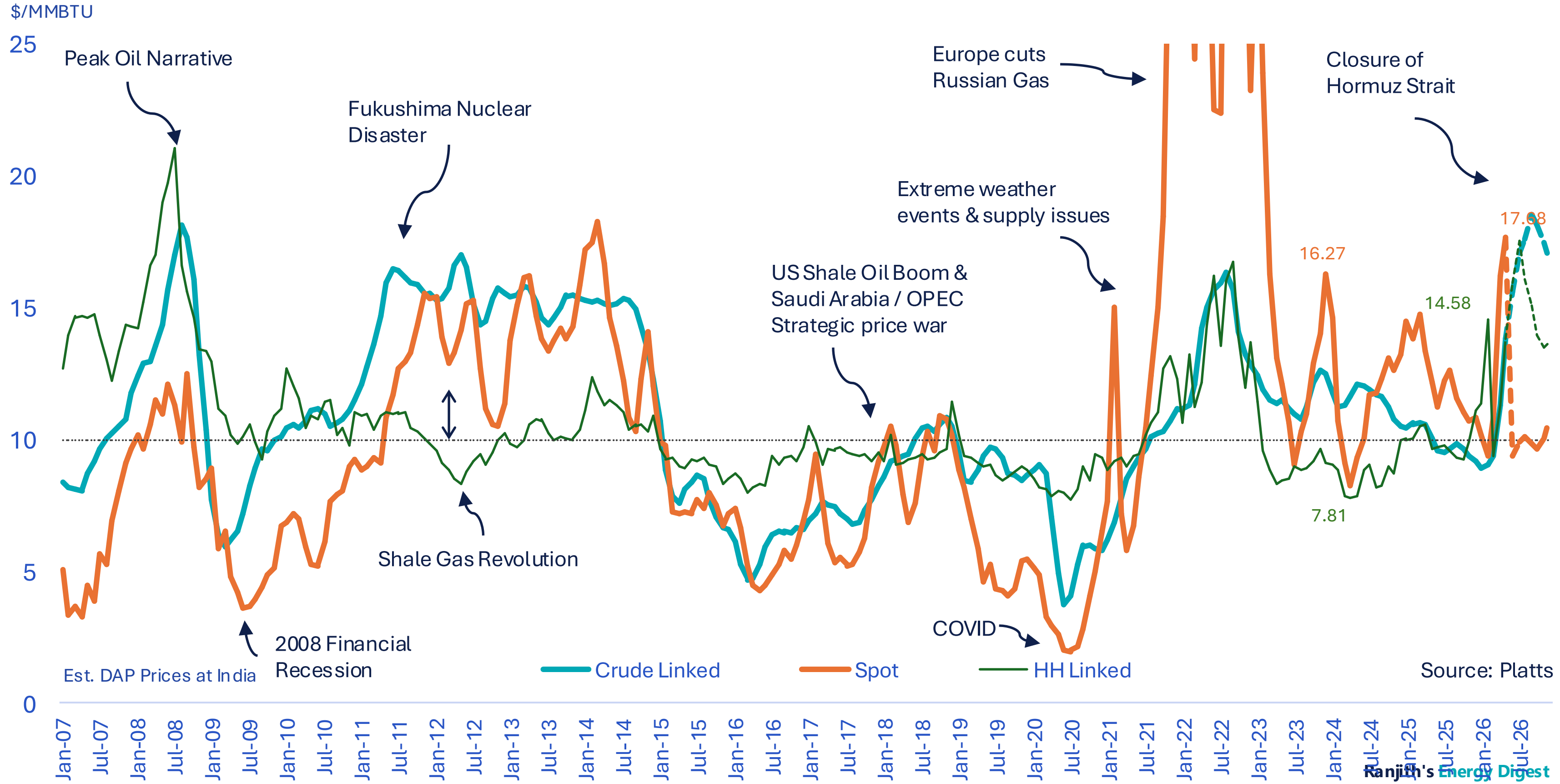
Over half of India's gaseous fuel demand linked to imported hydrocarbons

Source: PPAC

Strait of Hormuz Closure: Escalating Stress Across Global Oil & Gas Markets

- 11 mb/d Gulf crude & condensate supply disrupted; ~20% of global oil flows normally transit Hormuz.
- Hormuz LNG flows (~80 mtpa; ~20% of global LNG supply) severely disrupted.
- Global visible oil inventories down ~250 million barrels since the conflict began.
- India's LPG imports fell by about 45-46% in March 2026 due to supply disruptions caused by the West Asia conflict.
- To manage India prioritized household LPG supplies and curtailed commercial and industrial LPG availability.
- Natural Gas were diverted to priority sectors such as PNG, CNG, LPG production and fertilizers

Import Dependence Exposes India to Global Gas Price Volatility



10% of Import Spend Can Create Decades of Domestic CBG Production

LNG

FY27 Import Qty

27 MMT

FY27 Import Bill

1.17 Lakh Crore

LPG

FY27 Import Qty

20 MMT

FY27 Import Bill

1.02 Lakh Crore

CBG

10% of Spend =

21900 Crore

@ 10 Crore per TPD,

220 -10tpd Plants

20 YEARS

2200 tpd for 20 years @80% PLF

~ 12.8 MMT CBG production

Return: ~3x volume over the asset life.

Source: PPAC

80% of blending target reached during 1st 10 months of FY26

Blending Mandate - % of Sales CNG + DPNG

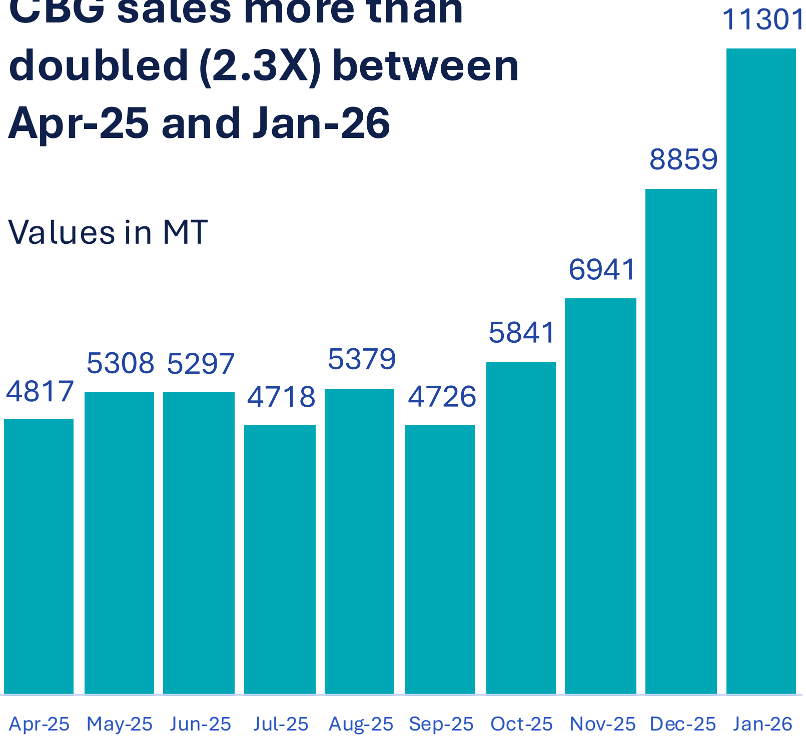
- FY 25-26 : 1%
- FY 26-27 : 3%
- FY 27-28 : 4 %
- FY 28-29 : 5 %

Blending Mandate – Est. CBG Demand

- FY 25-26 : 92K MT
- FY 26-27 : 0.43 MMT
- FY 27-28 : 0.3 MMT
- FY 28-29 : 0.58 MMT

CBG sales more than doubled (2.3X) between Apr-25 and Jan-26

Values in MT



Source: PNGRB Feb’26 Data; 1 MT = 1314 SCM

Core Challenges

1 Feedstock Uncertainty

No long-term biomass supply contracts exist. Procurement is spot-based and seasonal.

2 GST-VAT Mismatch

While CBG is subject to GST, blended gas sold through city gas distribution networks is often treated as natural gas

3 Financing Constraints

Unfamiliar asset class with thin margins and long gestation Most promoters are MSMEs with limited equity.

4 Capability Gaps

3 distinct skill sets - agronomic knowledge to source biomass, plant operations expertise, and commercial acumen to market CBG / fermented organic manure.

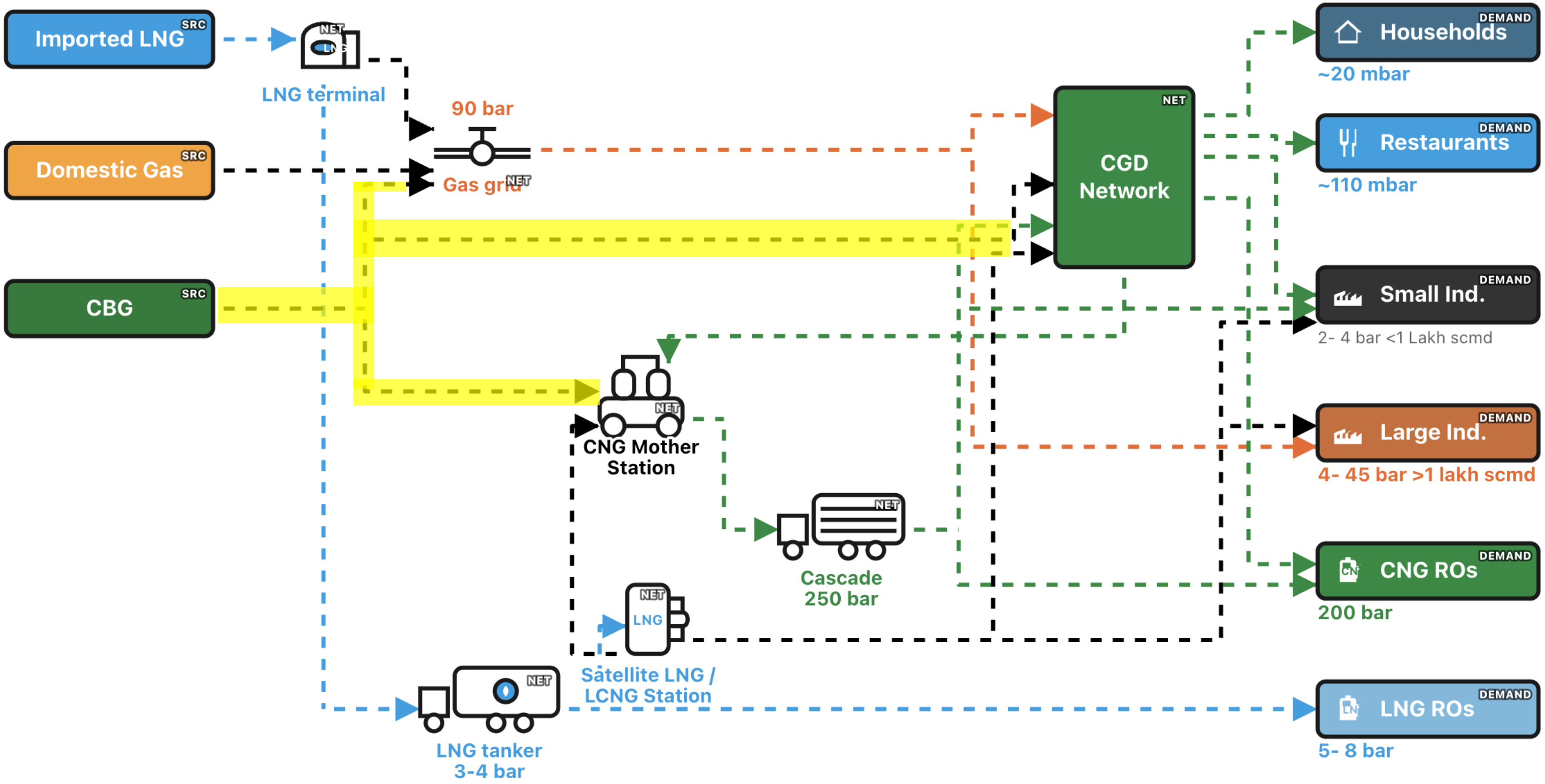
5 Infrastructure Mismatch

CBG plants are rural (where feedstock is), CGD networks are urban.

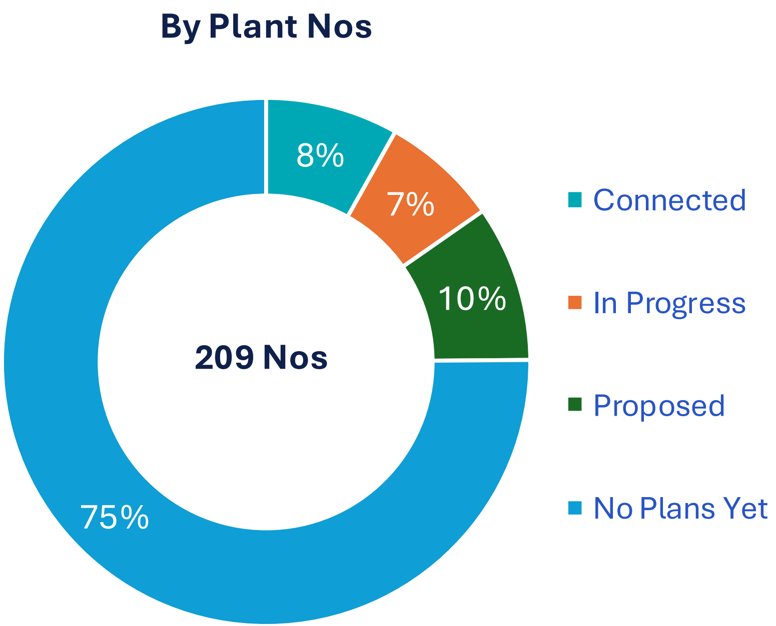
6 Quality & Reliability Concerns

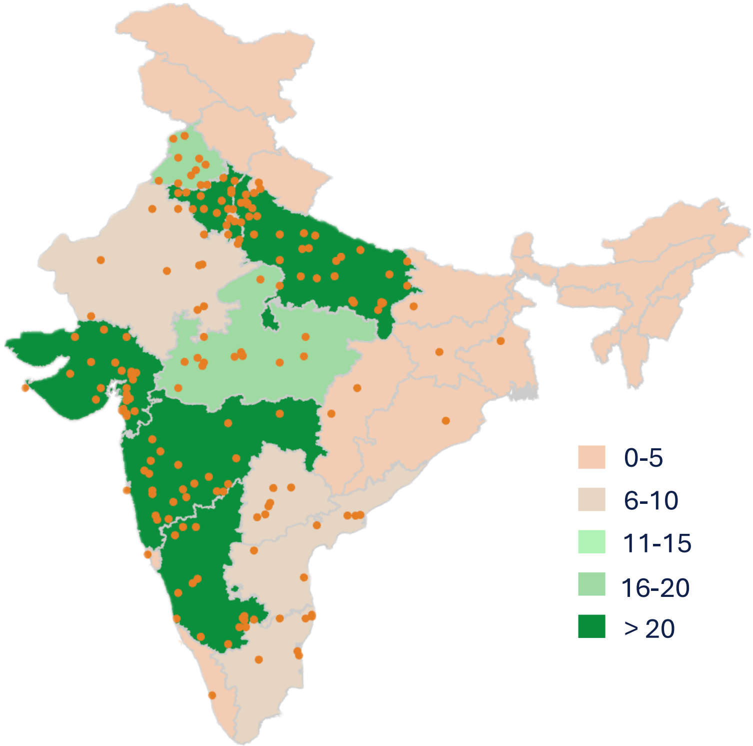
Poorly run outlier plants have fed a broader narrative among that CBG is an unreliable supply source

Gas Pathways: Options to connect to the Market



Pipeline connectivity remains a key bottleneck for scaling up CBG evacuation

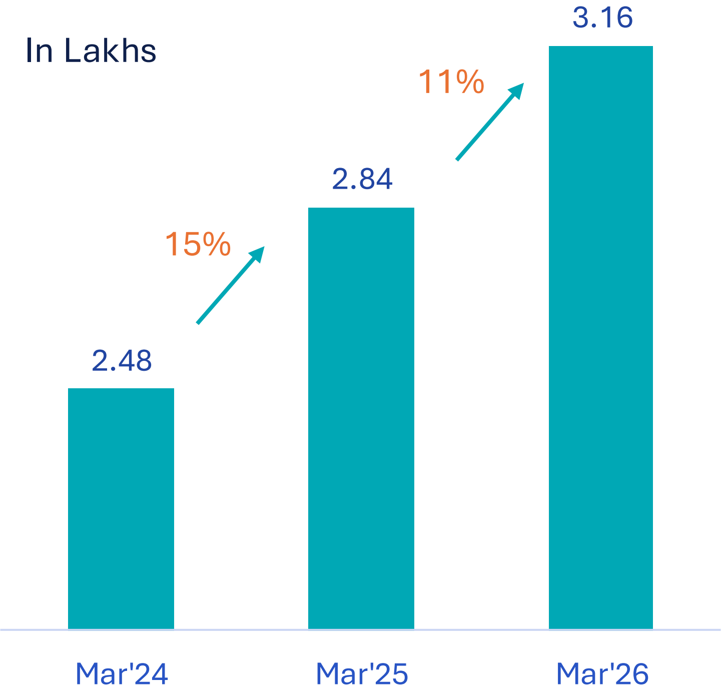




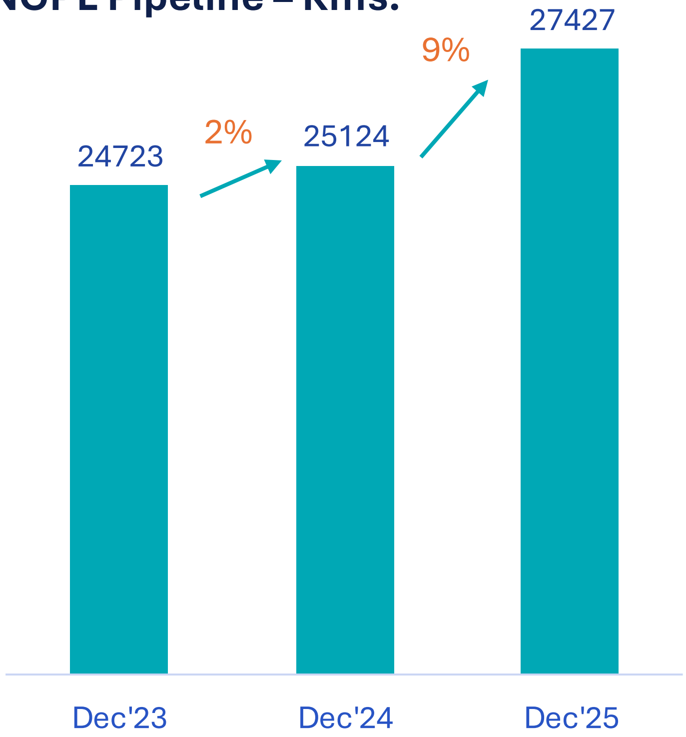
Source: PNGRB CBG Cell; https://gobardhan.eil.co.in

Growing Gas Infrastructure Footprint

CGD Pipeline – Inch Km:



NGPL Pipeline – Kms:



Source: PNGRB

Scheme: Development of Pipeline Infrastructure (DPI) for CBG Offtake

Component	Assistance Provided To	Financial Assistance
CBG Plant to CGD Network	CGD entities / eligible CBG producers	**50% of eligible pipeline cost**, calculated based on approved per-km norms and pipeline length, subject to scheme ceilings.
CBG Plant/Cluster to Gas Pipeline Network (GPN)	Natural Gas Pipeline Operators	**50% of eligible pipeline cost**, calculated based on approved per-km norms and pipeline length, subject to scheme ceilings.

Other Major Equipment Req:

1. Gas Quality & Monitoring
   - Gas Analyzers or
   - Online Gas Chromatograph
   - Automatic Shut-off Valves (Interlocks)
2. Compression : Gas Compressor
3. Metering: Twin-Stream Metering Skid
4. Odorization. (only for CGD)
5. Pressure Regulation Skid
6. Facility Safety
   - Fixed Methane Gas Detectors
   - Control Panel
   - Emergency Stop Push Buttons

The Fertiliser Sector and CBG: A Natural Synergy Worth Evaluating for Extending Blending Mandate

Largest Gas Demand Centre: Represent ~30% of India's gas demand

Less cost resistance: Gas costs are reimbursed under the New Pricing Scheme (NPS), enabling CBG blending without impacting company profitability.

Built-in farmer ecosystem: Extensive farmer outreach and retail networks can support both biomass procurement and FOM distribution.

Established compliance framework
The sector already operates under regulated gas allocation and subsidy mechanisms, making mandate implementation straightforward.

Thank You

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