



Geopolitics of Energy and Energy Security in India

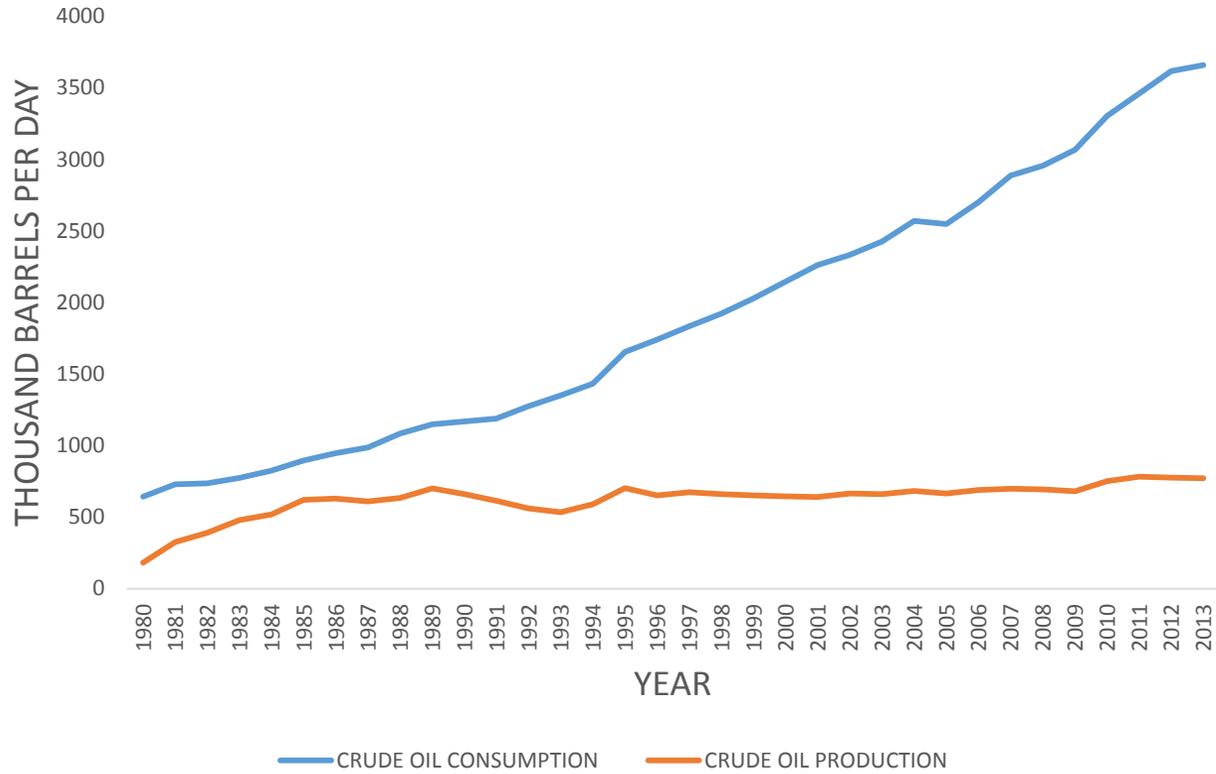
By Amit Singh Rao

CURRENT ENERGY STATISTICS

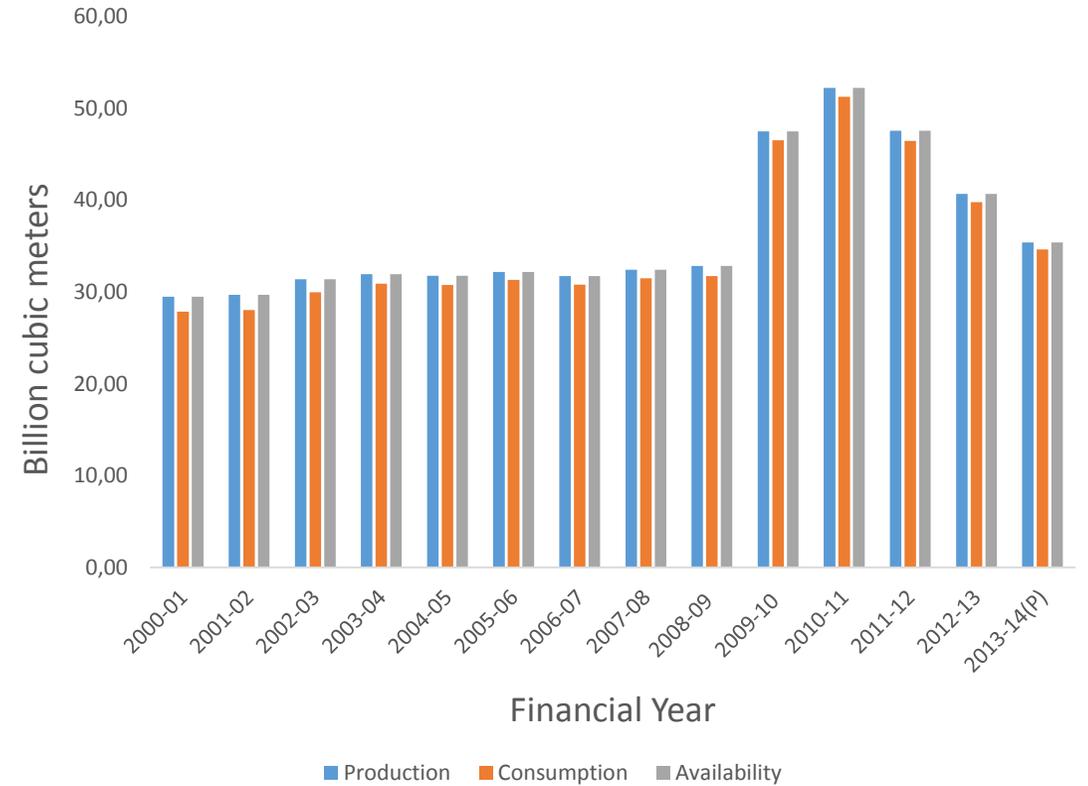


3rd Largest Crude Oil Consumer

CRUDE OIL



NATURAL GAS

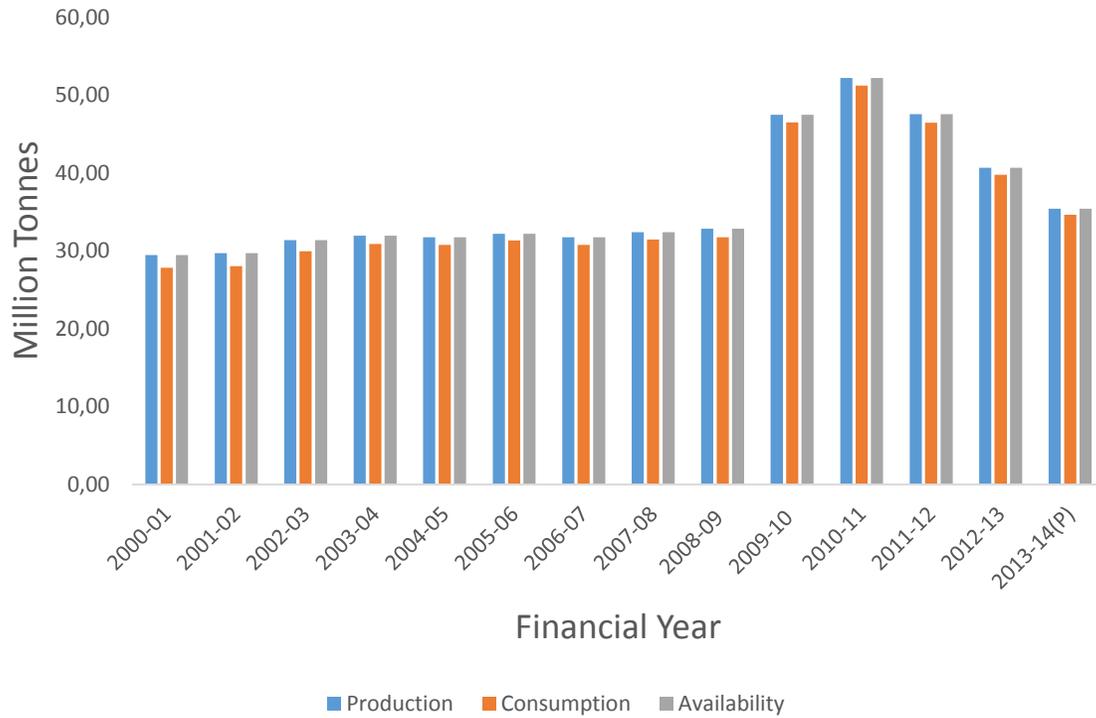


CURRENT ENERGY STATISTICS

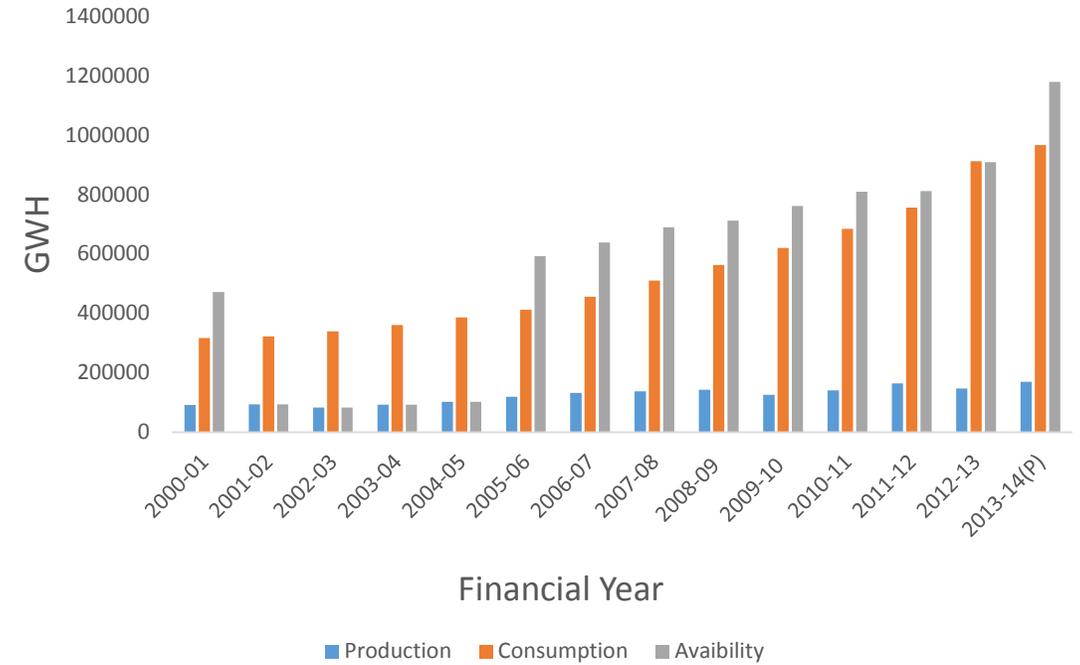


3rd Largest Crude Coal Producer

COAL



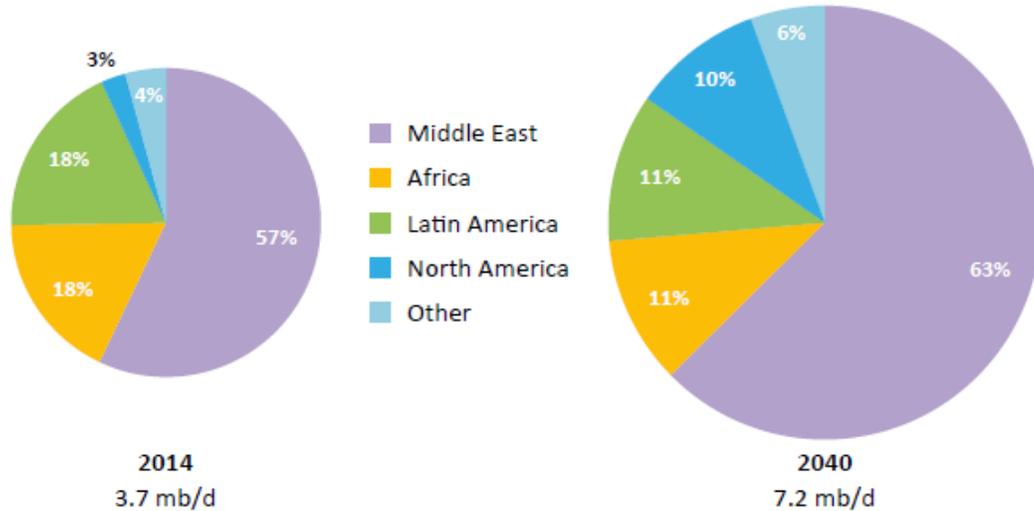
Electricity (Hydro and Nuclear)



FORECAST OF FUTURE AVAILABILITY AND DEMAND

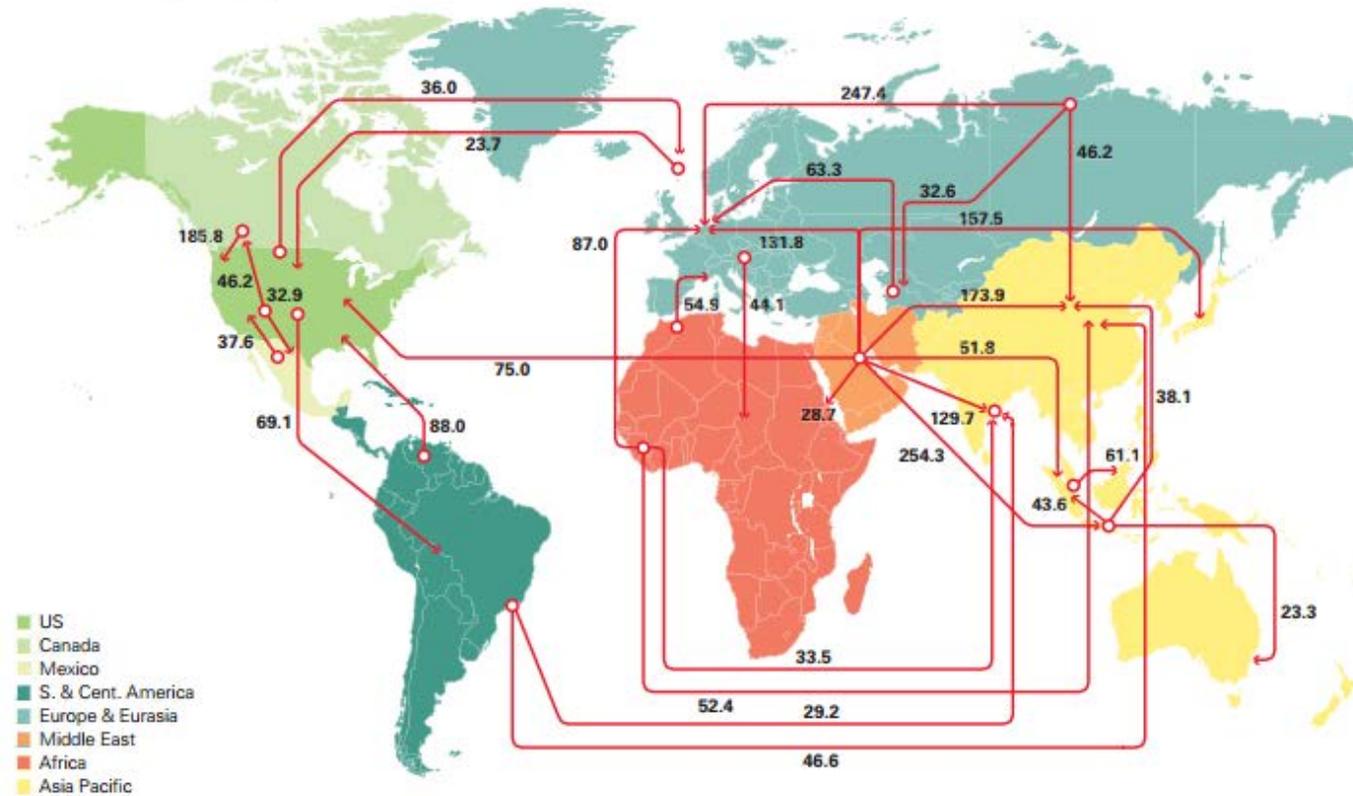


CRUDE OIL



Projected Crude Oil Imports

Major trade movements 2015
Trade flows worldwide (million tonnes)



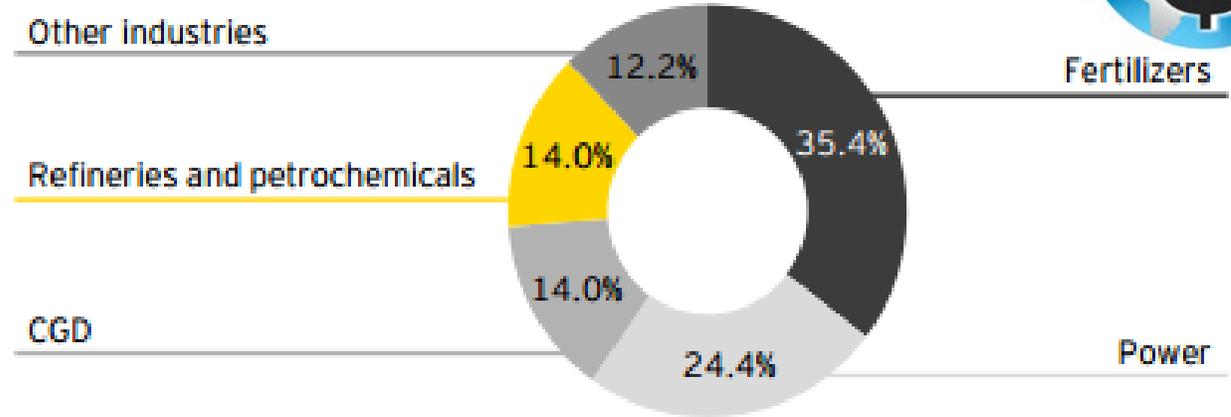
Source: BP Statistical 2016

Middle East supplied 114.5 MT crude imports out of 195 MT in 2015

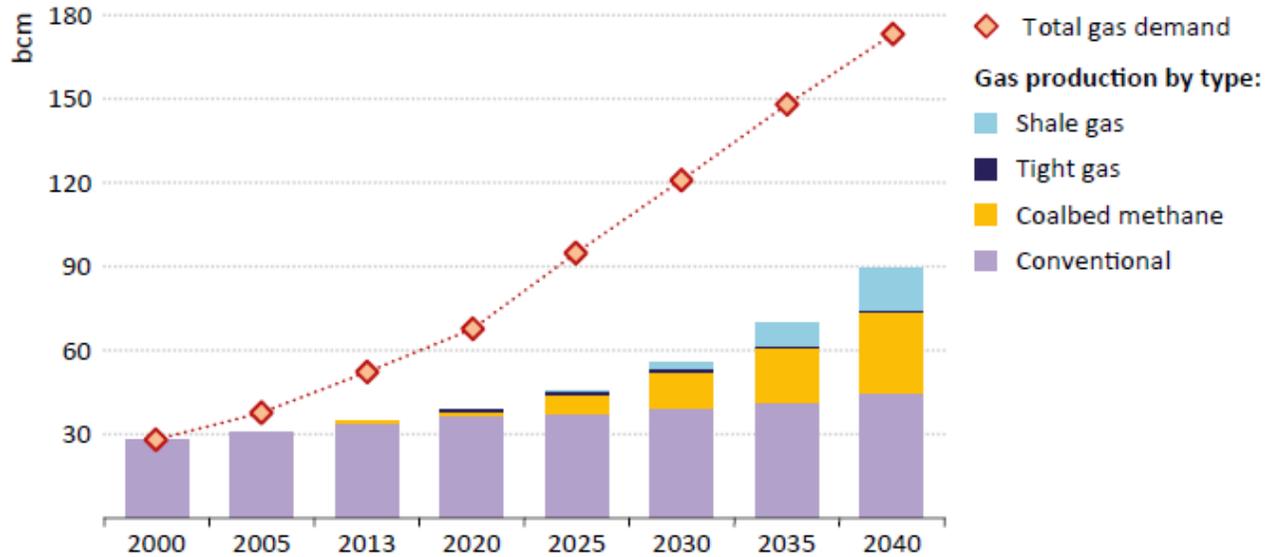
FORECAST OF FUTURE AVAILABILITY AND DEMAND



NATURAL GAS



Use of Natural Gas in India

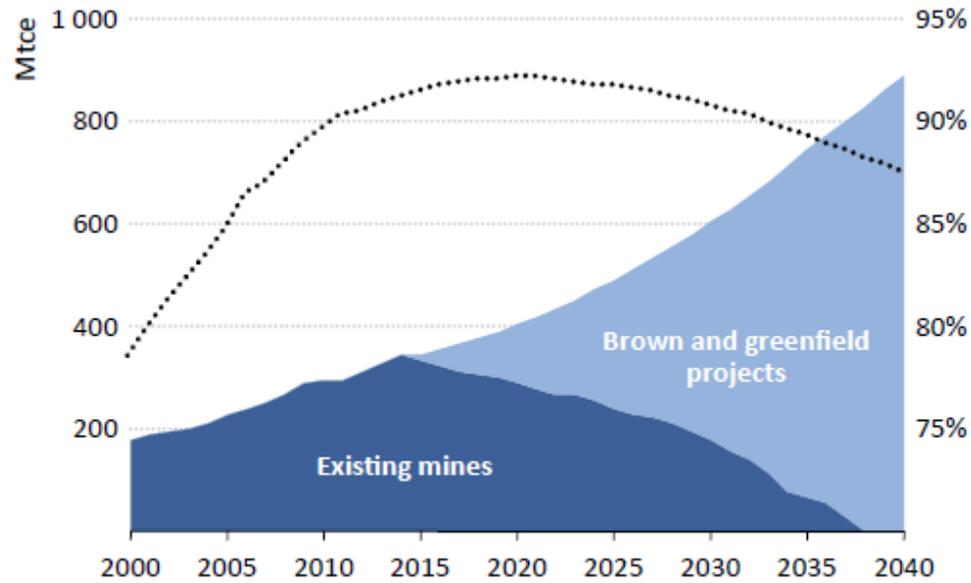


Projected Natural Gas Demand

FORECAST OF FUTURE AVAILABILITY AND DEMAND



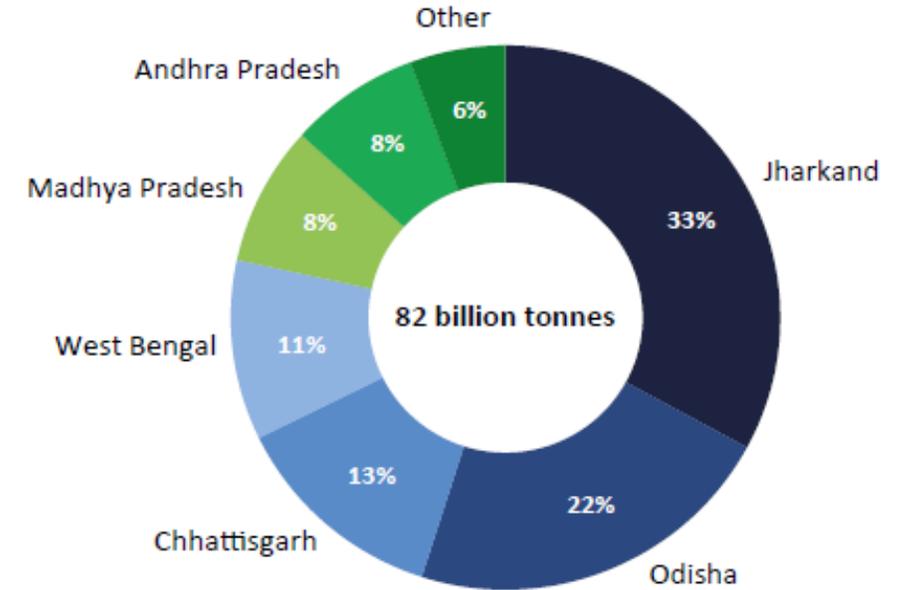
COAL



Sources: IEA analysis; Coal Directory of India.

Projected Coal Demand of India

Country	Production in Million Tonnes (2015)
China	1827.0
USA	455.2
India	283.9
Australia	275.0
Indonesia	241.1
Russian Federation	184.5
South Africa	142.9
Colombia	55.6
Poland	53.7
Kazakhstan	45.8



Sources: BGR; Inventory of Coal Resources of India; IEA analysis.

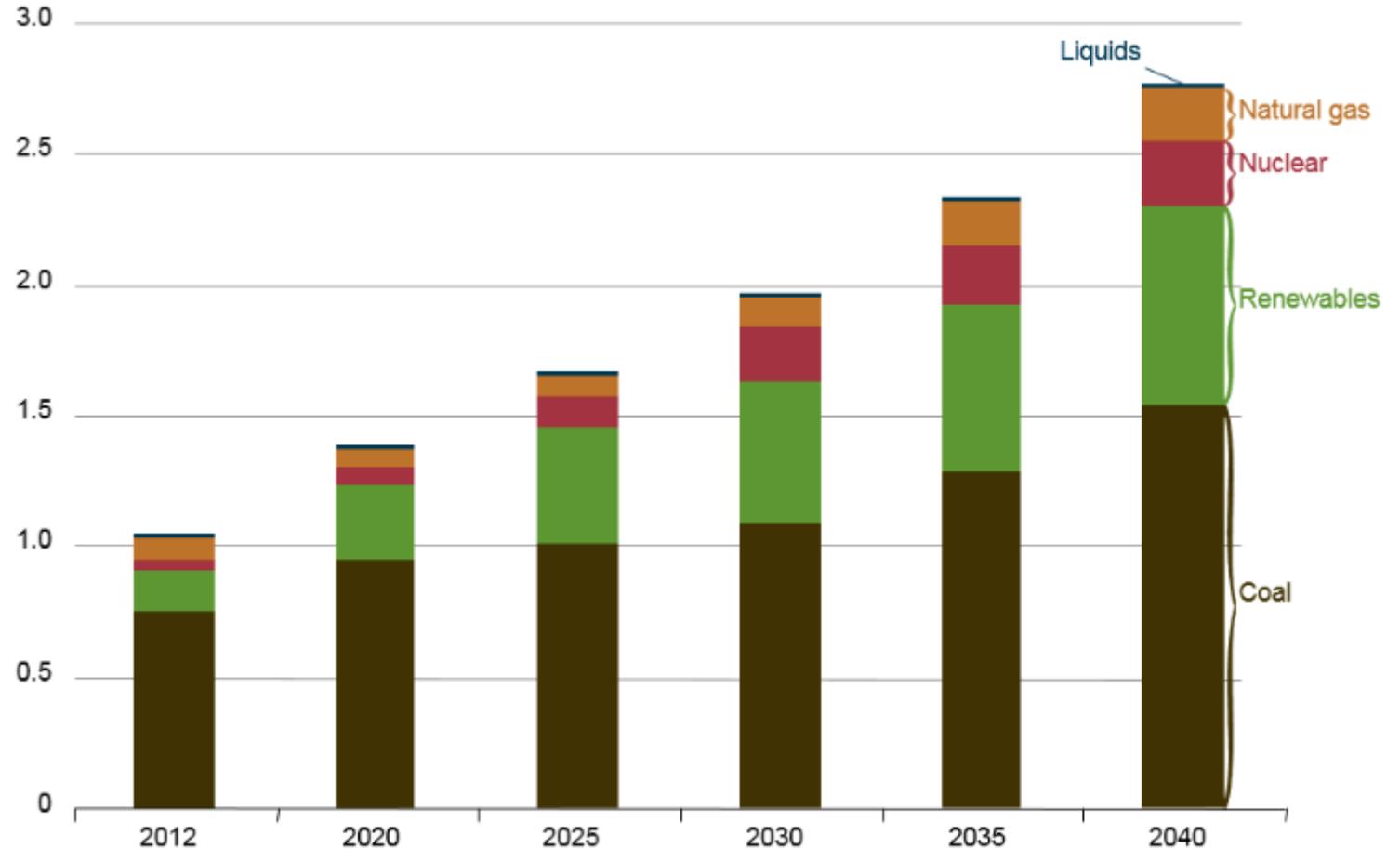
Coal Reserves of India by States



Electricity

Rank ↕	Country/Region ↕	Electricity production (GWh) ↕	Date of information ↕
N/A	World Total	23,536,500	2014 ^{[1][2]}
1	China	6,142,490	2016 ^[3]
2	United States	4,297,300	2014 ^[1]
N/A	European Union	3,166,000	2014 ^[1]
3	India	1,208,400	2014 ^[1]
4	Russia	1,064,100	2014 ^[1]
5	Japan	1,061,200	2014 ^[1]

India: Electricity Generation by Fuel Source (trillion kwh)





Oil and Gas Supply Security

New Exploration Licensing Policy(NELP):

Features:-

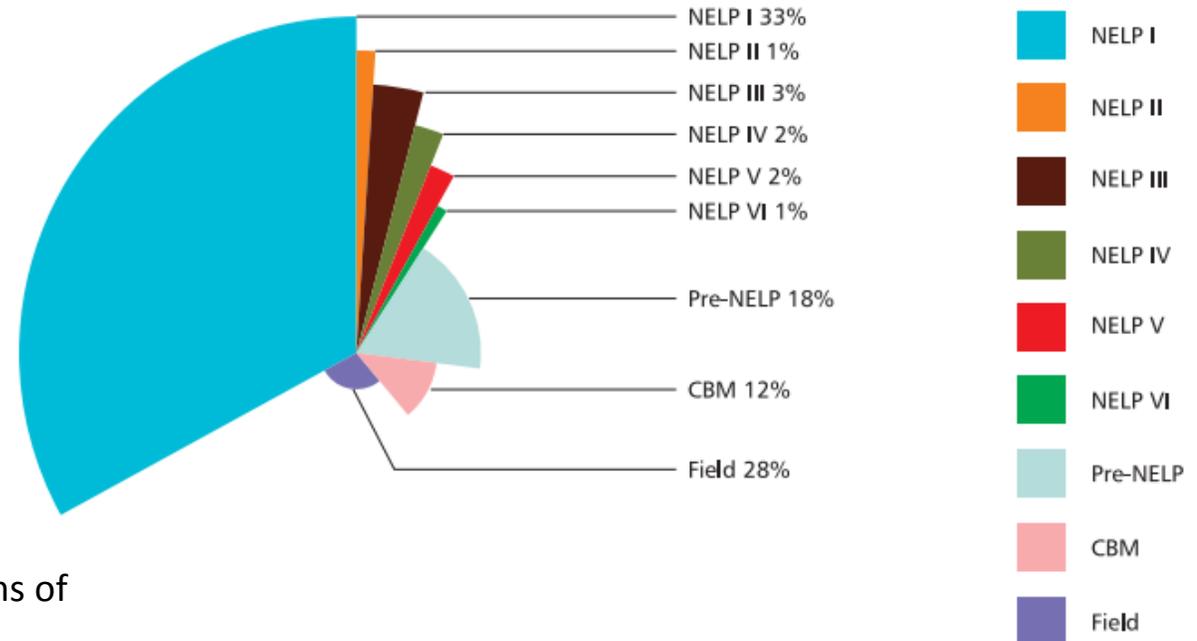
1. 100% FDI allowed
2. No mandatory state participation.
3. Royalties at 12.5%(on land) and 10%(offshore) and some exemptions.
4. A Model PSC, which is revised at every NELP round.

Hydrocarbon Exploration and Licensing Policy (HELP)

Features:

1. Uniform license for exploration and production of all forms of hydrocarbon.
2. An open acreage policy.
3. Easy to administer revenue sharing model (RSC).
4. Marketing and pricing freedom for the crude oil and natural gas produced.
5. Under HELP auction of 67 small discovered oil and gas fields has also taken place recently.

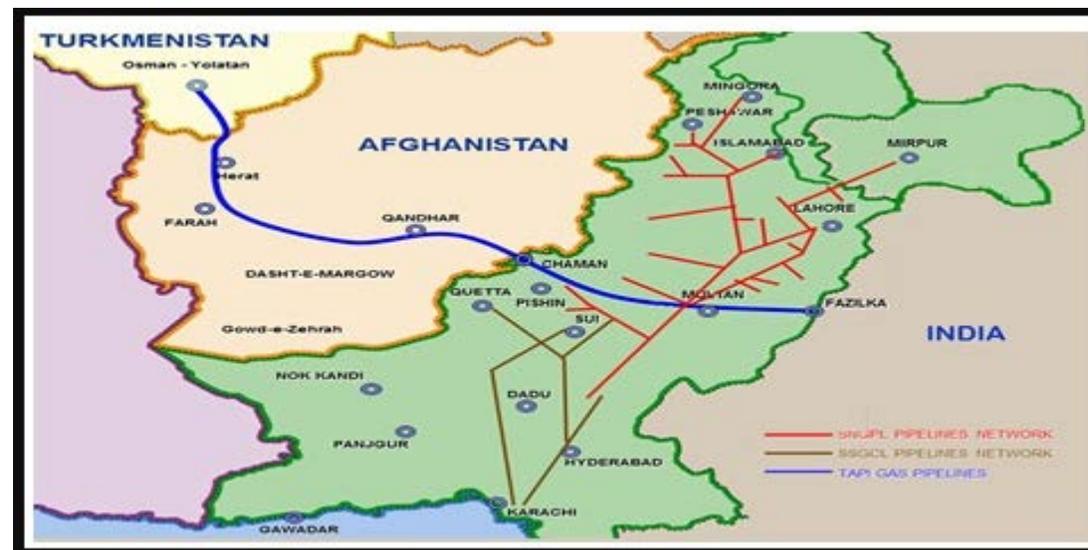
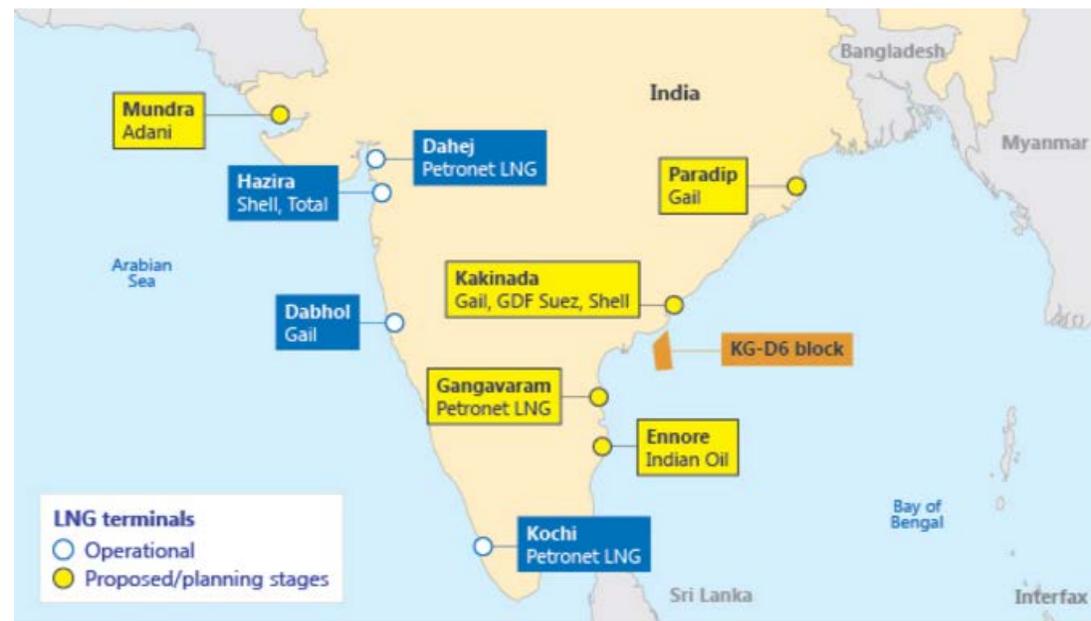
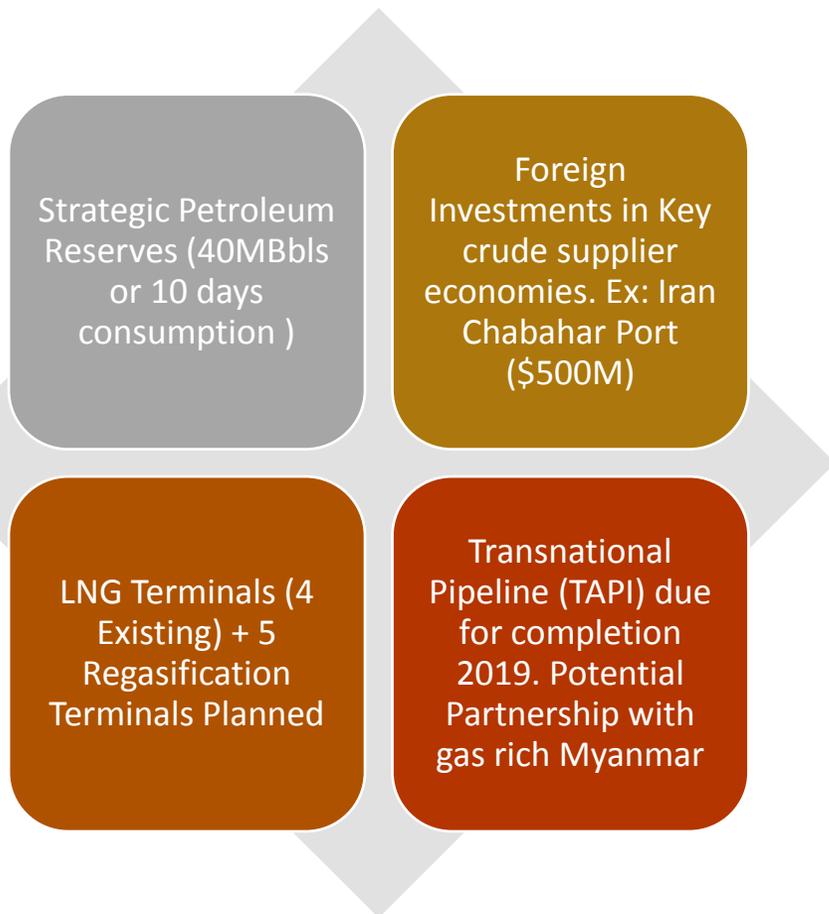
Bidding Round-wise In-place volume [(O + OEG(MMT))] dist PSC regime As on 01.04.2015





ENERGY POLICIES

Oil and Gas Supply Security





Investment in Renewables

India has the fifth largest power generation portfolio in the world and its current renewable energy contribution stands at 44.812 GW which includes 27.441 GW of Wind power and 8.062 GW of Solar power installed capacity in the country. (As on 31.07.2016).

- ✓ Fourth largest installed capacity of wind power
- ✓ Third largest installed capacity of concentrated solar power (CSP)
- ✓ Renewable energy contributes 14.7% of the total installed capacity in the country as on 31.07.2016.
- ✓ Ambitious target of 175 GW of renewable power by 2022 which will include 100 GW of Solar power, 60 GW from wind power, 10 GW from biomass power and 5 GW from small hydro power.

Renewable focused policies

- ✓ National Solar Mission
- ✓ Establishment of a dedicated financial institution – the **Indian Renewable Energy Development Agency (IREDA)**, makes for renewed impetus on the promotion, development and extension of financial assistance for renewable energy and energy efficiency/conservation projects.

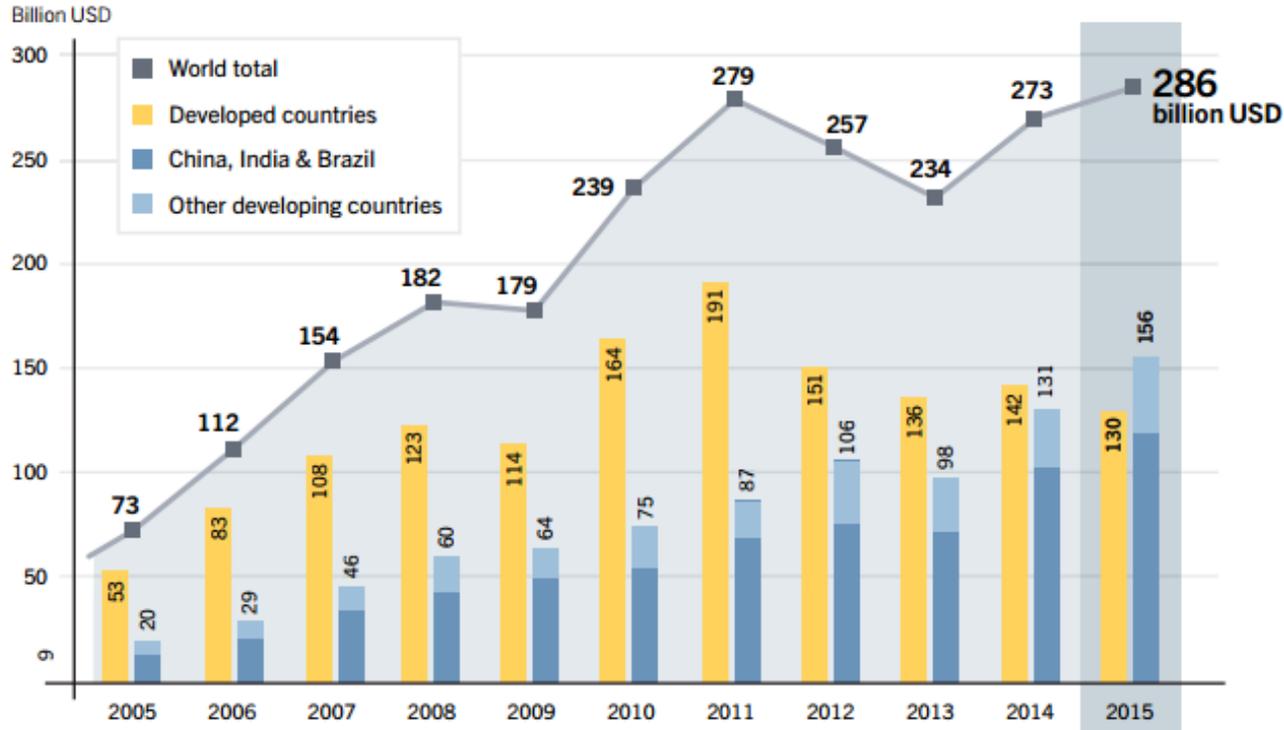
International Solar Alliance

- An initial investment of \$30mn made in 2015.
- It will generate more than 175GW of renewable energy capacity by 2022 and decrease emission intensity by 33 to 35 percent by 2030.

ENERGY POLICIES



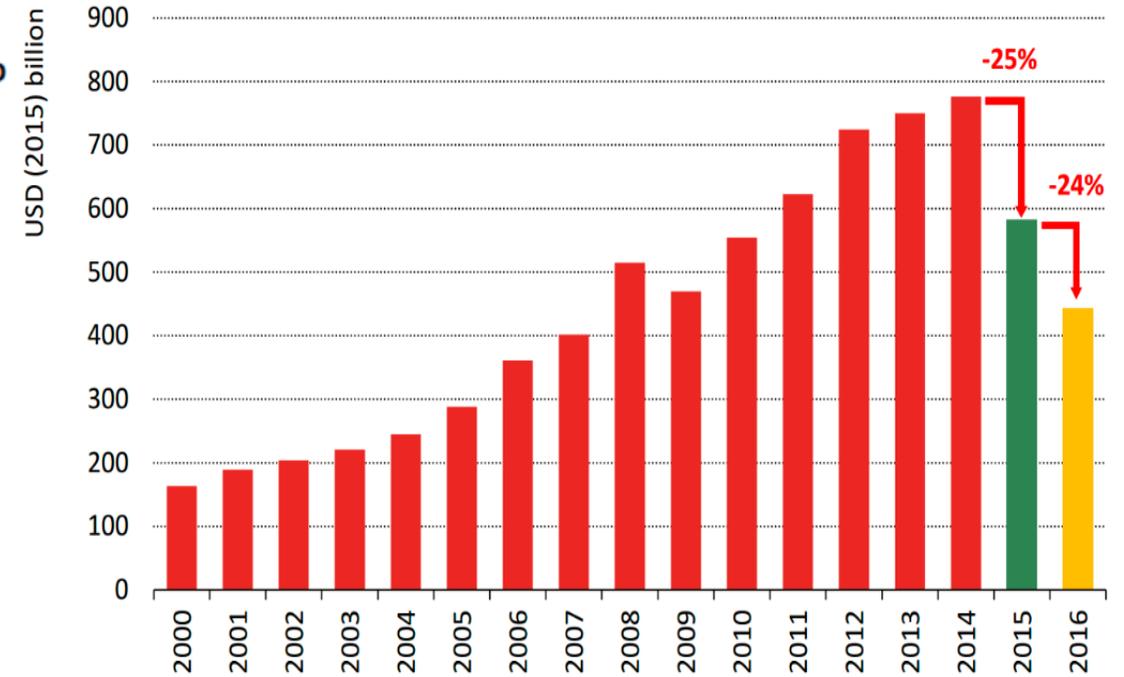
Global New Investment in Renewable Power and Fuels, Developed, Emerging and Developing Countries, 2005–2015



Source: REN21

\$220bn was invested in Energy Efficiency in 2016

World Upstream Oil and Gas Investment



Source: Energyfuse.org



Thank you for your attention