

# Natural Gas Experiences in Gujarat & elsewhere

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# CHICKEN AND EGG PROBLEM

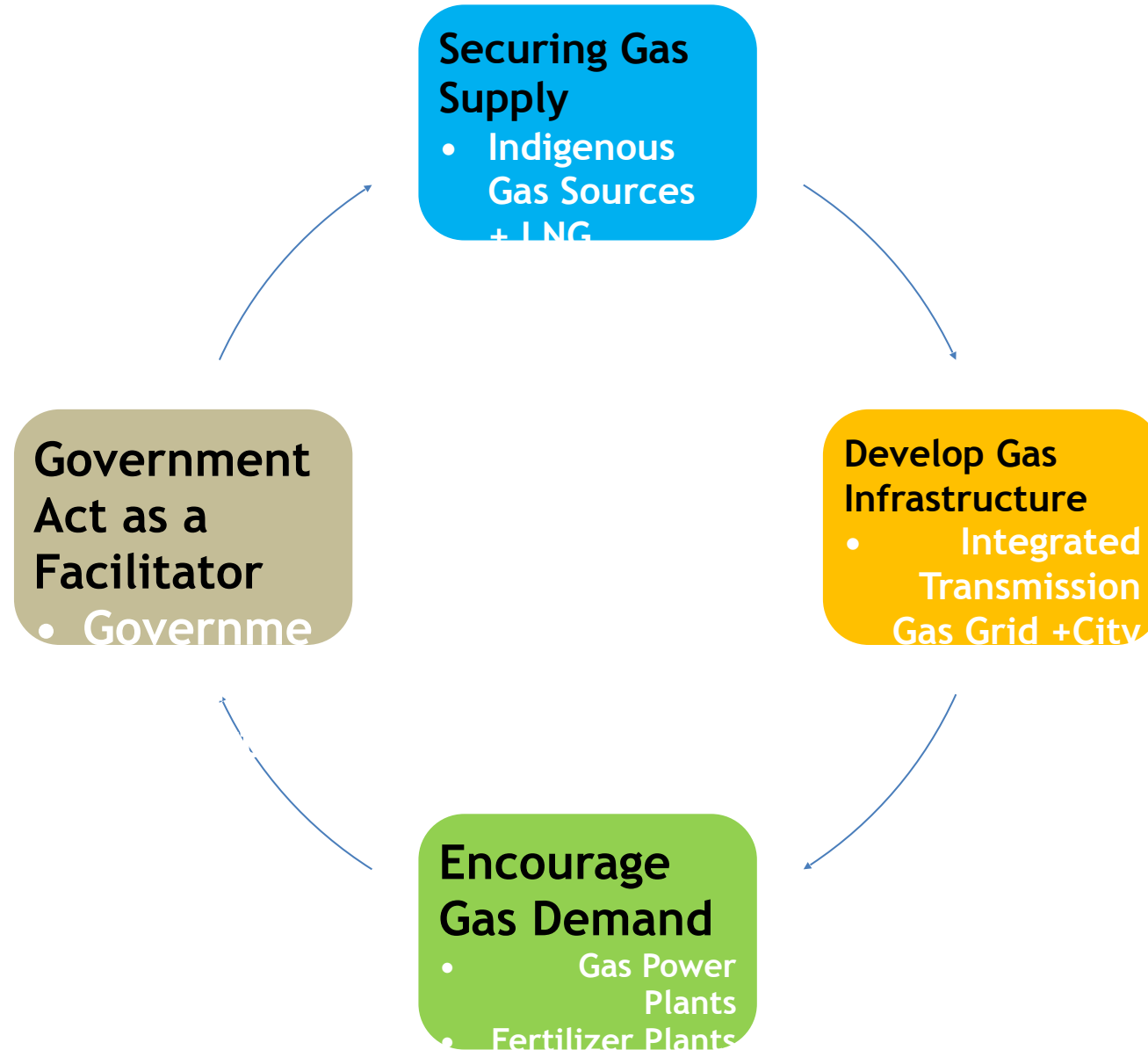
- No market demand without infrastructure
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- Infrastructure and Market demand useless without assured gas supply!
- Gujarat had domestic gas but even with R-LNG viable
- Of course with domestic piped gas is much better
- **Infrastructure was viable given demand density**

# Gujarat Experience

- Anchor Loads
- Power (State and Private)
- Fertilizer (State actors to support agriculture)
- Industry (Private, eg ceramic industry)
- City Gas Distribution
- In CGD, low cost install key, regulator
- Caution to others: waiting penalty
- Multiplier effect
- Availability first, Prices varied



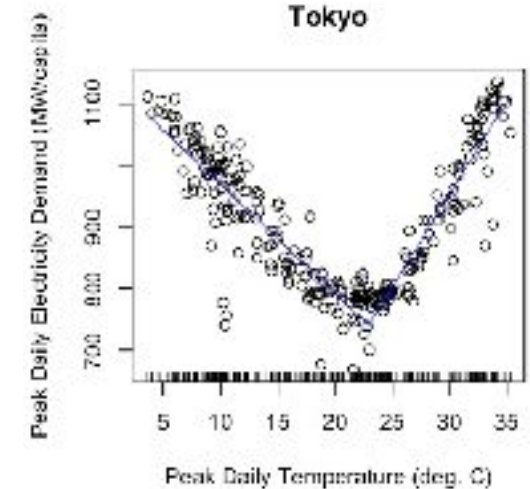
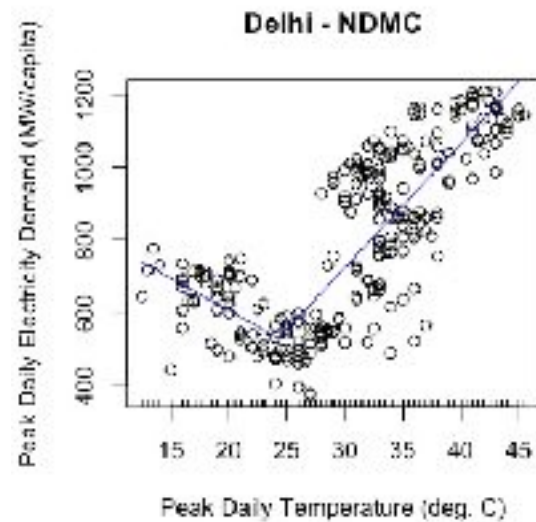
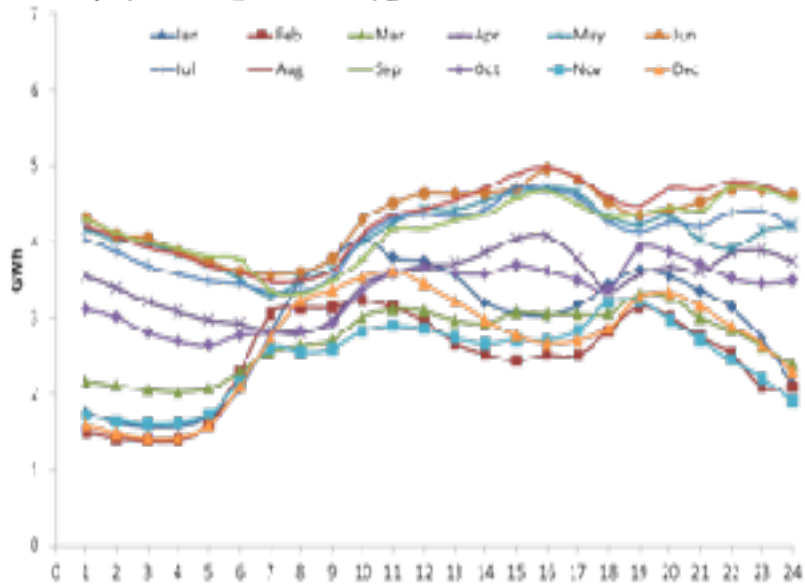
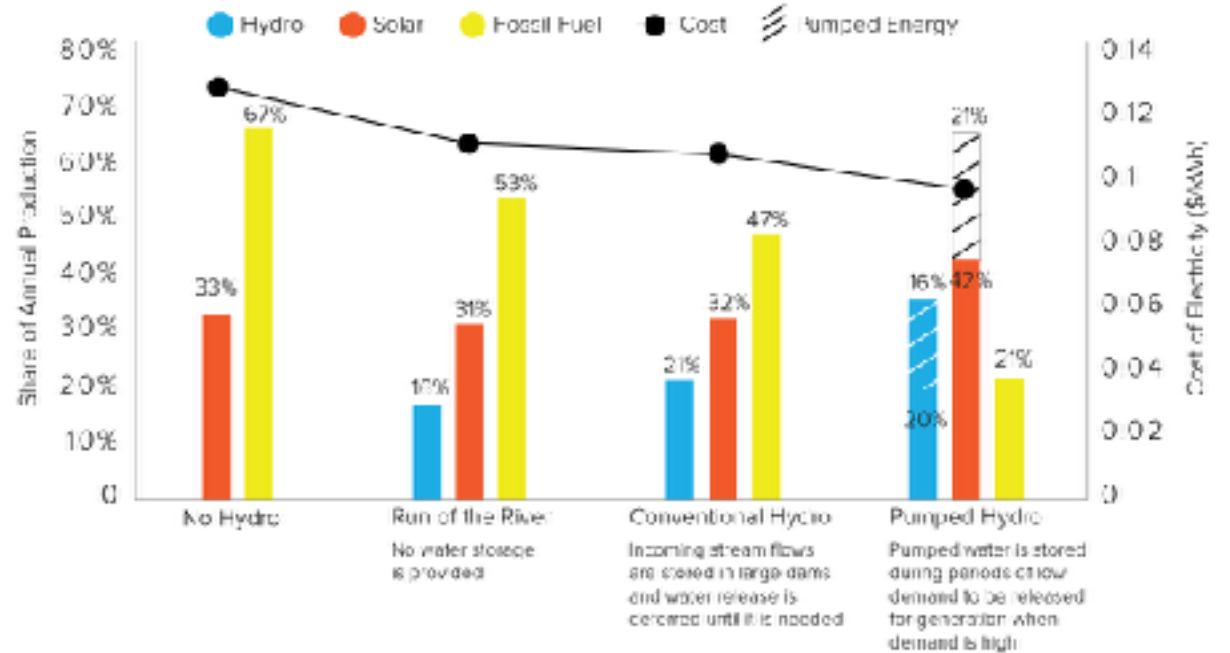
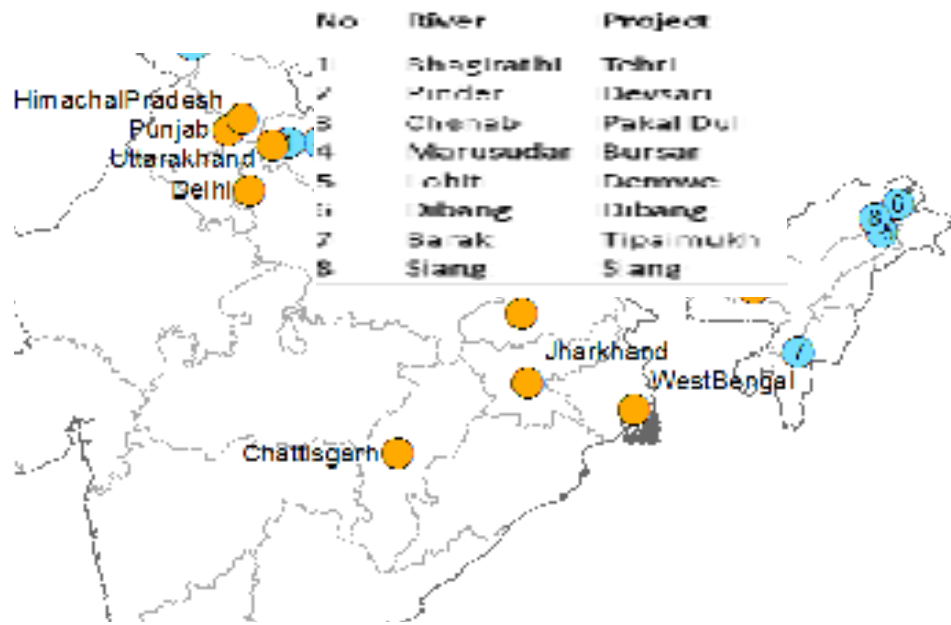
# STATE GOVT. STRATEGY FOR GAS- FROM MR. PANDIAN



Other states/future maybe different, 2030

- URBAN: cooking 20 BSCM (if equal elec/lpg/png)
- URBAN other: similar numbers
- Fertilizer: ~ 40 BSCM
- Industry and Power: can grow significantly
- Industry (estimated by others): 70 BCM
- Power: @10% of 2030 electricity: 70 BCM
- Might need to plan for higher

# DEEP INTEGRATION OF RENEWABLES NEEDS FLEXIBLE SOURCES OF POWER



# Flexibility: increasing need, not just from RE

- **Peaking loads in cities**
- **Might need power close to city at low capacity factors, SCGT**
- **Hydro dispatch**
- **Scheduled loads: Irrigation Pumps**
- **Flexible Generation**
- **Longer term**
- **Store heat/cold, Electric vehicles, DSM, smart grids (low-cost versions)**