SESSION 4

STRATEGIC PLANNING DIVISION

ARVIND KUMAR

PNGRB

Confluence - Strategic Planning

From Vision to Velocity : Shaping India's Energy Future with Clarity and Purpose

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Presentation Coverage

1. PNGRB Vision | History & Evolution of PNGRB
2. What PNGRB Built – Infra | Where India Stands | Global Case studies
3. Impact and relevance of Regulator | Current Strategic storage
4. Protection or Competition | PNGRB 2.0 : Vision 2047 and Beyond | Regulatory & Market Development | Knowledge Creation
5. Strategic Initiatives | Partnership for Growth

PNGRB Vision Statement

Vision

"To establish world class regulatory regime that provides affordable and sustainable oil and gas energy to consumers through a vibrant and competitive energy market, and collaborate towards creation of a reliable infrastructure to deliver the same to consumers while ensuring highest standards of safety."

Preamble

PNGRB is mandated to regulate the refining, processing, storage, transportation, distribution, marketing, and sale of petroleum, petroleum products, and natural gas. It aims to protect the interests of consumers and industry participants, ensure an uninterrupted and adequate supply across all regions of the country, and promote competitive market conditions, along with matters incidental thereto.

Current Vision

World-class regulation

Building a robust, credible regulatory framework

Affordability & sustainability

Ensuring energy is cost-effective and environmentally responsible

Competitive markets

Promoting a vibrant and fair energy ecosystem

Reliable infrastructure

Enabling strong, efficient delivery networks

Safety standards

Upholding the highest levels of operational safety

PNGRB is product of Industry

PNGRB reflects industry needs and stakeholder priorities

Vision — Mission

Consultative | Iterative | Evolving

History & Evolution of PNGRB | Pre-PNGRB Era

- **1948** – Identified Hydrocarbon as strategic sector & notified Oilfield regulation
- **1960** – OPEC Founded
- **1995** – Vijay Kelkar committee recommends APM exit
- **1997** – Govt announced APM dismantling
- **2002** – APM Dismantled | Draft bill for regulator
- **2005-06** – Parliamentary standing committee
- **2006** – Presidential Assent
- **2007** – Board Formally constituted

Issues - Why the Old Regime Had to End

- **APM (1975–2002):** Cost-plus pricing with 12% guaranteed return gave PSUs zero incentive to cut costs or innovate. Market signals were invisible to operators.
- **1973 & 1979 Oil Shocks:** India's import bill shot from $414M to $1.35B in a single year. Demand growth collapsed 7% → 0%.
- **Private participation needed but rules hadn't caught up:** The government's post-1991 intent was to expand private participation; however, existing regulatory frameworks had yet to fully transition to support a competitive market environment.

Enablers - What Triggered the Shift

- **'R' Group (Vijay Kelkar):** Government-appointed Strategic Planning Group recommended gradual APM dismantling and introduction of market pricing.
- **NELP launched:** New Exploration Licensing Policy gave private & foreign E&P companies equal footing with ONGC/OIL. Round 1 bids invited January 1999. Ended 40-year nomination monopoly.
- **Announcement for Regulator** : MoPNG' s draft bill for a downstream petroleum regulator was finalized

What PNGRB Built – Infra

CGD

GA Authorization

Pre-PNGRB	Post –PNGRB
34 GAs	273 GAs
~2 Lk Sqkm	30 Lakh sqkm

GA Pipeline connectivity – 250+

PNG - >1.6 Cr. +

CNG - 8,622 Station

NGPL

Pre-PNGRB (22)	16954 km
Sec. 42 (2)	5231km
Bid out (13) Operational	11300 km

NGPL Operational 27,427 km

NGPL Under construction - 8,489 km

PPPL

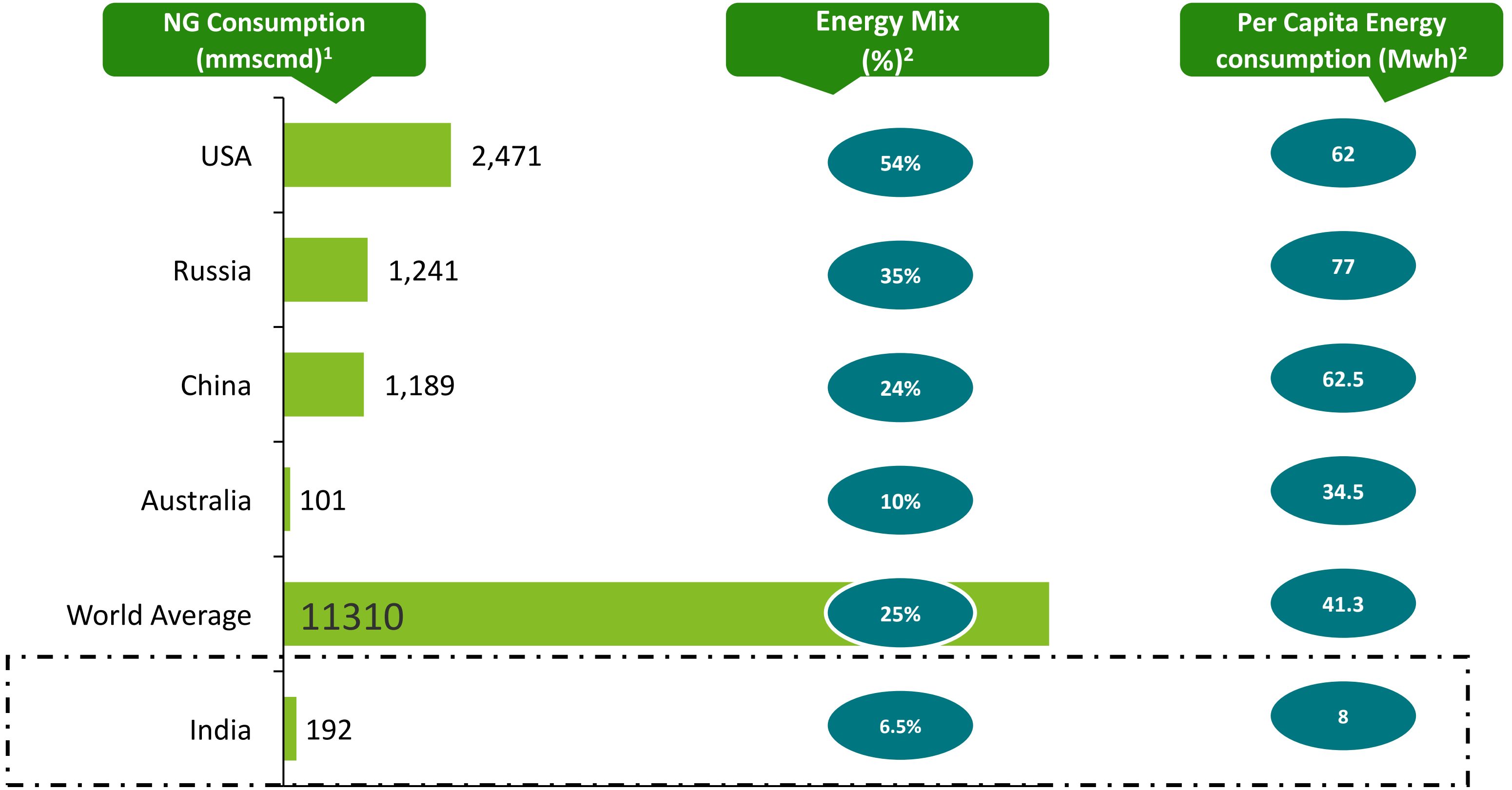
PPPL Operational 10,029 km

PPPL Under construction 4,727 km

Bottling Plants Pipeline connectivity 84 / 213

Depot / Terminal Pipeline connectivity 131 / 383

Where India stands – Per Capita consumption and Infrastructure Density



Infrastructure Density – India Vs Peers	
Gas pipeline / 1000 km² (India)	~8.2 km
Gas pipeline / 1000 km² (USA)	~140 km
Gas pipeline / 1000 km² (China)	~30 km
CGD connections / 100 households (India)	5.3
CGD connections / 100 households (USA)	53
CGD connections / 100 households (China)	34
LNG terminals per 1,000 km coastline (India) – 52.7 mtpa	~.7
LNG terminals per 1,000 km coastline (USA) – 93 mtpa	~0.4
LNG terminals per 1,000 km coastline (China) – 157 mtpa	~1.6

India's comparatively low gas usage and sparse infrastructure base position it as a high-growth market for future gas demand and network expansion

Source : 1. PPAC ; 2. Energy Stats

Global Case Studies (1/2)

	FERC, USA	Ofgem, UK	ACER, EU	AER, Australia
	• FERC has extensive authority over interstate energy markets, covering electricity transmission and wholesale trade, natural gas sale and transportation, and oil pipeline regulation.	• Ofgem is widely regarded as one of the most consumer-focused regulators globally, overseeing gas and electricity markets across Great Britain	• ACER, established in 2010, coordinates EU energy regulation, focusing on cross-border market integration and facilitating cooperation among national regulators.	• The AER operates within the National Electricity Market (NEM) framework and its mandate spans monopoly regulation, market monitoring, regulation, and consumer protection.
Strength	• Strong market oversight • Effective monitoring systems • Prevention of market manipulation	• Strong consumer protection • Easy switching process • Focus on sustainability	• Cross-border market coordination • Transmission System Operator (TSO) coordination • Market abuse surveillance	• Sophisticated network regulation • Consumer focus • Retail market oversight
Weakness	• Weak consumer protection • Limited role in climate policy	• Gas sector weakness • Balancing challenge	• Indirect role • Dependence on national regulators • Less focus on new infrastructure	• Reliability standards still developing • Gas sector weakness • Balancing challenge

Global Case Studies (2/2)

	Federal Antimonopoly Service, Russia	NEA, China
	• Federal Antimonopoly Service oversees competition across sectors including natural gas, electricity, and oil pipelines, with a strong role in tariff regulation and market conduct.	• National Energy Administration functions under the National Development and Reform Commission and is responsible for energy planning, policy formulation, and regulation of electricity, gas, and renewables.
Strength	• **Strong tariff regulation** • **Centralized oversight of dominant players** • **Control over anti-competitive practices**	• **Strong policy direction and planning** • **Rapid infrastructure development (pipelines, LNG, power grids)** • **Integration of energy transition goals**
Weakness	• **Limited market liberalization** • **High state dominance (e.g., Gazprom)** • **Lower transparency in pricing mechanisms**	• **Limited market autonomy** • **Pricing controls still evolving** • **Fragmented regulatory roles across agencies**

Global Case Studies (PNGRB Vs Other Regulator)

Parameter	PNGRB (India)	FERC (USA)	Ofgem (UK)	ACER (EU)	AER (Australia)	FAS - Russia	NEA - China
Market Development & Competition	Tariff rationalization, common carrier access, but limited spot/wholesale gas market	Mature wholesale market monitoring, anti-manipulation measures	Strong retail competition oversight, switching data	Cross-border hub liquidity, price convergence	Monitors wholesale markets, retail reforms ongoing	Regulated market with limited competition; strong tariff control; dominance of Gazprom	Gradual market reforms; state-guided pricing; emerging gas trading hubs
Infrastructure Development	Major CGD expansion, LNG/pipeline monitoring, fastest growth among peers	Long history of pipeline & transmission approvals	Strong on electricity grid, limited in gas	Facilitates cross-border projects, less on greenfield	Transmission/distribution benchmarks, moderate gas infra	Extensive pipeline network; state-led expansion; export-oriented infrastructure	Rapid expansion of pipelines, LNG terminals, and power grids; centrally planned
Consumer Protection	Transparent billing, grievance redress, surveys, NGO/VCO engagement, end-user insurance	Limited (focus is wholesale, consumer handled by states)	Strongest globally, consumer tariffs, protections, switching	Indirect role, mostly wholesale markets	Hardship programs, tariff fairness	Limited consumer focus; pricing largely regulated; fewer retail protections	Improving consumer policies; still secondary to system planning
Reliability & Supply Security	Emergency response, uninterrupted supply mandate; lacks standardized reliability indices	Reliability standards, capacity adequacy	Security of supply assessments, outage indices (SAIDI/SAIFI)	Gas/electricity resilience, interconnection metrics	Reliability performance standards evolving	Strong supply control via centralized system; export commitments prioritized	High emphasis on energy security; strategic reserves; centralized control ensures stability
Transparency & Governance	Public consultations, tariff orders online, annual action plans	Annual reports to Congress, stakeholder hearings	Consultations, market reports	Annual market monitoring reports, high openness	Public reporting, transparent decisions	Moderate transparency; regulatory decisions less publicly accessible	Limited transparency; multi-agency structure reduces clarity
Energy Transition & Sustainability	Gas as transition fuel, hydrogen & CBG integration; still early stage vs. EU peers	Supports renewables integration, but climate policy led elsewhere	Strong decarbonisation, smart meters, EV readiness	Green Deal integration, renewable benchmarks	Renewable integration and emission reduction progress	Focus on gas exports; limited push on decarbonisation	Strong push on renewables, hydrogen, electrification; state-driven transition strategy

PNGRB Enablers

Developmental

Creates markets from scratch; greenfield infra, CGD, gas exchange

Infrastructure Expansion Push

Strong mandate and policy support for CGD networks, pipelines, and LNG terminals to accelerate gas penetration.

Digital & Data Systems

Use of digital platforms for monitoring, compliance, grievance redressal, and transparent decision-making.

Policy Alignment with Energy Transition

Integration of CBG, hydrogen, and gas as a transition fuel aligned with India’s net-zero pathway.

Impact & relevance of Regulator

India's experience over the past two decades highlights the importance of a calibrated regulatory framework in ensuring competitive markets and consumer protection.

Need of Regulation

- Risk of exclusionary access, with pipelines entities potentially limiting third-party participation
- Unregulated tariff setting, leading to wide regional disparities and higher consumer burden in remote areas
- Absence of a structured CGD roll out, cherry picking, reducing transparency and competitive allocation
- Fragmented safety oversight, increasing the likelihood of incidents with weak accountability mechanisms
- Person of eminence of these fields.

What PNGRB Created

- Universal geographic coverage, positioning gas access as an essential service rather than a selective benefit
- Harmonized tariff framework, enabling uniform pricing signals across regions
- Stable and predictable regulatory regime, catalyzing large-scale private sector investment
- Integrated safety architecture, ensuring consistent standards across the gas value chain
- For Independent decision making
- Transparent regulatory ecosystem across all stakeholders

Global Precedent

FERC (USA, 1977): forced unbundling of gas transport, created the modern US gas market

Ofgem (UK, 2000): price caps and switching rights, consumer-first regulation at scale

Germany/EU (1998–2009): phased market opening through EU Gas Directives and energy law reforms, enabling competition, supplier choice, and progressive unbundling of vertically integrated utilities

Current Strategic storage - Crude | NG | LPG

85- 95% of India's LPG import and 30% of its natural gas import transits the Strait of Hormuz.
There is need of creation of Storage facilities.

Petroleum & Petroleum Product

- SPR Phase I: 5.33 MMT at Visakhapatnam, Mangaluru, and Padur
- Total national storage (SPR + OMC): ~74 days of consumption
- Phase II approved: 6.5 MMT additional at Chandikhol and Padur (PPP mode)

Natural Gas- No Strategic Reserve

India has no underground natural gas storage facility

All gas supply is flow-through; around 50% from imports (LNG)

LNG terminal capacity: ~52.7 MMTPA, operating at ~30% utilization. Under construction – 5 Terminal s (24.2 MMTPA-)

LPG - Critical Gap

India: 2nd largest LPG consumer globally at 31.3 MMT (FY25), with 330 million connections

60% import dependent; 85–95% routed through the Strait of Hormuz

Japan: ~50 days of LPG demand on PPP Model (Govt & private);

South Korea: ~30-45 days storage maintained by Industries

Recommendations

Align with IEA 90-day benchmark by strengthening crude reserves and developing integrated strategic + commercial storage for LPG and natural gas to enhance energy security. Tariff regulations amendments maybe required

Protection or competition ?

NGPL, CGD and OMCs entities have raised concerns on common carrier, exclusivity & captive pipelines, while some entities pursue legal recourse on PNGRB orders.

1 NGPL	How should PNGRB balance common carrier access with protection of captive use, while fostering competition for market development?
2 CGD	How can PNGRB balance CGD exclusivity with the need to enhance consumer choice and competition?
3 PPPL	With criss-cross product movement increasing and transportation volumes remaining limited, how should PPPL treat captive pipelines meant for self-use while enabling competition?

PNGRB 2.0 : Vision 2047 and Beyond

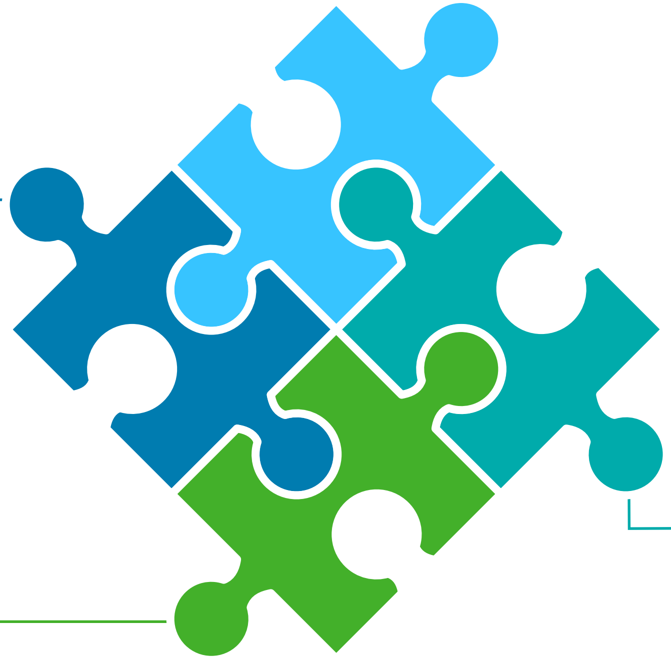
Agility · Innovation · Stakeholders' Delight · Commitment to Next Generation

Infrastructure Completion

- Complete National Gas Pipeline Grid + Arterial Grid
- Minimum 12.6 Cr. PNG connections and 18K CNG stations by 2034
- New LPG and PP Pipelines bidding

Consumer 2.0

- Ombudsman mechanism for P&NG consumers
- Centralized Digital Grievance Redressal System
- Consumer Satisfaction Surveys



Market & Price Reform

- National Petroleum product exchange
- Start: ATF, naphtha, bitumen → extend to petrol & diesel
- Strengthen IGX as regional gas trading hub
- Ethanol blending to a greater extent

Energy Transition

- Hydrogen blending pilots shall be expand after PNGRB Act amendment
- CBG blending in gas supply and 5% by FY2028–29
- 5,000 CBG plants target by 2030 with pipeline connectivity

NHIMS (GIS monitoring) · Smart meters & IoT for PNG · Certified workforce framework · Petroleum Product Exchange

PNGRB 2.0 : Vision 2047 and Beyond

🎯 PNGRB Motto

- PNGRB to be a product of the industry
- Enabler / facilitator first; regulator by exception
- Proactive policy direction in sector's interest

🌱 Energy Transition and Sustainability

- Integration of CBG into CGD and pipeline network
- LNG for trucks and bunkering
- Renewable gas trading and certification at IGX
- Integrate hydrogen blending and ensure NGPL–CGD pipeline readiness. Also enable H_2 testbed facility
- Carbon capture, Utilization & storage (CCUS) roadmap

🔧 Infrastructure & Market

- All charge area connected; common carrier bookings live
- Capex-based bidding + deferred unified tariff recovery
- End-to-end digital customer booking
- Online regas terminal capacity booking
- Logistics optimization
- Co-Retailing of Liquid fuel at CNG stations
- Infrastructure Monetization

🛡️ Storage & Supply Security

- Explore above & below-ground gas storage linked to grid
- Storage tariff framework and common carrier regime
- Strengthening supply security with geopolitical focus

PNGRB 2.0 : Vision 2047 and Beyond

Consumer First
IT-enabled onboarding: thought-to-gas-supply journey
Aggressive expansion of PNG to drive demand
Energy security requires a balanced focus on supply & demand
Direct connectivity for large industrial consumers
Enhancing ease of doing business in CGD sector

Regulatory Reform
Open marketing rights under Control Orders; removal of exclusivity
Amendments in CGD authorization, access, and guiding principles
NHIMS as standalone policy & monitoring platform
Data driven regulation
Gas Market Reforms

Regulatory & Market Development

Regulatory Development

PNGRB Access Code Regulations, 2025 - Finalization underway

Draft "Petroleum and Natural Gas Regulatory Board (Data Bank and Information System) Regulations, 2025

PNGRB (Consumer Protection) Regulations, 2025

Skilled manpower deployment

Storage regulations

Affiliate code of conduct

Storage regulations

LPG bottling plants connectivity

Market Development

Alternate Fuel Promotion

LNG Transport Fuel

Regasification Trading

Petroleum Product Exchange

Knowledge Creation at PNGRB

NGPL	India's Natural Gas demand projection for 2030 2040
	Global case studies of Transmission System Operator (TSO).
	Market and Regulatory Framework for Gas Distribution Sector across the Globe
PPPL	Optimizing Primary Transport of Petroleum Product to OMC Terminals - Case Study of North India.
	Zonal study on Petroleum Product Pipeline: Potential new PPPL to be bid out.
	Zonal study on LPG Pipeline: Potential new LPG pipelines to be bid out.
CGD	CBG in India: Demand-Supply Outlook and Pipeline Connectivity with CGD
	Report on Fuelling the Future: Opportunities in SSLNG and Infrastructure Outlook in India.
	Economics CBA of CGD customer in case of gas supply from pipeline vs Trucked LNG
Others	An Opportunity for LNG in Transport Sector
	Optimizing LNG Supplies from Terminals in India.
	PNGRB Roadmap on Hydrogen Transportation through Pipelines and Blending with Natural Gas.

Strategic Initiatives (1/2)

PNGRB's recent policy reforms and strategic interventions to foster growth and efficiency in India's petroleum and natural gas sector.

1

Mobile Refueling CNG

Enabling mobile CNG stations to meet Minimum Work Program (MWP) targets, enhancing fuel accessibility.

2

Extended CGS Reach

Permitting CGS outside authorized GAs to expand gas network coverage.

3

Unified NGPL Tariff

Implementing a standardized tariff for NGPL to ensure fair and consistent pricing.

4

New Pipeline Tariffs

Introducing updated tariff regulations for petroleum and product pipelines, fostering investment and transparency.

5

Reduced PBG for CGD

Lowering Performance Bank Guarantees (PBG) for City Gas Distribution (CGD) sectors to ease financial constraints.

6

Gas Exchange Establishment

Facilitating the setup of a dedicated Gas Exchange for efficient and transparent trading of natural gas.

Strategic Initiatives (2/2)

PNGRB's recent policy reforms and strategic interventions to foster growth and efficiency in India's petroleum and natural gas sector.

7 Imbalance Management Services

Introducing parking, lending, netting, and trading services to optimize gas flow and balance supply-demand dynamics

8 Simplified Zone Structure

Consolidating pipeline zones from three to two and unifying zones for the CGD sector to streamline operations

9 Wartime Imbalance Waiver

Suspending imbalance charges during wartime scenarios to provide relief and flexibility for shippers

10 Standalone NHIMS

A Standalone NHIMS shall be made available for monthly static data

Partnership for Growth

Support required from Regulator

- Transparent regulatory frameworks
- Monetization opportunities
- Gas trading platforms
- Logistics efficiency
- Research publications

Support Required from Industry

- Operational data sharing
- Active consultation participation
- Technology adoption
- Infrastructure investment alignment
- Pilot project collaboration

Thank You