Infrastructure Advisory

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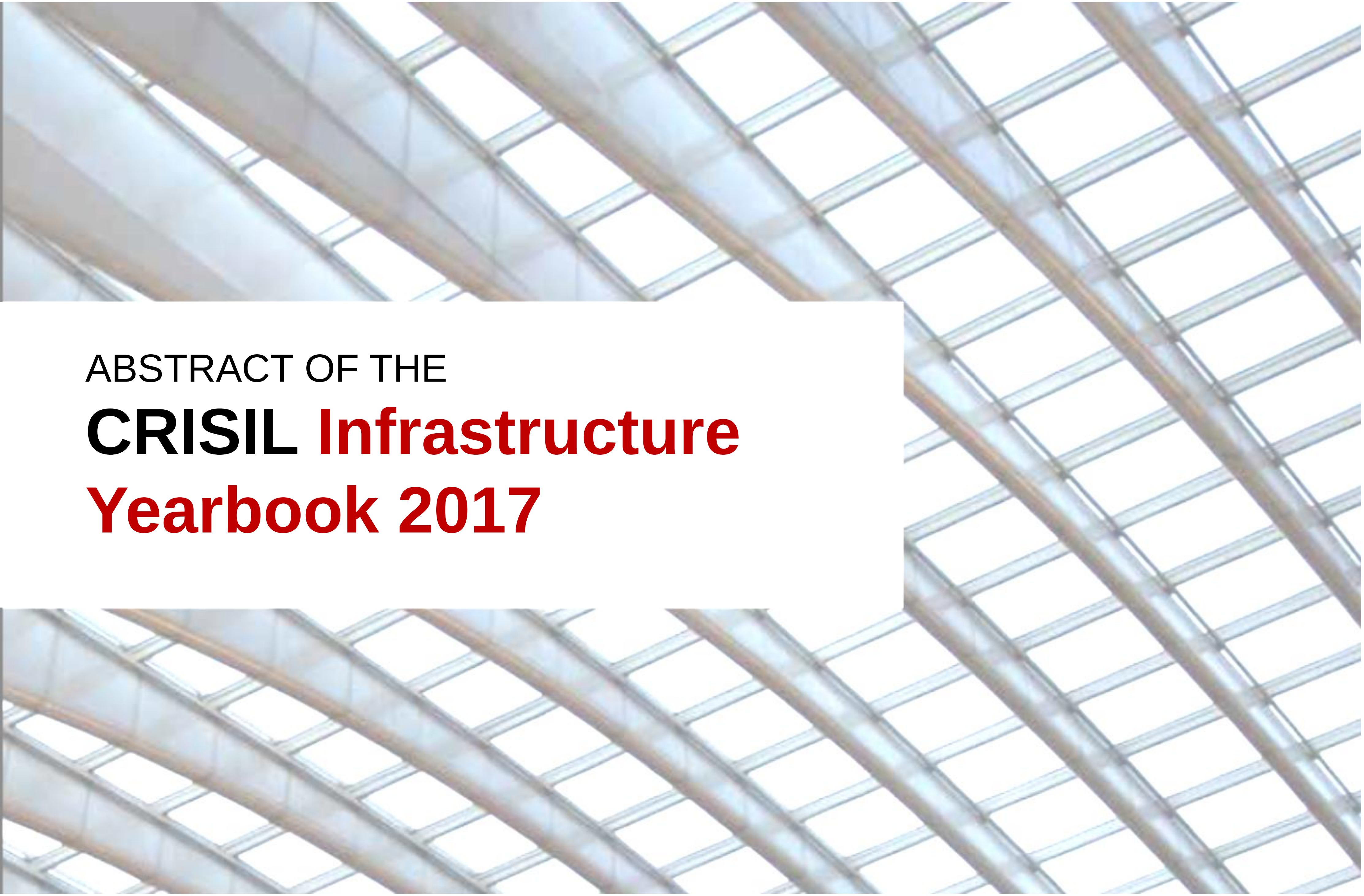

ABSTRACT OF THE

CRISIL Infrastructure Yearbook 2017

CRISIL Infra Intelligence is a platform that aims to offer multi-dimensional views and insights on the infrastructure space in India

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Foreword

For more than two decades, CRISIL has been working closely with various stakeholders for infrastructure development in India, in line with its mission of 'making markets function better'. Specifically, CRISIL Infrastructure Advisory has been involved in many path-breaking initiatives.

The CRISIL Infrastructure Yearbook 2017 and the CRISIL InfraInvex are our latest contributions towards a vibrant ecosystem for infrastructure development.

The CRISIL InfraInvex tracks, measures and assesses investment attractiveness, development and maturity of infrastructure sectors, and is intended to become a credible national benchmark.

The yearbook, on the other hand, presents a comprehensive landscape of the infrastructure sector, its challenges and prospects. The granular look-in reveals a plethora of issues that need to be addressed if India is to crank up its 'potential growth' rate, with the biggest challenge being boosting and sustaining infrastructure investments.

For years now, the government has been doing the heavy lifting in terms of infrastructure investments. However, having only the public investment cylinder firing is not good enough. Accelerating private sector investments is an essential complementarity, and the other cylinder that needs to fire. That requires a deepening of the capital market and facilitating greater access to funding.

I believe the yearbook and the CRISIL InfraInvex will equip and engage stakeholders with information and insights, and help build a bias for positive action.

I look forward to your feedback.

Season's greetings, and warm regards.

Ashu Suyash
Managing Director & CEO
CRISIL Ltd

Foreword

India's infrastructure spending will have to accelerate to at least Rs 50 lakh crore between fiscals 2018 and 2022 to make a visible impact on service delivery and provide a foundation for rapid and inclusive economic growth.

Recent initiatives re-affirm the central government's strong commitment to infrastructure with public spending rising sharply in fiscals 2016 and 2017. Policy actions to revive stalled projects, expedite approvals, introduce the hybrid annuity and toll-operate-transfer models in highways, sustain the rapid growth in renewable capacity – all augur well. The ambitious Saubhagya scheme follows the work in progress under UDAY to universalise household access to electricity.

Yet, a number of challenges remain that need decisive tackling. Speedy redressal of stressed assets and debt overhang will be crucial, as will be a comprehensive re-tooling of the public-private partnership framework. Cooperative federalism will be tested as we work to fix power distribution utilities and municipalities that curb scale-up of investments.

Persistent and collaborative actions will help resolve these issues and create enabling conditions for a rapid, durable and inclusive infrastructure build-out.

In the context, the release of the CRISIL Infrastructure Yearbook 2017 couldn't have been better timed. The theme for this year is 'reimagining the infrastructure financing landscape' – something we believe is an imperative. Among others, the yearbook offers a granular look at the power, transport and urban infrastructure sectors.

With the yearbook, we are also launching the CRISIL InfraInvex, a unique index to measure and evaluate 'investability' or investment attractiveness in select infrastructure sectors. Built on four thematic pillars and allied evaluation criteria, the index will help track and measure progress on factors that help in building the foundations of sector-level investment maturity.

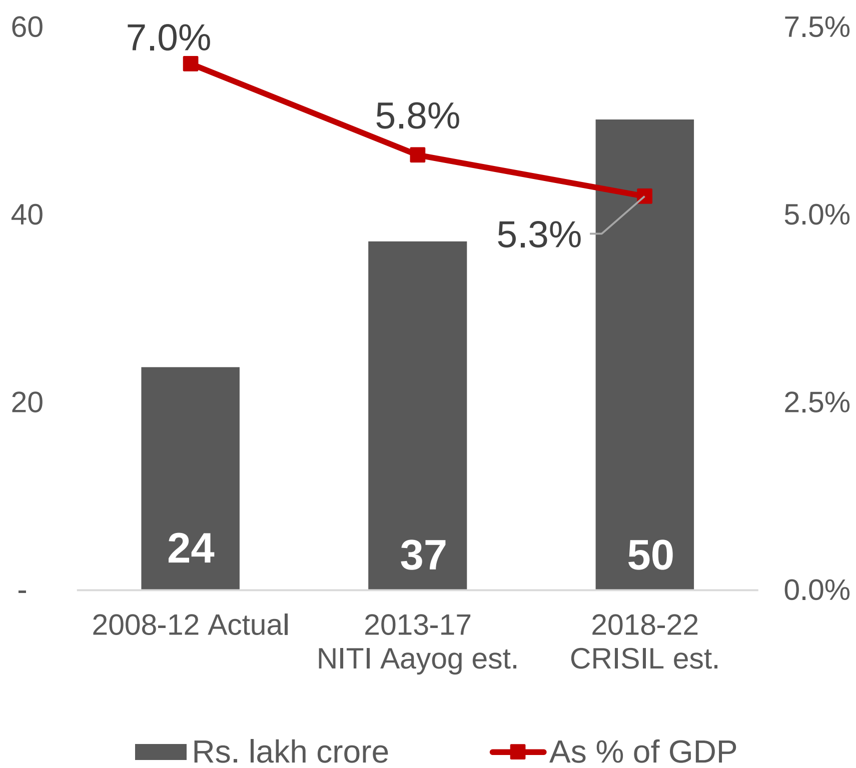
We believe the CRISIL Infrastructure Yearbook and the CRISIL InfraInvex will complement the initiatives underway to capture, inform and build on the dialogues to strengthen and accelerate India's infrastructure build-out. We intend to engage with a wide range of stakeholders on these initiatives and ensure that the outputs are always relevant and insightful.

Warm regards,

Sameer Bhatia
President
CRISIL Infrastructure Advisory

Infrastructure spending of ~Rs 50 lakh crore needed between fiscals 2018 and 2022

Infrastructure spending (% of GDP)



- CRISIL projections for 2018-22 factor in
  - Average GDP growth of 7%
  - Sustained infra spending @ 5.3% of GDP

Investments spending *(Rs lakh crore)*

	FY08-12 Actual	FY13-17 RE Niti Aayog	FY18-22 E CRISIL
Power	7.8	12.7	14.7
Railways	2.0	3.8	8.0
Airports & ports	0.8	0.9	1.0
Highways	4.6	7.6	10.0
Urban	0.8	0.9	5.5
Others	7.4	10.2	11.0
Total	**23.8**	**37.2**	**50.2**

- ~76% of requirement from the power, transport and urban sectors
- Railways doubling investments from the previous plan, and increase in urban investments are significant

Humongous investments needed, indeed

But how does one assess the investability of these sectors?

That's why CRISIL InfraInvex

It's a one-of-its kind indicator of investability that evaluates risks in each sector

Pillar 1
Policy direction

- **Policy consistency:** focus, clear programmes, projects pipeline
- **Public financing:** budgetary outlays when not de-licensed

Pillar 2
Institutional strength and regulatory maturity

- **Implementation capacity:** capacity / autonomy of organisation(s)
- **Financing models:** PPP models, access to capital markets
- **Regulatory robustness–** regulatory independence, effectiveness

Pillar 3
Financial sustainability

- **Cost recovery:** Extent of cost recovery, subsidy dependence
- **Demand risk:** Offtake and market risk in the sector

Pillar 4
Implementation ease

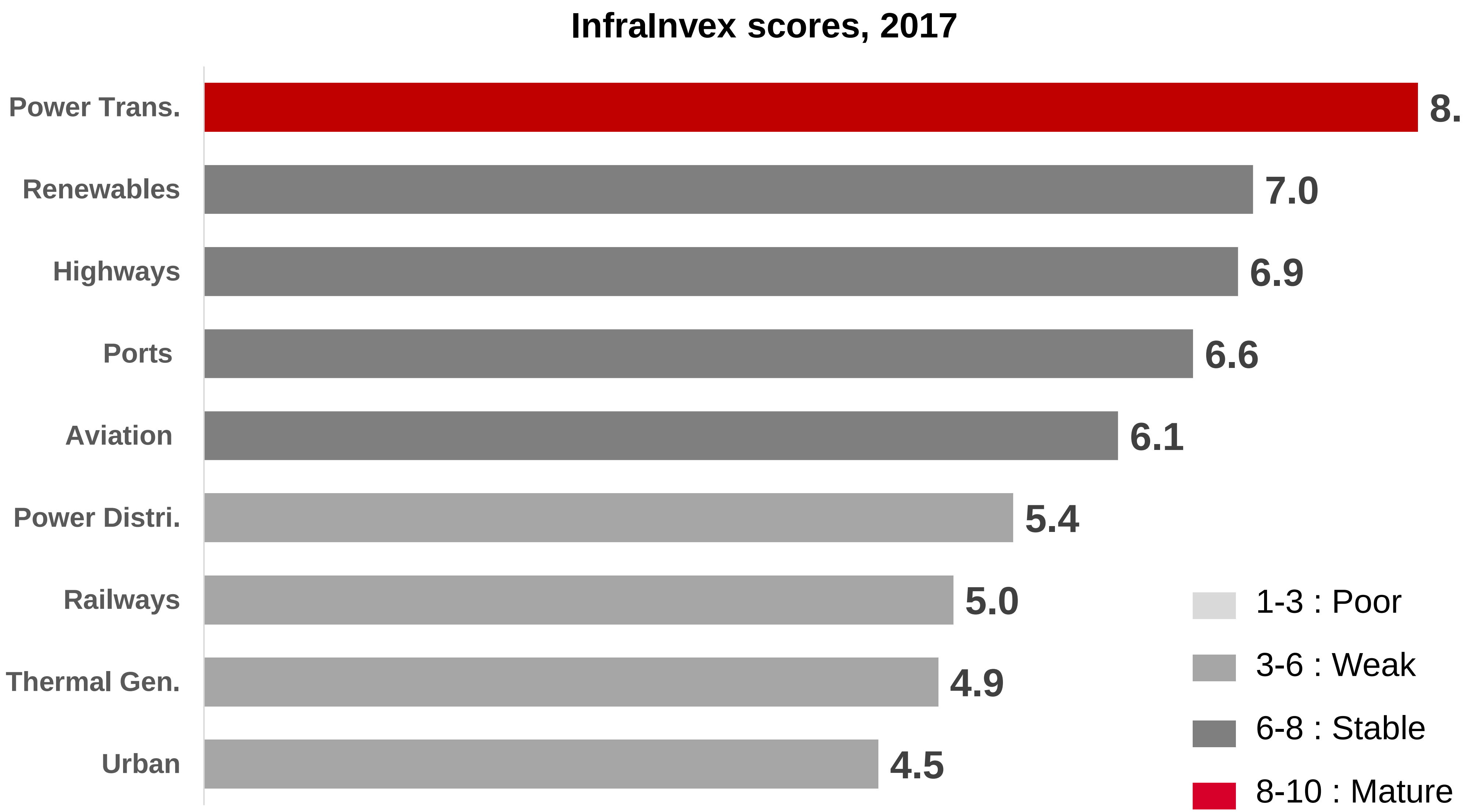
- **Track record:** Past performance and versus targets
- **Externalities:** Approvals, clearances, land availability

Uses C-IRIS proprietary framework that maps risks related to infrastructure projects

CRISIL InfraInvex scores

Sectors are assessed on a drags and drivers scale of 1 to 10

Power transmission sector most attractive, followed by renewables and highways



Power sector: Transmission

Investment requirement - Rs 3.2 lakh crore

Overall score

8.10/10 ★★★★★★★★☆☆

Drivers and drags

DRIVERS	DRAGS
• $3.5 billion investment in green energy corridor by fiscal 2022 and proposed implementation of GNA • Strong execution capability of PGCIL and private sector participation through TBCB • Assurance of regular revenue streams	• Slow state level planning • Dual role of PGCIL – transmission planning and execution of interstate • Right of way issues

Addressing dual role played by PGCIL to ensure larger share of private sector participation in future projects

Power sector: Distribution

Investment requirement - Rs 3 lakh crore

Overall score
5.40/10

Drivers and drags

DRIVERS	DRAGS
• Central schemes UDAY, IPDS, DDUGJY, 24 x 7 Power for All, Saubhagya • Pockets of success of PPP such as DF • Slight improvement in recovery because of UDAY • Pockets of success in feeder separation	• What if UDAY targets are not met? • Poor governance structure and lack of regulatory independence • Miss on AT&C loss reduction target, • Inadequate tariff hikes and non-targeted subsidy • Lack of technology deployment like smart and prepaid meters

Improving governance, structure PPP projects and use greater technology for improving DISCOM health

Power sector: Conventional generation

Investment requirement - Rs 2.5 lakh crore

Overall score
4.90/10

Drivers and dags

DRIVERS

- Launch of Shakti, phasing out of old thermal power plants
- Presence of power
- exchange
- Exceeding capacity addition targets

DRAGS

- Integrated policy on procurement by discoms
- Fuel availability policy
- Poor redressal and arbitration framework
- Aggressive bids, lack of fresh PPA, and offtake risk

Fresh PPAs by discoms and adequate fuel availability can revivify the sector

Power sector: Renewables

Investment requirement - Rs 6 lakh crore

Overall score
7/10

Drivers and drags

DRIVERS	DRAGS
• Policy push to promote renewables sector - 175 GW by fiscal 2022 • Centralised procurement and availability of private financing • Competitive bid out tariffs • Success of solar parks	• Lack of integrated policy • Lack of regulatory alignment • Curtailment of renewables generation and renegotiation of PPAs • Land acquisition

Integrating renewable energy, and discouraging PPA renegotiation will improve investment climate

Roads and highways sector

Investment requirement - Rs 10 lakh crore

Overall score

6.9/10

★★★★★★★☆☆☆

Drivers and drags

DRIVERS	DRAGS
• Strong NHDP / Bharatmala pipeline, sharp increases in budgetary outlays, revival of stalled projects, stronger connect with stakeholders • Strong credit profile of NHAI, HAM, and TOT models driving private investment, current PPP models well understood and tested in market • Fairly stable toll policy regime, over 18,800 km of tolled highways as of FY16 • Pace of award / construction up, progressive reduction in delays in project completion	• Expressway program slow off the blocks • NHAI handling owner-regulatory roles, Arbitration process • Share of BOT-toll bids declines, irrational bidding at times remains a concern • Challenges in implementation of new technologies such as ETC

Regulatory separation (NHAI) and addressing land acquisition challenges can make the sector more attractive

Ports and shipping sector

Investment requirement - Rs 1 lakh crore*

Overall score
6.6/10

Drivers and drags

DRIVERS	DRAGS
• The $120 billion Sagarmala plan, revision in TAMP Tariff Guidelines, 2016, 100% foreign direct investment • Strong PPP track record in the sector, non-major ports operating under state regulations have captured ~43% of traffic in FY16 • Implementation of landlord model allowing major ports to introduce private sector investments and efficiencies • 20 projects awarded in FY17 involving ~$3.4 billion investments	• Inter-modal transport and port connectivity with hinterland a major challenge, overcapacity in certain pockets • TAMP Guidelines disadvantage incumbents • Tepid traffic growth in recent years could dampen investment sentiment • Time taken for concept-to- implementation of greenfield ports still inordinately long, land acquisition and environmental clearances for greenfield ports still a major challenge

* Combined aviation and ports

Improving inter-modal transport and hinterland connectivity will further improve investability

Aviation sector

Investment requirement - Rs 1 lakh crore*

Overall score

6.1/10

Drivers and drags

DRIVERS	DRAGS
• New civil aviation policy, relaxation in the 5/20 rule, 100% FDI in airports, UDAN launched • 50% traffic handled by large privatised airports, private airports consistently achieving international recognition in service excellence • Strong traffic growth to help sector financials, UDAN could help market expansion • Phase I of UDAN operational, traffic at 6 large airports up 15% in FY17	• Capacity constraints in larger airports, high aviation turbine fuel prices, tax burden • Delayed tariff orders, regulatory ambiguity • Airports continue to face regulatory uncertainty, appetite low for PPP in smaller airports • Airport expansion faces externality challenges such as land acquisition

* Combined aviation and ports

Rationalise tariff-setting process and allowing auction of unused bilateral traffic rights for improving Investability will help a lot

Railways

Investment requirement - Rs 8 lakh crore

Overall score
5/10
★★★★★☆☆☆☆☆

Drivers and drags

DRIVERS	DRAGS
• Medium-term investment plan with an outlay of Rs 8.56 lakh crore, sharp increase in investments in fiscals 2014 to 2017 • Station re-development on PPP initiated, decks getting cleared for an independent rail regulator • Efforts to improve non-fare box revenues • Visible progress on electrification, rolling stock and line doubling / tripling for congestion reduction, elimination of unmanned crossings and introduction of modern locomotives and trains	• Decades of chronic under-investment, large gaps, **absence of independent fare determination** • Slow pace of organisational revamp and in decentralising decision-making, lack of clarity on development models for projects such as station redevelopment Rail Development Authority formed, but it's still early days • Operating ratio under pressure as traffic growth remains subdued, challenges in freight, UDAN scheme denting higher margin A/C business of the railways • Recent accidents have raised concerns on safety, limited progress on monetisation of real estate assets

Identification and structuring of PPP projects, and operationalising regulatory framework will push private sector participation

Urban sector

Investment requirement - Rs 5.5 lakh crore

Overall score

4.5/10

★★★★☆☆☆☆☆☆

Drivers and drags

DRIVERS	DRAGS
• Increase in central transfers and Rs 250,000 crore of allocation under Smart Cities and AMRUT projects • Revival of interest in municipal bonds • Revenue enhancement through VCF and property tax • Rs 20,000 crore projects awarded	• Utilisation and absorption capacity at the city level • Weak institutional capacities • Lack of operations and maintenance cost recovery, barring in a few pockets • Slow pace of execution on Smart Cities and other programs

Institutional strengthening and revenue enhancement measures, and municipal bonds issuances can improve the score

Improving investability

Select sector-level interventions for improving investment attractiveness

Power

- Offtake guarantees and domestic fuel availability
- Discom turnaround and strengthening their institutional capacity

Highways

- Clearer separation of developer - regulator roles of NHAI
- Concerted state-level actions to address land acquisition needs

Ports

- Improving Inter-modal transport and hinterland connectivity
- Regulatory strengthening

Aviation

- Expeditious tariff setting; rationalization of taxes and duties
- Allow for auction of unused bilateral traffic rights

Railways

- Identification of projects under PPP
- Redefine pricing and decongestion of routes

Urban

- Institutional strengthening and empowerment of local bodies
- Revenue enhancement & issuance of municipal bonds

But there are many challenges

Short-term headwinds need to be tackled urgently

- **Increase in central government spending has been a silver lining**
  - Sharp increases in outlay / spending on key sectors in fiscal 2017 and 2018
  - Will however, find it difficult to accelerate spending from current levels
- **Bank lending-led private infrastructure spending withers**
  - Bank lending down, stressed assets / NPAs up, debt overhang among developers
  - Weak private risk appetite; revival through de-risked models / asset monetisation
  - Specific sectoral constraints need interventions
- **Immediate-term challenges to constrain investments by states**
  - Fiscal weakness to persist in short term in view of UDAY bonds, farm loan waivers

All cylinders need to fire for durable acceleration in infra spending

A step-up in investments by the private sector and states, while sustaining central spending, is necessary

Three facilitations imperative for The Great Indian Infra Build-Out

1: Take steps to draw private investments, and reduce the burden on government spending

1 Resolve the twin balance-sheet problem on a war-footing

- Measures to alleviate stressed assets / NPAs
- Banking recapitalisation and reforms

2 Broad base and accelerate adoption of technology

- Improving productivity, and efficiency in spending
- Reaching tangible last-mile service delivery and citizen-level impact

3 Institutionalise capital market innovations to improve access

- Need instruments/institutions to cater to diverse investors – domestic and global

2. Create a viable, dynamic financing ecosystem

To draw '**patient capital**' such as from insurers and pension funds

- **Deepening and diversify infrastructure financing landscape is crucial**
  - Bank lending to Infrastructure down from 15.2% in fiscal 2015 to 12.7% in fiscal 2017
  - New instruments hold immense potential; IDFs and InvITs are beginning to make a mark

- **Sustained policy support to cement gaps in infrastructure financing crucial; CRISIL recommends three actions to be steered by Government of India**

1. **Operationalise NIIF** as a sovereign platform to attract long-term capital
2. Set up a well-capitalised national-level **bond guarantee fund**
3. Implement identified **corporate bond market reforms** expeditiously

3. Get states to roll up their sleeves, too

With more devolution, states need to enhance their capacity to efficiently utilise funds

- **State governments already account for a large share of infra spending**
  - Between fiscals 2008 and 2012, states spending on Infrastructure reached an estimated 92% of Central spending; up from 80% during fiscals 2003 and 2007
  - Urbanisation, economic growth and aspirations also driving focus on infrastructure
  - Higher devolution and rationalisation of central schemes have also contributed

Three action areas for states to scale up

1. **Restore fiscal health and create space** to expand infrastructure spending
2. Create **nodal infrastructure funds** and empowered **sectoral implementation agencies** to access private capital and investments
3. Support cities to access capital markets through an effective **municipal bonds program**

Thank you!

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About CRISIL Limited
CRISIL is an agile and innovative, global analytics company driven by its mission of making markets function better. We are India's foremost provider of ratings, data, research, analytics and solutions. A strong track record of growth, culture of innovation and global footprint sets us apart. We have delivered independent opinions, actionable insights, and efficient solutions to over 100,000 customers.

We are majority owned by S&P Global Inc., a leading provider of transparent and independent ratings, benchmarks, analytics and data to the capital and commodity markets worldwide.

About CRISIL Infrastructure Advisory
CRISIL Infrastructure Advisory is a leading advisor to regulators and governments, multilateral agencies, investors, and large public and private sector firms. We help shape public policy and enable infrastructure development. Our services span a wide array of infrastructure development activities. Our work in the areas of policy formulation, regulation, design and implementation of public-private partnership (PPP) frameworks and infrastructure financing mechanisms helps create a vibrant ecosystem for infrastructure development. Our services at the project level include bid process management, valuations and due diligence to enable investment decisions. We are known for our core values of independence and analytical rigour combined with deep domain expertise. Our teams have expertise across the complete range of infrastructure sectors - urban development, energy, transport and logistics, natural resources, education, and healthcare. We have a rich understanding of PPP and financing related issues. We operate in India and 22 other emerging economies in Asia, Africa, and the Middle East. CRISIL Infrastructure Advisory is a division of CRISIL Risk and Infrastructure Solutions Limited, a wholly owned subsidiary of CRISIL Limited.

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