

Assessment of cables, conductors industries and investments in power sector in India

Commercial Proposal

For

Laser Power Infra

May 2025

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1. TIMELINES AND DELIVERABLES

The assessment shall comprise of:

Deliverable	Timeline
Draft Report	6 weeks from the date of confirmation
Final Report	1 week after receipt of comments

1. These target timelines are only indicative and subject to changes. CRISIL will notify the client as soon as reasonably practicable if it is necessary to revise the target timelines. In addition to the T&C, the target timelines are subject to:
 - Timely availability of any sourced information; and
 - The client generally cooperating with CRISIL in the provision of the Services.
2. The final document will be in PDF report format

2. CLIENT TASKS

1. The client shall appoint one of its senior level personnel who shall be the project coordinator for the Services (Services Coordinator). The client shall procure that the Services Coordinator shall be the single point of contact for CRISIL for all operational matters relating to the performance of the Services, including matters relating to provision of Client Materials and the following:

- a. Approving on behalf of the client any data collection template or questionnaire developed by CRISIL;
- b. Arranging meetings with relevant persons – whether those of the client or third parties;
- c. Participating at various meetings that CRISIL may from time to time request;
- d. Collating and providing Client Materials in a format and form requested for by CRISIL.

The client may by a reasonable prior written notice to CRISIL replace a Services Coordinator with another of its personnel. The client shall be responsible to ensure the replacement Services Coordinator is properly briefed and updated on the Services.

The instructions and approvals issued by the Services Coordinator shall be binding on the client.

2. On CRISIL's request, the client will appoint/designate a team (Client Team) which will work under the supervision of the client's Services Coordinator. The client will ensure that the Client Team attends and effectively participates in the meetings requested for by CRISIL.

3. Review and Acceptance of Deliverables:

- a. Once CRISIL shares the draft Deliverables, the client shall have [2 weeks] (**Review Period**) to review them and provide its comments to CRISIL, provided that any such comments must be consistent with the agreed Scope of the Deliverables. The Review Period may only be extended by mutual written agreement of the parties.
- b. CRISIL shall consider the client's comments in good faith and take them into account in finalising the Deliverables, at all times using CRISIL's independent professional judgement.
- c. Upon such finalisation, or if CRISIL has received no comments from the client during the Review Period, the client shall be considered to have accepted the Deliverables.

4. Unless otherwise agreed by CRISIL in writing, all correspondence between the parties will be in the English language.

3. PROFESSIONAL FEES

Professional Fee

1. **Fees:** The lump sum professional fees for the scope of work outlined shall be

Fees for base report at the time of DRHP <i>(inclusive of one updation 6 months since initial engagement)</i>	Rs. 29,50,000/- (INR Twenty Nine Lakhs Fifty Thousand Only)
Fees for one updation beyond 6 months from initial engagement	Mutual discussion at the point of time

2. The above quoted price is for the scope of work as defined and is **inclusive** of costs related to travelling, lodging, boarding and man days spent by CRISIL personnel during primary sourcing/field visits to various industry participants across the value chain etc
3. The above quoted fee is **exclusive** of GST. GST @18 per cent shall be applicable on the abovementioned fee. In case of any change in Government notification with regard to taxes, revised tax rates would be applicable.

Payment Schedule

1. Client shall pay in accordance with the payment schedule set out below:

MILESTONE	FEE (% BREAK-UP)
Commencement Fees	70%
Draft Report Submission	30%

2. Client shall pay each invoice within 15 working days from the date of invoice. All payments will be made by cheque or other normal banking channels to the order of CRISIL Limited payable at par in Mumbai. If Client wishes to remit money by online transfer or similar mode, Client may do so to the credit of CRISIL Limited, the details of which are given below:

Name of the Bank	:	ICICI Bank Limited
Account Number	:	003205000032
Account Type	:	Current
SWIFT Code	:	ICICINBBCTS

IFSC Code	:	ICIC0000032
Branch Code	:	000032

Currency of Payment

Charges are payable in Indian Rupees, unless CRISIL expressly agrees otherwise in writing. Where Client remits Charges in a currency other than Indian Rupees, Client shall remit such amount in the remitting currency as would ensure CRISIL receives in Indian Rupees an amount no less than the Charges.

Taxes and Statutory Levies

In addition to Fees, Client shall pay CRISIL all taxes and statutory levies as may apply, such that after paying the applicable taxes and statutory levies (other than those that apply on CRISIL's net income), the Fees that CRISIL receives, is not less than as set out in section 6.1.

Where Client is located in India and makes payment under the Agreement out of its offices in India (and not otherwise) the following provisions shall apply with respect to payment of Fees:

Client may deduct income tax at source from its payment of Fees (and other Charges if applicable) under this Agreement at the least rate required for the Client to comply with applicable tax laws (TDS).

In the case of each TDS, Client shall within the timeline specified under law (or if no timeline is specified under law, within the earlier of 3 months from the date Client deducts TDS or 1 month from the end of the then current taxation year) provide CRISIL with a properly rendered certificate or relevant document evidencing the Client having complied with applicable tax laws with respect to the TDS (TDS Certificate).

If Client fails to provide the TDS Certificate as stated afore, Client shall pay CRISIL such amount as would after TDS be equivalent to the amount covered TDS Certificate not provided by the Client. Client agrees that such amount shall be recoverable as a debt from the Client.

CRISIL Rights

In the event Client fails to pay any Charges when due, the following terms shall apply (without limiting CRISIL's rights under law or the Agreement):

CRISIL shall be entitled to charge and recover from the Client interest at the rate of 18% per annum (applied on a daily basis from the date of the relevant invoice) for each day that, as relevant, the Charges remain overdue (i.e. until the date CRISIL receives the Charges in full).

CRISIL may at its discretion withhold any Deliverables not handed over to Client. However, if CRISIL has anyway provided any Deliverables to Client, it will not operate as a waiver of CRISIL's right to receive payment of Charges. Where CRISIL withholds any Deliverables in accordance with this section 6.5, it shall not be considered a breach of CRISIL's obligations under the Agreement.

Client agrees that it is not entitled to use the Deliverables unless and until Client has paid the Charges in full.

4. TERMS & CONDITIONS

1. Framework

From time to time Client and Consultant or their respective affiliates may execute engagement letters (each an **Engagement Letter**) referencing the GTC. Each such Engagement Letter: (a) will set out the deliverables, report and/or output agreed to be provided (**Deliverables**); (b) shall incorporate by reference the GTC; and (c) together with the GTC (and all relevant annexure or schedules) will operate as an independent contract between the parties executing that Engagement Letter and shall be called **Agreement**. References to "Consultant" and "Client" in the GTC shall refer to the relevant parties executing the Engagement Letter. Where the parties executing an Engagement Letter have agreed to changes to the terms of the GTC as incorporated into the Engagement Letter, the changes shall apply only to that Engagement Letter (and not to any other Engagement Letter). To the extent of a conflict between the GTC and the Engagement Letter, the Engagement Letter will prevail.

The Client engages the Consultant to provide the Services to the Client during the Term (defined below) and the Consultant hereby accepts such engagement upon the terms and conditions contained in the Agreement.

The term: **Project** refers to the assignment under the Engagement Letter comprising the provision by CRISIL of the Deliverables; **Services** means the services and Deliverables that Consultant has agreed to provide to Client, under the Agreement.

2. Fees

Client shall pay fees as specified in the Engagement Letter to the Consultant, in accordance with the payment schedule set out in the Engagement Letter.

In addition to fees, Client will: (a) as relevant, pay or reimburse to the Consultant all reasonable out-of-pocket expenses agreed in advance with the Client and incurred by the Consultant in connection with the Project; and (b) pay taxes and statutory levies as apply to the transaction covered by this Agreement.

Unless otherwise set forth in an Engagement Letter, invoices (including those for reimbursements) are payable within 15 days of receipt. Consultant may charge a late fee on overdue amounts calculated at the rate of 1.5% per month commencing with the date payment was due (applied for each day of delay from the date on which the fees fell due).

If Client deducts income tax at source from the payments it makes under this Agreement (**TDS**), Client shall comply with the requirements of law, including providing appropriate documentation in a timely manner (**TDS Certificate**). If Client does not do so, Client shall forthwith on demand pay Consultant such amount as would after TDS be equivalent to the amount covered by the TDS Certificate not provided by the Consultant.

If in relation to an Engagement Letter, Consultant is requested or required to comply with the process of any legal, judiciary, regulatory, government or other authority (each an **Authority**), then Client shall reimburse the Consultant at the then applicable standard billing rates for its professional time and fees including reasonable attorney fees and adviser fees.

The fees and any amounts payable under this Agreement are exclusive of all applicable taxes (including GST), levies, duties etc. Any such tax will be charged over and above the fees and amounts payable to Consultant under this Agreement. The GST registration number ("GSTIN") provided by the Client will be used by Consultant for filing of the GST returns.

With regards to the applicability of Goods and Services Tax, the Client's address as mentioned for the purposes of GST will be considered as the consumption location for the Services provided by Consultant under this Agreement.

Consultant shall not be liable for loss of credit arising on account of incomplete, erroneous or wrong details captured by the Client in the details and documents uploaded to the GSTN. Additionally the Client shall be responsible and liable for providing its correct GSTIN and Consultant will not be responsible for verification of the Client's GSTIN. Where the Client fails to furnish its GSTIN, Consultant will treat the Client as being unregistered for GSTIN.

Where Consultant issues a credit note to the Client in relation to any invoice, the Client shall adjust and upload its Input Tax Credit on the GSTN on or before the end of the month in which the credit note is issued by Consultant to the Client. If the Client fails to do so, and this results in additional liability for Consultant, Client shall be liable to reimburse Consultant for any liability incurred by Consultant (being the tax, interest and any penalties thereon).

The current contract pricing are based on an assumption that GST will apply to the services provided by the Consultant to the Client and the consultant is able to claim credit of the GST charged by its partners, vendors, sub-consultants. In the event that such assumption is incorrect and Consultant is not able to claim GST credit for the services provided to it by vendors, partners or sub-consultants, the consultant reserves its rights to recover from the Client an amount equivalent to 18% or prevailing GST rate on such invoice values to the Consultant.

One-time fees are quoted on a good faith estimate of the time and the effort required to complete the Project. Ongoing fees are subject to annual revisions where work extends to periods beyond a year.

On Consultant's request Client shall in good faith negotiate with a view to agreeing on reasonable revisions to either of the fees stated above. Consultant may terminate the Engagement Letter if the parties fail to agree on such a revision within a commercially reasonable time.

3. Deliverables and Acceptance

The Client shall accept the Deliverables which substantially conform to the requirements as mentioned in the scope of work in the Engagement Letter (*Requirements*).

Client may notify the Consultant in writing within 10 calendar days of Consultant providing the Deliverables to the Client any substantial non-conformity of the Deliverables vis-à-vis the Requirements. Upon receiving Client's notification, the Consultant shall rectify the non-conformity verified by it and resubmit the Deliverables to the Client within 15 calendar days. The Deliverables shall be considered "accepted" upon such re-delivery or the expiry of 10 calendar days as stated above, whichever is earlier.

4. Client Tasks

The Client shall at its own cost do the following in such good time as not to delay or disrupt the performance of the Project: (a) provide all necessary information and material relating to the Project; (b) arrange for all necessary meetings with relevant persons or authorities; (c) render such reasonable assistance (including, where applicable, procurement (or assistance in the procurement of) of any work permits, visas, licenses, consents, etc.; (d) arrange for all necessary material (including, hardware, infrastructure, software licences, etc.).

Without limiting clause 4, if the Consultant is required to obtain any documents in its own name, the Client shall provide such assistance as is required to facilitate such arrangements and shall reimburse to the Consultant any costs incurred in obtaining such documents.

5. Confidentiality

Each party may disclose to the other party non-public information, including technical, marketing, financial, personnel, planning, processes, trade secrets, and other information that is marked confidential or which the receiving party should reasonably know to be confidential (**Confidential Information**). Each receiving party shall keep confidential such Confidential Information and not use it for any purpose other than the parties' dealings with each other. Confidential Information of each party will also include the terms of the Agreement and Services, but not the existence and general nature of the Agreement and Services. The foregoing confidentiality obligations will not apply to a receiving party to the extent it is necessary for the party to disclose the disclosing party's Confidential Information to a statutory, government, regulatory or judicial authority. Confidential Information will not include any information: (a) lawfully obtained or created by the receiving party independently of the disclosing party's Confidential Information without breach of any obligation of confidence, or (b) that enters the public domain without breach of any obligation of confidence; or (c) independently developed by the receiving party without any reference to the Confidential Information. The confidentiality obligations shall be in force during the term of the Agreement and for two years thereafter.

6. Intellectual Property

Consultant Intellectual Property

Client acknowledges that all rights, title and interest in (i) the Deliverables, name, logo, brands (**Brands**) and any pre-existing intellectual property of the Consultant; (ii) unless otherwise expressly agreed in an Engagement Letter, any intellectual property created by the Consultant in the course of performance of this Agreement; and (iii) any know-how used or developed in the course of performance of the Agreement; belong exclusively to the Consultant.

Subject to Consultant having received the whole of the amounts due under this Agreement, Client may use the Deliverables for its own internal business purposes and any other Permitted Use as may be stated in the Engagement Letter. For this purpose, Client may make reasonable number of copies and store copies of the Deliverables.

Consultant shall retain all right, title and interest in and to the reports, methodologies, processes, techniques, ideas, concepts, trade secrets and know-how (all collectively referred to as the **Knowledge Material**) embodied in the Deliverables, developed or supplied in connection with the Deliverables.

Client Intellectual Property

Client exclusively owns all rights in the Brands of the Client and any Data in the form provided by Client.

Neither party may engage in any marketing and publicity that uses the other party's Brands without the other party's prior written consent as to the form and nature of use of the other party's Brands; except that Client consents to Consultant mentioning Client as a Consultant's client and using Client Brands in relation to such mention in Consultant's marketing pitches or individual client presentations other than by way of general advertisements in print or audio-visual media. Consultant will comply with Client's marketing and branding guidelines (as notified) in any such use.

Any goodwill generated by a party's permitted use of the other party's intellectual property will inure exclusively to the other party.

7. Term and Termination

The Agreement shall be for the period stated in the Engagement Letter unless terminated earlier in accordance with the Agreement (**Term**). If no period is stated in the Engagement Letter, the Term shall be the earlier of 1 year from the date of the Engagement Letter or the provision of the Deliverables under the Engagement Letter.

A party may forthwith terminate the relevant Engagement Letter(s) by a written notice to the other party if the other party:

has materially breached its obligations under the Engagement Letter(s) and has not remedied the breach within a month of receiving the party's written notification of the breach.

makes an assignment for the benefit of its creditors, files or has filed against it a petition under any bankruptcy, insolvency, reorganization or similar law, appoints or has appointed against it a trustee or receiver for any of its property or commences or has commenced against it (by resolution or otherwise) the liquidation or winding-up of its affairs, which termination shall be effective immediately upon giving notice.

Consultant will be entitled to terminate the Agreement by giving 15 days' notice to the Client in case (i) Client fails to pay the amount due against a correct invoice, 30 days after the same becomes due and payable; (ii) if the provision of Services or Deliverables are delayed for the reasons attributable to Client, including but not limited to, Client's failure to perform its obligations under clause 4 for a period beyond 2 months from the date of this Agreement and Client's failure to remedy it this failure within 30 days or within such further period as Consultant may have subsequently approved in writing.

Notwithstanding anything to the contrary stated in this Agreement, Consultant shall not be obliged to perform its services or submit any further Deliverables where Client is in breach of its payment obligations under this Agreement.

Survival.

The respective rights and obligations of the parties under Clauses 1, 2 (to the extent of any unpaid dues), 5, 6, 0, 8-16 shall survive any termination of this Agreement.

8. Project Delay, Suspension or Cancellation

If for any reason (other than Consultant's material breach of the Agreement), the Project is suspended, deferred and/or cancelled, then:

all amounts paid to the Consultant until the effective date of suspension, deferred and/or cancellation shall be considered 'drop dead fee' and such fee shall not be refundable; and

Client shall in addition, pay Consultant all amounts otherwise payable under the Engagement Letter for work done up to the date of suspension, deferment or cancellation.

Client acknowledges this does not grant the Client a right to suspend, defer or cancel the Project but is stated as Consultant's rights and are liquidated damages.

9. Data

All records, data files (and the data contained therein), reports and other materials which relate exclusively to the Client's business that is received, computed, developed, processed or stored by the Consultant for the Client (collectively the *Data*) will be the exclusive property of the Client. Consultant may use the Data as necessary for providing the Services under this Agreement.

In the event that the Consultant retains Data belonging to the Client, it will use its commercially reasonable efforts to safeguard such Data, exercising a reasonable standard of care, to at least the same extent it protects its own similar materials. The Consultant will not use any Data for any purpose other than in support of its obligations to the Client except that Consultant may use Data only in the aggregated form such that it would not be possible to derive the original Data back to the Client.

The Consultant will not sell, assign, lease or otherwise dispose of to third parties either the Data or any part thereof.

10. Notices and Disclaimers

The Deliverables are subject to the standard notices and disclaimers of the Consultant. Where Consultant has permitted Client to share the Deliverables, Client will reproduce the latest approved notices and disclaimers of the Consultant on each copy of the Deliverable shared by the Client proximate to the Deliverable. Consultant may revise the notices and disclaimers by a prior written notice to the Client. The current notice and disclaimer is given below:

CRISIL Intelligence has prepared the report, deliverable or any output ("Report") based on the information obtained by CRISIL Intelligence from the Client and/or sources which it considers reliable. By accessing and using the Report the user acknowledges and accepts the following: While CRISIL Intelligence takes reasonable care in preparing the Report, CRISIL Intelligence does not guarantee the accuracy, adequacy or completeness of the Report and/or their suitability for any specific purpose. CRISIL Intelligence is not responsible for any errors or omissions or for the results obtained from the use of the Report. The information contained in the Report is general information and is not intended to be an advice or recommendation on any particular matter, including, without limitation with respect to (a) the legality of (or legal or regulatory requirements with respect to) any part of the Project or any resource used in the Project; (b) the proper functioning or utilisation of funds or realisation of the Project (as relevant) by the Client or suitability of the Project; (c) ownership or rights of the Client or any third party with regard to the Project. CRISIL Intelligence expressly states that neither it nor its directors, employees and representatives accept any liability with regard to any access, use of or reliance on, the Report and that CRISIL Intelligence expressly disclaims all such liability. No part of this Report shall be quoted out of context or in the manner that it distorts its context or meaning. CRISIL or its associates may have other commercial transactions with the company/entity.*

11. Warranties, Indemnity, Liability

Consultant will use reasonable skill and care in providing the Services. Except as expressly stated afore, the Consultant does not make any warranties, conditions, or representations to Client, any of its affiliates, or any other party with respect to the work product or any services, whether oral or written, express, implied, or statutory.

Client acknowledges and agrees that to the fullest extent permitted by law: (a) in no event shall the Consultant be liable for any special, indirect, incidental, exemplary, or consequential damages or loss of goodwill including without limitation, loss of use, loss of profit, loss of production, loss of interest, business interruption, or the failure of essential purpose, even if Consultant has been notified of the possibility or likelihood of such damages occurring; and (b) without limiting the foregoing, in no event will the aggregate liability of the Consultant ever exceed the amount of fees paid by Client to Consultant pursuant to the Engagement Letter to which the claim relates during the twelve (12) month period immediately preceding the date such claim arose.

The Client shall indemnify and hold harmless Consultant and its affiliates and group entities, and their respective shareholders, officers, directors, employees and agents from and against all claims, actions, proceedings, demands, liabilities, losses, damages, costs and expenses (including without limitation legal fees) arising out of or in connection with the Agreement except for those due to their breach of this Agreement.

12. Governing Law and Jurisdiction

12.1 Where the Client is located in India:

- (i) this Agreement will be governed by the laws of India; and
- (ii) any disputes that the parties may have with regard to this Agreement shall be conclusively resolved by reference to an arbitrator appointed mutually by both parties). Client shall have no objection to such arbitrator being an employee of CRISIL. The arbitration proceedings shall be conducted in Mumbai and be

conducted in English. The arbitration shall be subject to the Arbitration and Conciliation Act, 1996. The award of such arbitrator shall be final and binding on the parties.

The parties submit to the exclusive jurisdiction of the courts of law in Mumbai, India and their appeal courts to settle any disputes with regard to this Agreement.

12.2 Where Client is not located in India:

- (i) this Agreement will be governed by the laws of Singapore; and
- (ii) the parties agree that for dispute resolution, if the Client wishes to enforce its rights under this Agreement, Client may do so only before the courts of law in Mumbai and their appeal courts; and if CRISIL wishes to enforce its rights, it may do so only before the courts of, in the order of CRISIL's preference, the courts of law in Singapore or the courts of law in the country or region where the Client is based or has assets.

12.3 Before a party approaches a court of law (as stated above) for resolving any disputes that relate to this Agreement:

- (i) the parties will first attempt to resolve it by causing their respective senior officers to discuss and make good faith attempts to resolve the dispute; and
- (ii) only if for any reason the dispute is not resolved within 30 days of a party notifying the other party in writing the existence of a dispute and the need to resolve it in accordance with clause 9(a)(i), the parties may approach the relevant court for relief.

12.4 Nothing in this Agreement limits a party's right to seek interlocutory, injunctive or other equitable relief from the relevant court of law at any time at the relevant courts of law mentioned above.

13. Conflict of Interest and Anti-Bribery

The Consultant shall hold the Client's interests paramount, without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

Unless as otherwise agreed in the Engagement Letter or except reimbursements for out of pocket expenses, the receipt of the Fees pursuant to Clause 2 shall constitute the Consultant's only payment in connection with this Contract and, the Consultant shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Contract or in the discharge of its obligations hereunder.

The Consultant agrees that, during the term of this Contract and after its termination, the Consultant and any entity affiliated with the Consultant, shall be disqualified from providing goods, works or non-consulting services resulting from or directly related to the Consultant's Services for the preparation or implementation of the project as specified in the Engagement Letter, unless otherwise agreed by the Client.

The Consultant shall not engage in any business or professional activities that would conflict with the activities assigned to them under this Contract.

The Consultant shall disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the Client.

The Consultant represents, warrants and undertakes now and hereafter that (a) It has not and shall not commit, procure, or encourage bribery in relation to this Agreement, the Services, or to obtain or retain business or any advantage in business for the Client, and has and shall ensure to the fullest extent possible that its employees

and agents and others under its direction or control do not do so. For the purposes of this clause it doesn't matter if the bribery is (i) direct or through a third party; (ii) of a public official or a private sector person; (iii) financial or in some other form; or (iv) relates to past, present, or future performance or non-performance of a function or activity whether in an official capacity or not.

Each Party represents, warrants and undertakes that:

- (a) It has not and shall not offer, promise, give, encourage, solicit, receive or otherwise engage in acts of bribery or corruption in relation to this Agreement (including without limitation any facilitation payment), or to obtain or retain business or any advantage in business for any member of its group, and has and shall ensure to the fullest extent possible that its employees and agents and others under its direction or control and directly involved in providing Services under the Agreement do not do so. For the purposes of this clause it does not matter if the bribery or corruption is (i) direct or through a third party; (ii) of a public official or a private sector person; (iii) financial or in some other form; or (iv) relates to past, present, or future performance or non-performance of a function or activity whether in an official capacity or not, and it does not matter whether or not the person being bribed is to perform the function or activity to which the bribe relates, or is the person who is to benefit from the bribe. For the purposes of this clause, a "person" is any individual, partnership, company or any other legal entity, public or private.
- (b) Each Party shall, adhere to applicable anti-bribery and corruption laws.
- (c) Each Party shall, immediately upon becoming aware of them, give the other Party all details of any non-compliance with Clause (a) and Clause (b).
- (d) It is a condition of this Agreement that each Party fully complies with this Clause. If it does not do so, without prejudice to any other remedy available to a party, the non-breaching party shall have the right (but not the obligation) in its absolute discretion to terminate the whole of this Agreement, or that part of this Agreement to which the bribery or corruption relates. For the avoidance of doubt, any breach of this Clause shall be deemed to be incapable of remedy.

14. Sanctions

As of the date of this Agreement, (a) neither the Client nor any of its subsidiaries, or any director or corporate officer of any of the foregoing entities, is the subject of any economic or trade sanctions or restrictive measures issued by the United Nations, United States or European Union ("Sanctions"), (b) the Client are not 50% or more owned or controlled, directly or indirectly, individually or collectively, by one or more persons or entities that is or are the subject of Sanctions, and (c) to the best of the Client's knowledge, no entity 50% or more owned or controlled by a direct or indirect parent of the Client is the subject of Sanctions. For purposes of clause (c) in this section, "parent" is a person or entity owning or controlling, directly or indirectly, 50% or more of the Client. For so long as this Agreement is in effect, the Client will promptly notify CRISIL if any of these circumstances change. If CRISIL reasonably determines that it can no longer provide the services to the Client in accordance with applicable law, then CRISIL may terminate this Agreement, or any particular services, immediately upon written notice to the Client.

15. Notices

Notices between the parties relating to the Agreement must be in writing and must be delivered personally or sent by post, courier or facsimile to the latest published contact address of the relevant party.

16. Non-Exclusivity

The Client acknowledges that CRISIL or its associates, affiliates or subsidiaries may have other commercial engagements/transactions with the Client or with any of its associates, affiliates or subsidiaries. The Client hereby

acknowledges and agrees that nothing in this Agreement shall prohibit CRISIL from continuing to provide services similar to the Services to other companies/entities.

17. General

The Client acknowledges that Consultant or its associates, affiliates or subsidiaries may have other commercial engagements/transactions with the Client or with any of its associates, affiliates or subsidiaries. The Client hereby acknowledges and agrees that nothing in this Agreement shall prohibit the Consultant from continuing to provide services similar to the Services to other companies/entities.

This Agreement constitutes the entire understanding of the parties concerning the subject matter to which it pertains and supersedes any and all prior oral or written representation, understanding or other contracts relating thereto. No modifications, additions, or amendments to the Agreement shall be effective unless made in writing as an addendum to the Agreement and signed by duly authorized representatives of the parties.

As at the date of this Agreement, Consultant is not aware of any conflict of interest which may impair its ability to perform its obligations under this Agreement in an objective manner. If in the future, such a conflict of interest arises, Consultant will take commercially reasonable steps to avoid such conflict of interest suitably (by way of example, by having Chinese Walls or such other measures) and if the adverse impact of the conflict of interest cannot be avoided at all, Consultant will discuss with Client and take suitable steps in consultation with Client (and the parties agree to be bound by such decision that Consultant and Client may mutually take, including where such decision may result in a modification of this Agreement).

Consultant may engage subcontractors to perform any part of the Agreement, however, Consultant continues to be responsible for its obligations under this Agreement.

This Agreement shall inure to the successors in business of a party. A party may assign, novate or transfer this Agreement with the prior written consent of the other party (which will not be unreasonably withheld or delayed); however, Consultant may assign, novate or transfer this Agreement to any of its affiliates by a written notice to Client.

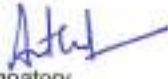
Neither party shall be liable to the other for failure or delay in the performance of a required obligation, excluding payments due, if such failure or delay is caused by strike, riot, fire, flood, natural disaster, or other force majeure cause. If a force majeure cause continues for more than 2 months, either party may terminate this Agreement by a written notice to the other.

If any non-fundamental term or provision of this Contract is determined to be illegal or unenforceable, such term or provision shall be deemed stricken, and all other terms and provisions shall remain in full force and effect. In such a case, the parties will in good faith negotiate with the intent to agree on alternative provisions that are lawful and which seek to achieve the intent of the provision deemed illegal or unenforceable.

This Agreement does not require the Consultant to (and the Consultant does not) give any investment advice in relation to or participate in the marketing of any of the financial products sold by any member of the Client or its affiliates to actual or prospective investors therein.

Unless the right of enforcement is expressly granted in writing, it is not intended that any provision of the Agreement shall be enforceable by any person who is not a party to the Agreement.

Please return to us the enclosed duplicate of this Letter duly signed by you in acceptance hereof.
We agree, accept and confirm

<p>For CRISIL Intelligence, a division of CRISIL Ltd.</p> <p>Authorised Signatory</p> <p>Name: Dharmendra Sharma</p>  <p>Designation: Director, Business Development</p>  <p>Company Stamp</p> <p>DATE : 3rd May, 2025</p>	<p>For Client Name</p>  <p>Authorised Signatory</p> <p>Name: AMIT KUMAR GOEL</p> <p>Designation: C.F.O., LASER POWER & INFRA PVT. LTD.</p> <p>Stamp</p>  <p>DATE: 05th May, 2025</p>
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About Crisil Intelligence (formerly Market Intelligence & Analytics)

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Assessment of cables, conductors industries and investments in power sector in India

June 2026

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1. Macro-economic overview

Global macroeconomic overview

Global GDP is projected to grow by 3.1% in 2026 and 3.2% in 2027

The April 2026 update to IMF's World Economic Outlook (WEO) report employs a scenario-based approach to present the forecast for 2026 and 2027. In this approach, the scenario in which the ongoing conflict in the Middle East has limited duration, intensity, and scope so that the disruptions stemming from it dissipate by mid-2026 is assumed for modelling a 'reference forecast' based on which forecasts are drawn for adverse and severe scenarios in which the conflict becomes more protracted, or the resumption of production and transport activities takes longer because of possible scaring from closing of or damage to energy infrastructure. Hence, the impact on global economy which crucially depends on the conflict's duration, intensity, and scope is projected as shown below:

Scenario-based forecast approach taken by IMF*

	Reference forecast	Adverse forecast	Severe forecast
Growth projection for global real GDP	3.1% in 2026 3.2% in 2027	2.5% in 2026 3.0% in 2027	2.0% in 2026 2.2% in 2027
Growth projection for global inflation	4.4% in 2026 3.7% in 2027	5.4% in 2026 3.9% in 2027	5.8% in 2026 6.1% in 2027

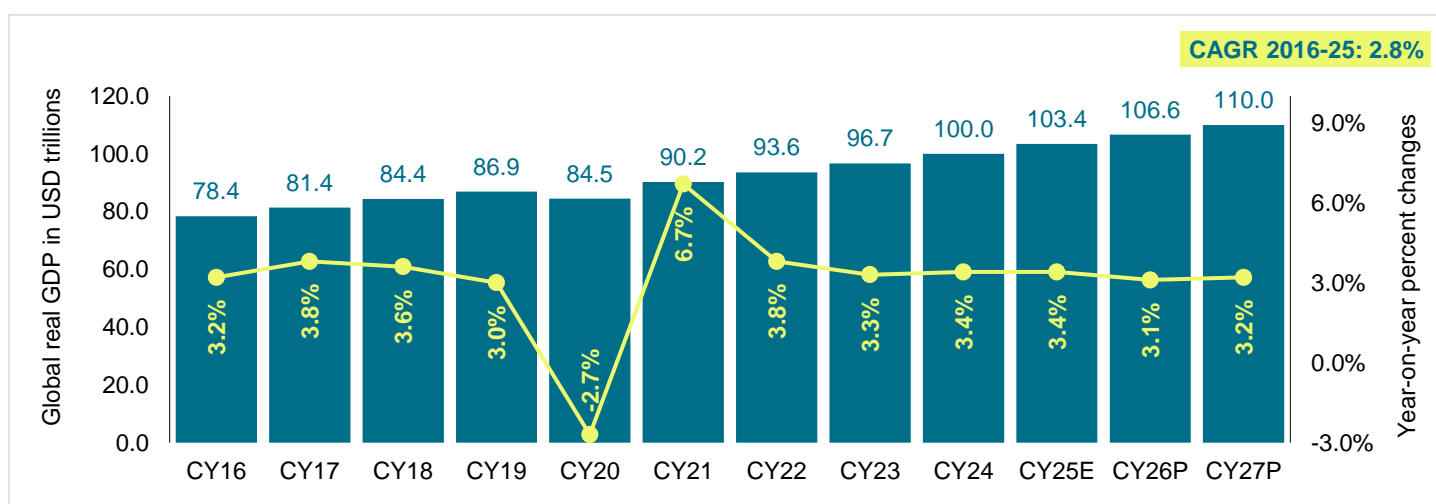
Note: At the time of publication, reference scenario was the most likely outcome given the conditions observed at the time, whereas adverse scenario was the less likely outcome based on the assumption that the disruptions caused by the ME conflict would dissipate by mid-2026 which did not happen. Given the latest developments, severe scenario is most likely to play out.

*The IMF data is based on calendar year

Source: IMF's World Economic Outlook - April 2026 update, Crisil Intelligence

As per IMF, most of the impact on growth in 2026 comes from higher energy prices, whereas most of the impact on growth in 2027 comes from tightening financial conditions and rise in inflation expectations.

Global real GDP trend and outlook, CY15-27



Note: E: Estimated, P: Projection

Source: IMF, World Economic Outlook Update, April 2026; Crisil Intelligence

The forecast largely reflects the disruptions from the Middle East conflict, partly offset by reduced tariff rates, preexisting policy support, and stronger-than-expected outturns at the end of 2025 and the first quarter of 2026. However, significant variation is expected across countries, with lower-income net energy-importing economies being hit particularly hard through higher energy prices and foreign exchange depreciation. Impact is greater on emerging economies because of a combination of a larger exposure to higher commodity prices and disruption to energy production, a larger increase in inflation expectations, and a more pronounced tightening in financial conditions.

Risks to the outlook remain tilted on the downside on account of escalation of geopolitical tensions, flaring up of trade-related disputes, reevaluation of profit expectations regarding AI potentially leading to decline in investments and an abrupt correction in financial markets, and larger fiscal deficits and increasing public debt which could put pressure on long-term interest rates.

On the upside, economic activity could be further lifted by AI-related investment and supported by renewed momentum for structural reforms and by a sustained easing in trade tensions.

Among regions, real GDP growth for the Emerging & Developing Asia is the fastest, with expected projections reaching to 4.8% in FY2027





As per the IMF's WEO report in which 197 economies from all geographies in the world are classified into two broad categories, i.e. Advanced Economies and Emerging Market & Developing Economies, the April 2026 update notes that the Middle East conflict will have varied impact on growth across regions given differential exposure—through geographic proximity, financial flows, remittances, and energy dependencies.

Advanced Economies

Advanced Economies represent 43 out of the total 197 economies. Real GDP growth for advanced economies is projected at 1.6% for 2026 and 1.7% for 2027, with a large negative effect expected only in some net energy-importing economies, such as the Euro area and the UK.

Economies considered under Advanced Economies

Advanced Economies

Four major economies				Euro area	Other Advanced Economies
United States 	Japan 	United Kingdom 	Canada 	Includes 21 economies: Austria, Belgium, Bulgaria, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Slovenia, Spain	Includes 18 economies: Andorra, Australia, Czech Republic, Denmark, Hong Kong, Iceland, Israel, South Korea, Liechtenstein, Macao, New Zealand, Norway, Puerto Rico, San Marino, Singapore, Sweden, Switzerland, Taiwan

Source: IMF's World Economic Outlook – April 2026 Update, Crisil Intelligence

United States

The US economy is projected to grow by 2.3% in 2026, supported by its net-energy-exporter status, lagged impact of its monetary policy rate cuts, productivity growth, and the associated carryover from a rebound in activity in Q1 of 2026 compared with Q4 of 2025 despite the rise in trade barriers weighing on the level of activity. In 2027, the US economy is expected to grow by 2.1% supported by a near-term fiscal boost from tax incentives, with moderating levels of technology-driven momentum and gradually fading productivity growth.

Euro area

Real GDP growth is expected at 1.1% in 2026 and 1.2% in 2027 as the impact of the planned increase in defense spending for most countries is likely to materialize in subsequent years because of commitments to reach target levels gradually by 2035. Additionally, given the Middle East conflict, the persistent rise in energy prices that began with Russia's invasion of Ukraine is expected to continue dragging on manufacturing.

Emerging Market and Developing Economies

Emerging Market and Developing Economies represent 154 out of the total 197 economies. GDP growth for Emerging Market and Developing Economies is expected to fall to 3.9% in 2026 but recover to 4.2% in 2027. For several South and Southeast Asian economies, disruptions resulting from the Middle East conflict are expected to shrink tourism and remittance inflows, which in turn, would weaken domestic demand.

China

China's economy is projected to grow by 4.4% in 2026 due to the lower US effective tariff rates on Chinese goods, and stimulus measures offsetting the negative impact of the Middle East conflict. However, in 2027, growth of China's economy will drop to 4.0% as structural headwinds—including those from a grinding slowdown in the housing sector, a declining labour force, decreasing returns on investment, and slower productivity growth—assert themselves.

India

According to the April update to IMF's WEO, India's economy was projected to expand by 6.5% in 2026 led by positive contributions from the carryover of the strong 2025 outturn and the decline in additional US tariffs on Indian goods from 50 to 10%, which outweigh the adverse impact of the Middle East conflict.

Economies considered under Emerging Market and Developing Economies

Emerging Market and Developing Economies

Emerging and Developing Asia			Emerging and Developing Europe	Latin America and the Caribbean	Middle East and Central Asia	Sub-Saharan Africa
China 	India 	28 other economies	Includes 14 economies	Includes 33 economies	Includes 32 economies	Includes 45 economies

Source: IMF's World Economic Outlook – April 2026 Update, Crisil Intelligence

Year-on-year real GDP growth of regional economies, 2016-27P



Real GDP growth (year-on-year percent changes) as per IMF*

	Estimates										Projections	
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
World	3.2%	3.8%	3.6%	3.0%	-2.7%	6.7%	3.8%	3.3%	3.4%	3.4%	3.1%	3.2%
Advanced Economies	1.8%	2.6%	2.3%	1.9%	-3.9%	6.1%	3.1%	1.7%	1.8%	1.9%	1.8%	1.7%
Emerging Market & Developing Economies	4.3%	4.8%	4.6%	3.8%	-1.8%	7.0%	4.3%	4.4%	4.5%	4.4%	3.9%	4.2%
Emerging & Developing Asia	6.8%	6.6%	6.4%	5.4%	-0.5%	7.8%	4.7%	5.6%	5.4%	5.5%	4.9%	4.8%
Emerging & Developing Europe	1.7%	4.3%	3.7%	2.6%	-1.7%	7.2%	0.5%	3.6%	3.8%	2.0%	2.0%	2.1%
Latin America & the Caribbean	-0.8%	1.4%	1.1%	0.2%	-6.9%	7.5%	4.3%	2.3%	2.4%	2.4%	2.3%	2.7%
Middle East & Central Asia	4.1%	2.6%	2.5%	2.1%	-2.2%	4.7%	6.4%	2.6%	2.8%	3.6%	1.9%	4.6%
Sub-Saharan Africa	1.2%	2.8%	3.2%	3.0%	-3.1%	3.9%	4.4%	3.8%	4.2%	4.5%	4.3%	4.4%

Note: *The IMF data is based on calendar year








Source: IMF's World Economic Outlook – April 2026 Update, Crisil Intelligence

India is among the world's fastest growing major economies

As per the April 2026 update to the IMF's WEO, the world's largest economies by nominal GDP are those of the US, China, Germany, Japan, the UK, India, France, Italy, Russia, and Brazil. Among these, India's economy has been the fastest growing through all the years since 2021, and as per IMF's projections, it is expected to sustain its lead in 2026 and 2027. In terms of size of the economy based on nominal GDP in current US dollars, India held the 5th rank in 2024 but slipped to the 6th rank in 2025 due to the depreciation of its domestic currency against the US dollar.

Year-on-year real GDP growth of the world's top 10 economies by nominal GDP in 2025, 2016-27P

Top 10 economies by 2025 nominal GDP	Estimates										Projections	
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
US	1.8%	2.5%	3.0%	2.6%	-2.1%	6.2%	2.5%	2.9%	2.8%	2.1%	2.3%	2.1%
China	6.8%	6.9%	6.8%	6.1%	2.3%	8.6%	3.1%	5.4%	5.0%	5.0%	4.4%	4.0%
Germany	2.2%	2.8%	1.1%	1.0%	-4.1%	3.9%	1.8%	-0.9%	-0.5%	0.2%	0.8%	1.2%

Top 10 economies by 2025 nominal GDP		Real GDP growth (year-on-year percent changes) as per IMF*										Projections	
		Estimates										2026	2027
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025		
	Japan	0.7%	1.6%	0.8%	-0.3%	-4.3%	3.6%	1.3%	0.7%	-0.2%	1.2%	0.7%	0.6%
	UK	2.2%	3.0%	1.6%	1.3%	-10.0%	8.5%	5.2%	0.3%	1.1%	1.3%	0.8%	1.3%
	India	8.3%	6.8%	6.5%	3.9%	-5.8%	9.7%	7.6%	7.2%	7.1%	7.6%	6.5%	6.5%
	France	0.7%	2.3%	1.6%	2.1%	-7.6%	6.8%	2.8%	1.6%	1.1%	0.9%	0.9%	0.9%
	Italy	1.2%	1.6%	0.8%	0.4%	-8.9%	8.9%	4.8%	0.9%	0.8%	0.5%	0.5%	0.5%
	Russia	0.2%	1.8%	2.8%	2.2%	-2.7%	5.9%	-1.4%	4.1%	4.9%	1.0%	1.1%	1.1%
	Brazil	-3.3%	1.3%	1.8%	1.2%	-3.3%	4.8%	3.0%	3.2%	3.4%	2.3%	1.9%	2.0%

Note: *For India, data and projections are presented on a fiscal year basis, with FY 2024-25 (starting in April 2024) shown in the 2024 column

Source: IMF's World Economic Outlook – April 2026 Update, Crisil Intelligence

India's GDP to grow by 6.6% in FY27

In February 2026, the Ministry of Statistics and Programme Implementation (MoSPI) released a new series of national accounts estimates with base year of FY 2022-23 as it represents a recent normal year (after COVID). This base revision was undertaken to capture structural changes that have taken place in India's economy and to leverage the availability of comprehensive data on different sectors of the economy. So, the new series not only improves estimation methods but also incorporates the latest data sources, thereby enhancing both the coverage and the accuracy of national accounts.

Under the new 2022-23 series, India's real GDP grew from Rs 261.2 trillion in FY23 to Rs 323.1 trillion in FY26, logging a CAGR of 7.4% between FY23 and FY26. Further, as per Provisional Estimates (PE) of the National Statistics Office (NSO), India's real GDP grew at 7.7% in FY26. Major drivers of this growth have been the secondary and tertiary sectors as they registered growths of 8.8% and 9.3%, respectively. 'Manufacturing', 'Trade, Repair, Hotels, Transport, Communication & Services related to Broadcasting, Storage' and 'Financial, Real Estate & Professional Services' sectors attained double-digit growth at both constant and current prices in FY26.

Crisil's initial forecast for FY27 considered three scenarios among which the base scenario predicated that India's GDP would grow at 7.1% in FY27. But, since the conflict in West Asia has extended beyond 2 months, the downside risks to India's economy have begun materializing. So, Crisil has laid out the following macroscopic outlook for FY 27.

Crisil's projection for India for FY 2027

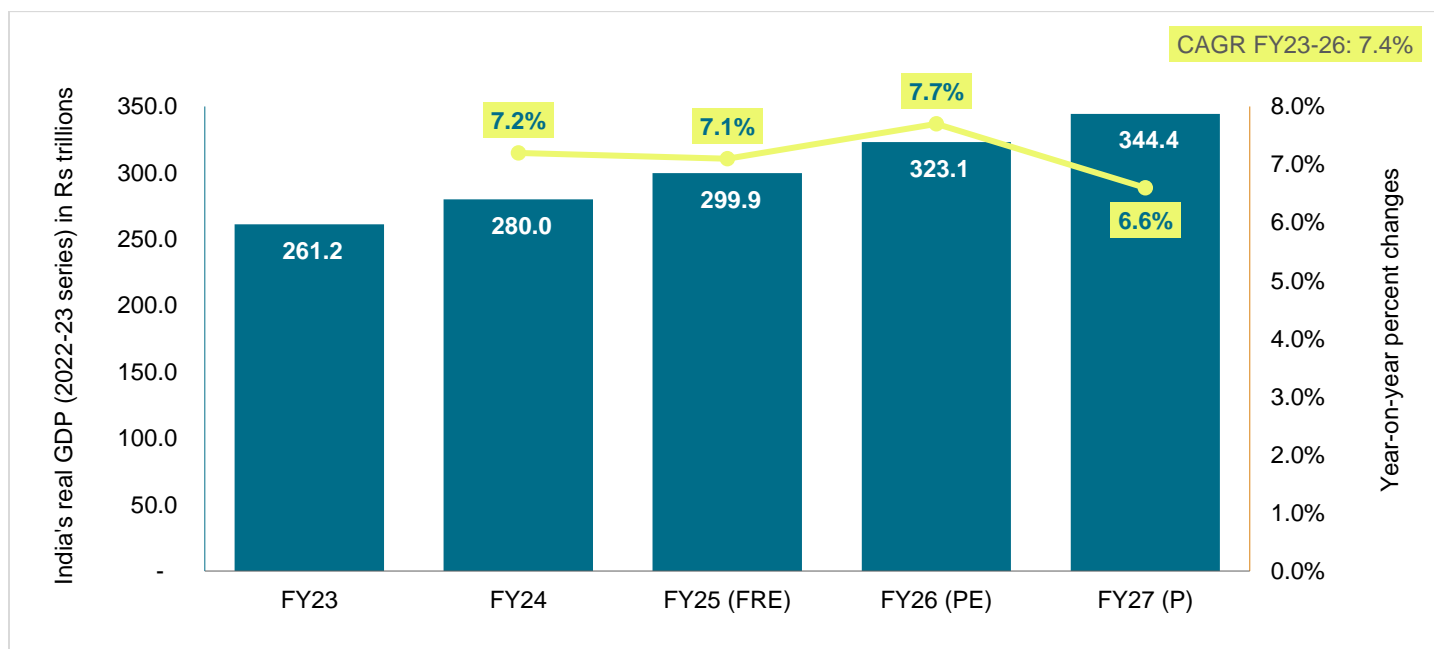
Macroeconomic variables	Forecast for FY27
Real GDP growth	6.6%
CPI inflation	5.1%
10-year government security (G-sec) yield (March average)	7.0%
Current account balance (% of GDP)	-2.2%
Exchange rate (March average, Rs/\$)	93.5

Source: Crisil Intelligence

India's economy has deep linkages to West Asia through trade, and investments, and remittances. 45-50% of crude oil imported by India and 65% of LNG imported by India comes from West Asia. For India, West Asia is also a crucial supplier of petroleum products, fertilisers and industrial raw materials, whereas, for West Asia, India is a supplier of engineering goods, gems and jewellery, food products, chemicals, and construction materials, which together make up 13% of India's total goods exports. Apart from that, West Asia also accounts for ~8% of India's FDI inflows. Additionally, the Gulf Cooperation Council (GCC) region also employs more 9.3 million Indias who together contribute ~38% of the total remittances received by India.

In addition to direct impact of the ongoing conflict in West Asia, India is also getting affected by global supply chain disruptions, surges in freight and insurance costs, weakening global demand for exports, sub-normal monsoons led by El Niño, and high dependence of its manufacturing sector on imported inputs.

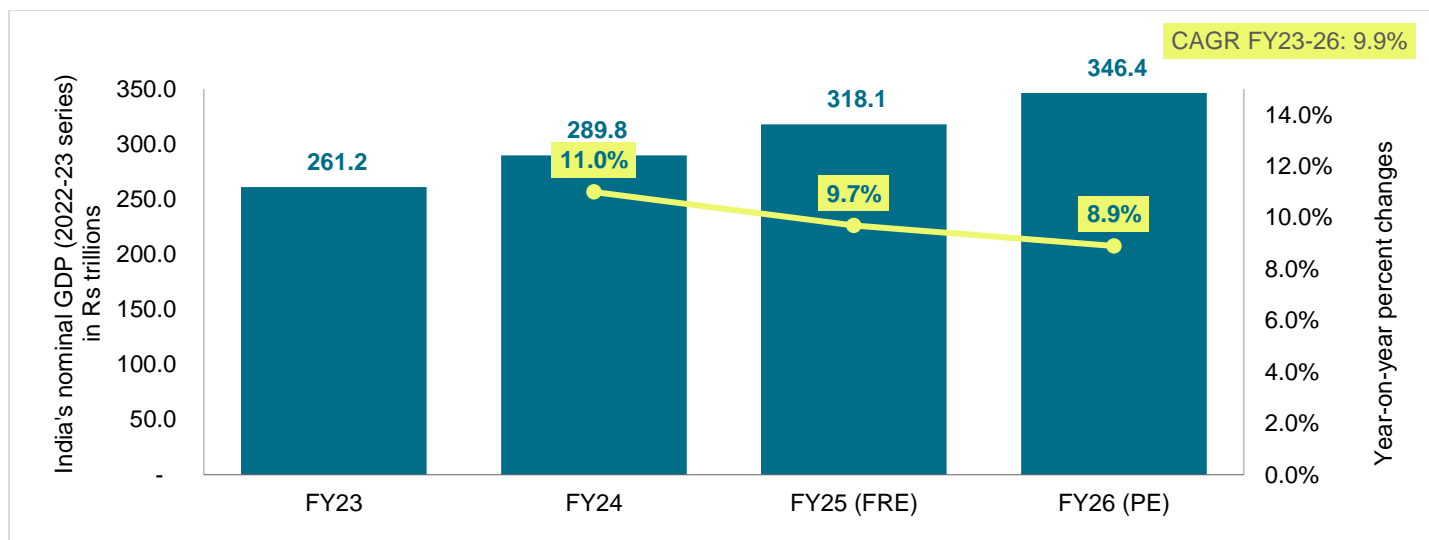
India's real GDP (2022-23 series) trend and outlook, FY23-27P



Note: FRE: First Revised Estimates, PE: Provisional Estimates, P: Projection

Source: Ministry of Statistics & Programme Implementation, Crisil Intelligence

India's nominal GDP (2022-23 series) trend, FY23-26

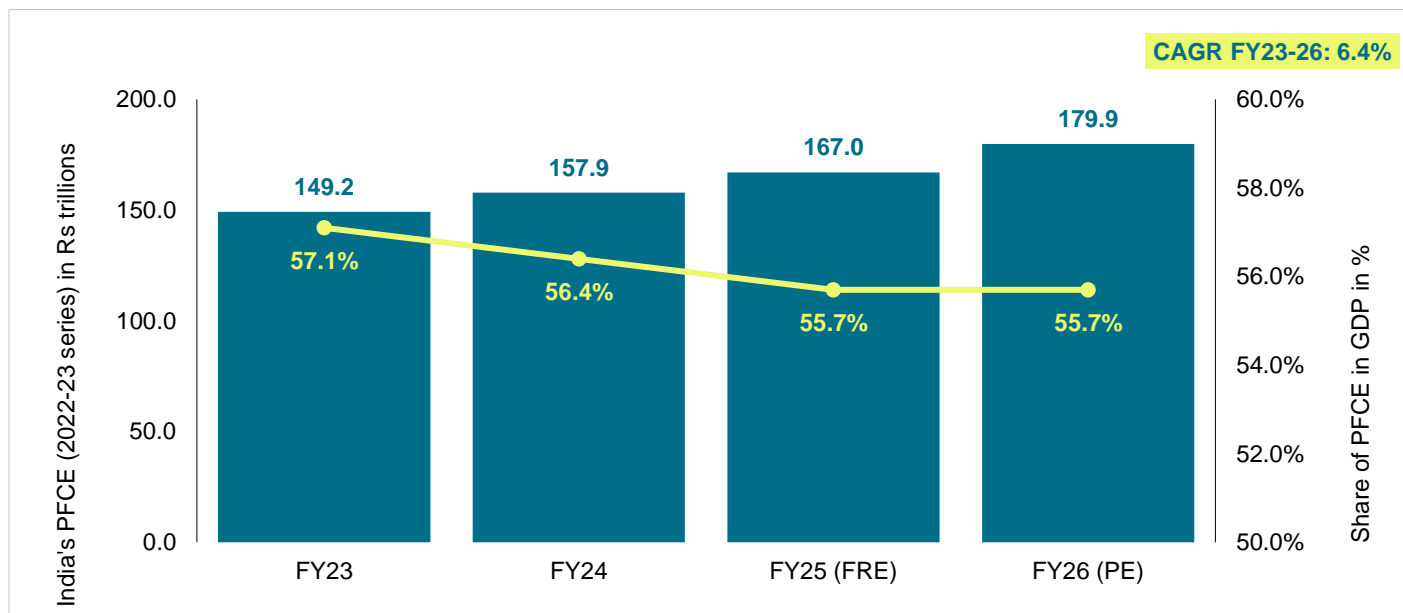


Note: FRE: First Revised Estimates, PE: Provisional Estimates
Source: Ministry of Statistics & Programme Implementation, Crisil Intelligence

Private consumption continues to anchor India’s economic growth

India’s private final consumption expenditure (PFCE) grew by 6.4% between FY23 and FY26, wherein growth between FY25 and FY26 stood at 7.7%. This growth in consumption is supported by the positive impact of GST rate rationalization, stable employment conditions, rising real purchasing power, steady rural consumption resulting from strong agricultural performance, and gradual rise in urban consumption aided by the rationalisation of direct and indirect taxes.

India's PFCE at constant prices (2022-23 series), FY23-26



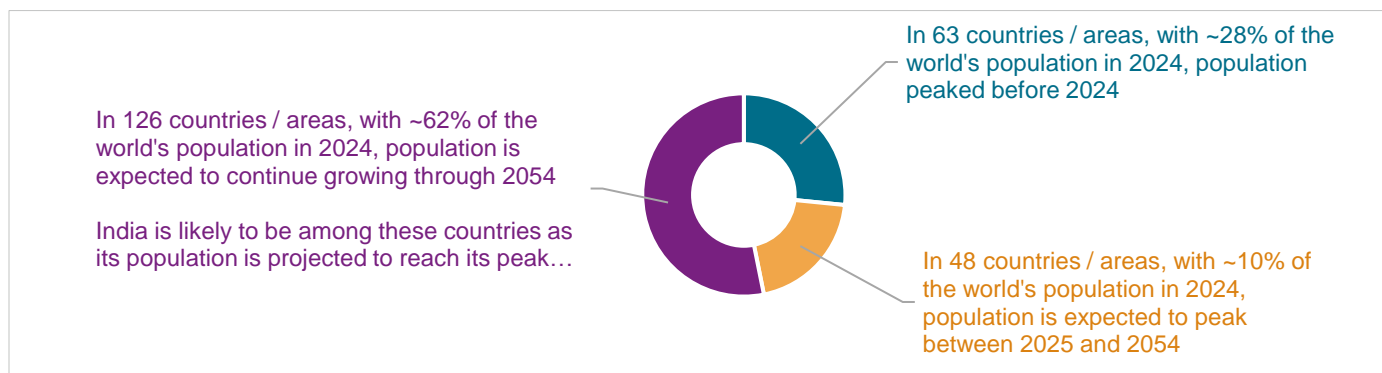
Note: FRE: First Revised Estimates, PE: Provisional Estimates
Source: Ministry of Statistics & Programme Implementation, Crisil Intelligence

India has the potential to reap demographic dividends

As per World Population Prospects 2024 (WPP 2024), published in July 2024 by the United Nations, India's population grew from 1.1 billion in 2001 to ~1.4 billion in 2023, thereby registering a CAGR of ~1.4% between 2001 and 2023. Going forward, India's population is projected to expand at a CAGR of 0.8% between 2025 and 2030, and is expected to remain the world's largest throughout the century

In addition to the above, the WPP 2024 reports that in 2024, one in every four people lived in a country that has already peaked in size. To elaborate, the following chart illustrates where different groups of countries stand with respect to their population's peak size.

Distribution of countries/ areas based on their peak population size

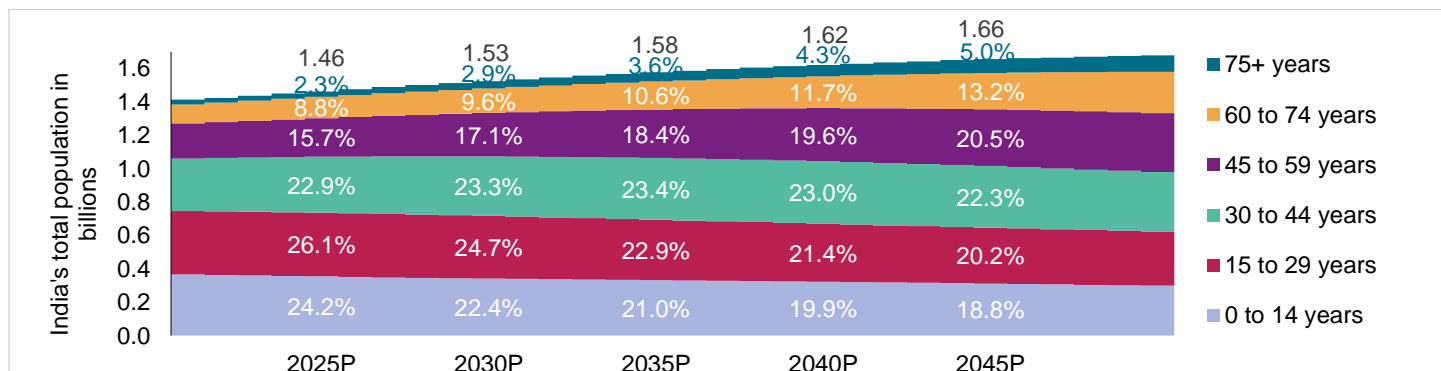


Source: United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects 2024

Further, the WPP 2024 notes that there are ~100 countries / areas with youthful populations and declining fertility where the working-age population will grow through 2054, resulting in a time-bound window of opportunity for them to leverage their growing shares of working-age population (i.e. population between ages 20 and 64 years) for accelerated economic growth. In other words, there are about 100 countries / areas in the world that may reap demographic dividends. Notably, India is one of them.

In 2023, India's working-age population stood at 849.9 million commanding a share of 59.1% in its total population. This working-age population is expected to reach its peak when it touches the 967.7 million-mark in 2034 commanding a share of ~69.2% in India's total population. This implies that, India has a multi-decade window of opportunity for embarking on a path of accelerated economic growth.

India's population: split by age-groups, CY 2025-2045P



Note: P: Projected

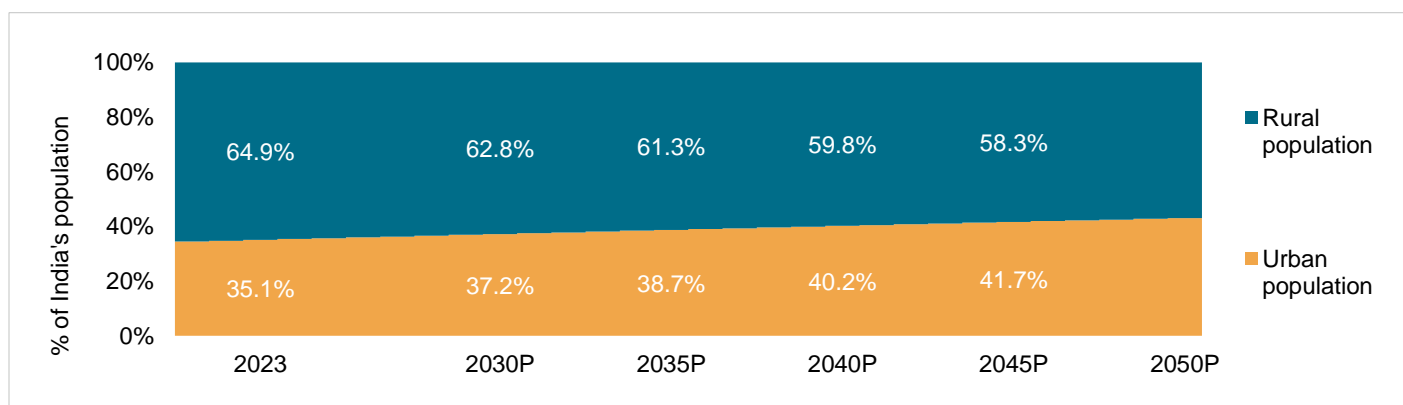
Source: United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects 2024

India's population is turning increasingly urban

India's urban population has been consistently increasing, and the trend is expected to continue as India's economy grows. People from rural areas move to cities for better education, job opportunities, and quality of life. This internal migration may involve the relocation of an entire family or the relocation of a family's earning members or students.

In 2001, India's urban population made up 27.9% of its total population at an estimated 300.8 million. As per WPP 2024, India's urban population is likely to grow to 567.7 million by 2030, making up 37.2% of India's total population. This trend highlights the need to expand infrastructure and provision of basic services in urban areas to accommodate its growing population.

India's population: split by region, FY2023-2050P



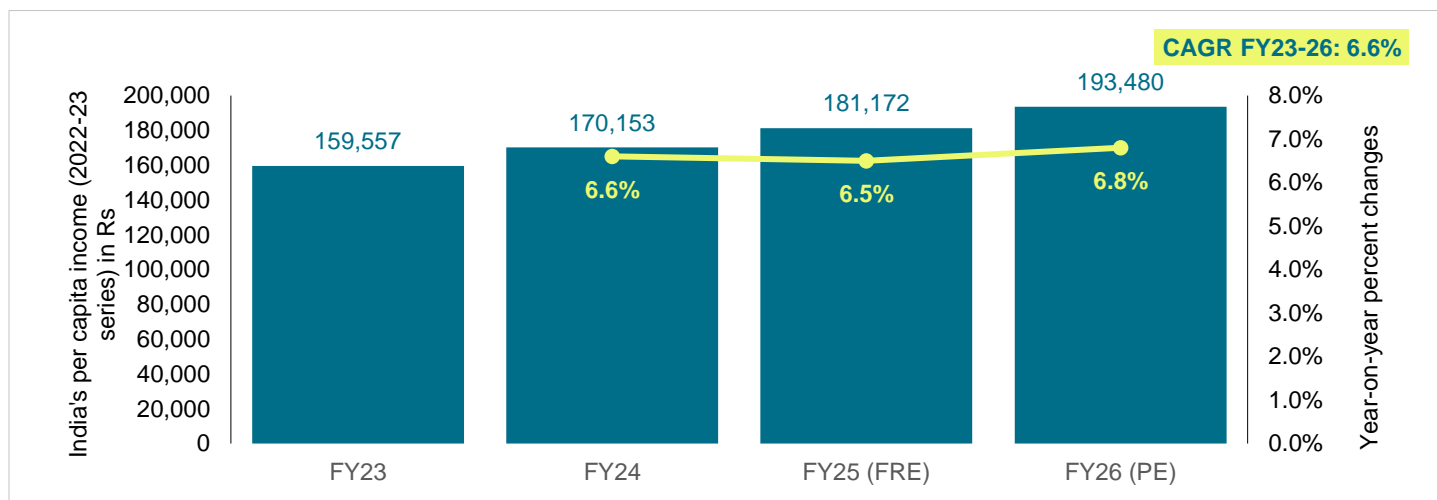
Note: P: Projection

Source: United Nations, Department of Economic and Social Affairs, Population Division. World Urbanization Prospects 2025

India's per capita income grew by 6.6% in FY23-26

India's per capita income, a broad indicator of living standards, grew at a CAGR of 6.6% between FY23 and FY26, from Rs 1,59,557 in FY23 to Rs 1,93,480 in FY26. Growth was led by better job opportunities, propped up by overall GDP growth.

India's per capita income at constant prices (2022-23 series), FY23-26



Notes: FRE: Final Revised Estimates, PE: Provisional Estimates

Source: Ministry of Statistics & Programme Implementation

Services remain key contributor to Indian economy

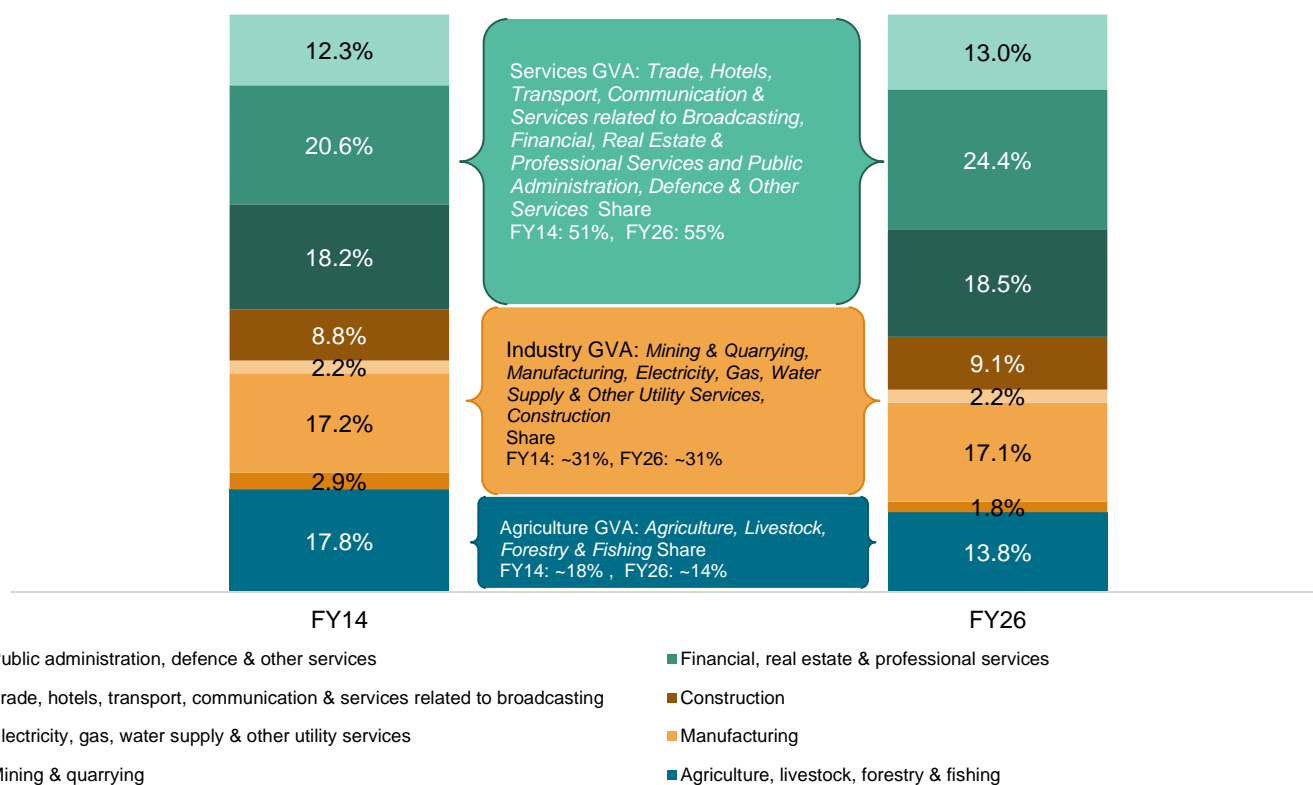
As of fiscal 2026, GVA has reached to INR 184.5 trillion (at constant prices), up from INR 90.6 trillion in fiscal 2014, registering a CAGR of 6.1% between fiscals 2014-26.

Share of agricultural economy, which includes Agriculture, Livestock, Forestry & Fishing, declined from ~18% in FY14 to ~14% in FY26.

Within the overall GVA, the services sector continues to be a significant contributor to India's growth, having clocked 7.5% CAGR between fiscals 2014 and 2026. During this period, the service sector's contribution to gross value added (GVA) expanded to 56% in fiscal 2026 from 51% in fiscal 2014, underscoring its growing significance. In absolute terms, the service sector GVA stood at Rs 103 trillion in fiscal 2026, compared with Rs 46.3 trillion in fiscal 2014.

Services are followed by the industry sector, which had an ~30% share in fiscal 2026. The share of the agricultural economy, which includes agriculture, livestock, forestry and fishing, declined to ~14% in fiscal 2026 from ~18% in fiscal 2014.

Share of GVA at constant prices (FY14, FY26) (%)



Note: FE: Final Estimates, FRE: First Revised Estimates, SAE: Second Advance Estimates

Service sector includes trade, hotels, transport, communication and services related to broadcasting, financial, real estate and professional services and public administration, defence and other services

Industry sector includes mining and quarrying, manufacturing, electricity, gas, water supply and other utility services

Source: MoSPI, Crisil Intelligence

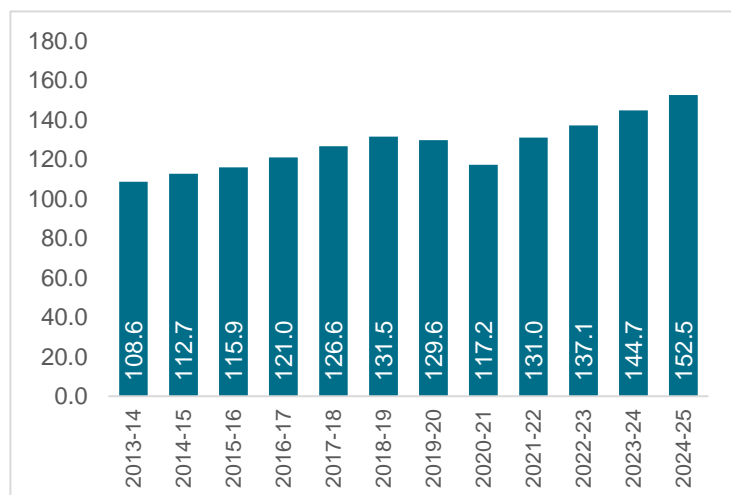
Manufacturing Index of Industrial Production (IIP) recorded a CAGR of 3.1% between fiscal 2014 to fiscal 2025

The IIP is an index which shows growth rates in different industrial production. An increase in IIP indicates an increase in the production of various sectors in an economy over a specific period. The IIP for manufacturing rose to 152.5 in FY25 from 108.6 in FY14. The manufacturing sector is a significant contributor to the country's overall industrial growth, with 78% weightage in the overall IIP as of FY25.

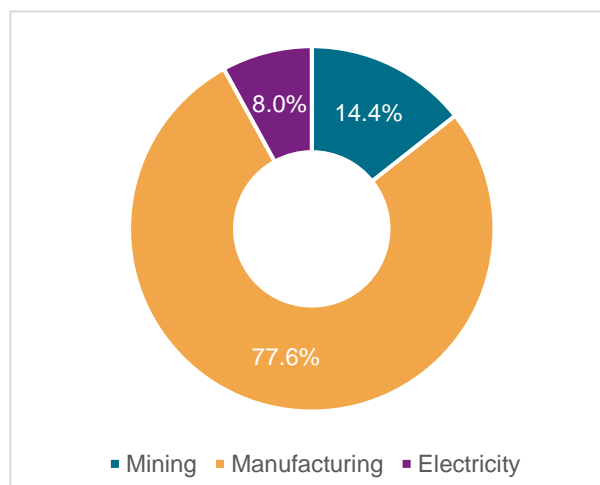
Even though manufacturing IIP declined in FY20 to 129.6 and to 117.2 in FY21 owing to the pandemic, it recovered to 131.0 in FY22 on the back of easing of Covid-19 related restrictions, government stimulus measures, rising consumer demand and efforts to revitalize the manufacturing sector. Consequently, in FY25, manufacturing IIP stood at 152.5.

Macro-economic factors like global growth, attractiveness of India in attracting capital, oil prices and financial stability may impact the economic environment of India and the policies of the government with regards to the manufacturing sector.

Manufacturing IIP (FY14 to FY25)



Weight of manufacturing in IIP (FY25)



Source: MoSPI, Crisil Intelligence

Key government initiatives to boost manufacturing sector in India

Growth driver	Description and reasoning
Make in India	Launched on September 25, 2014, by the Prime Minister. The 'Make in India' initiative was designed to transform India into a global hub for design and manufacturing.
National Industrial Corridor Development Programme (NICDP)	The National Industrial Corridor Development Programme (NICDP) is a transformative initiative launched to develop world-class industrial infrastructure and promote planned urbanization across India. In August 2024, the Cabinet Committee on Economic Affairs approved 12 new industrial areas across 10 states under NICDP with an investment of Rs. 286.02 billion.
PM Gati Shakti	In 2021, the Prime Minister launched PM Gati Shakti - National Master Plan for Multi-modal Connectivity, essentially a digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects. It will incorporate the infrastructure schemes of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc.

Growth driver	Description and reasoning
	As of March 13, 2025, 115 National Highway and road projects covering approximately 13,500 km, with an investment of Rs. 6.38 trillion, have been evaluated under the initiative, leading to more efficient infrastructure development.
Production linked incentive (PLI) scheme	<p>Production Linked Incentive Scheme was announced in Union Budget 2021-22, with the capital outlay of Rs 1.97 trillion, the PLI Schemes focus on 14 critical sectors, each strategically chosen to enhance the country's manufacturing prowess, foster technological advancements, and elevate India's position in global markets.</p> <p>As of Aug 2024, investments under the PLI stand at approximately Rs 1.5 trillion, with projections to reach Rs 2 trillion soon. Additionally, exports have also surpassed Rs 4 trillion, especially in electronics, pharmaceuticals, and food processing.</p>

Source: PIB, Crisil Intelligence

Growth in Construction sector to aid power sector industries

The construction sector is experiencing a significant surge in growth, driven by government initiatives, infrastructure development, and urbanization. This uptrend is expected to have a positive ripple effect on the power sector, driving demand for electricity and boosting the growth of power sector industries. As construction activities increase, the demand for power to fuel these projects will rise, creating new opportunities for power generation, transmission, distribution and electrical equipment companies.

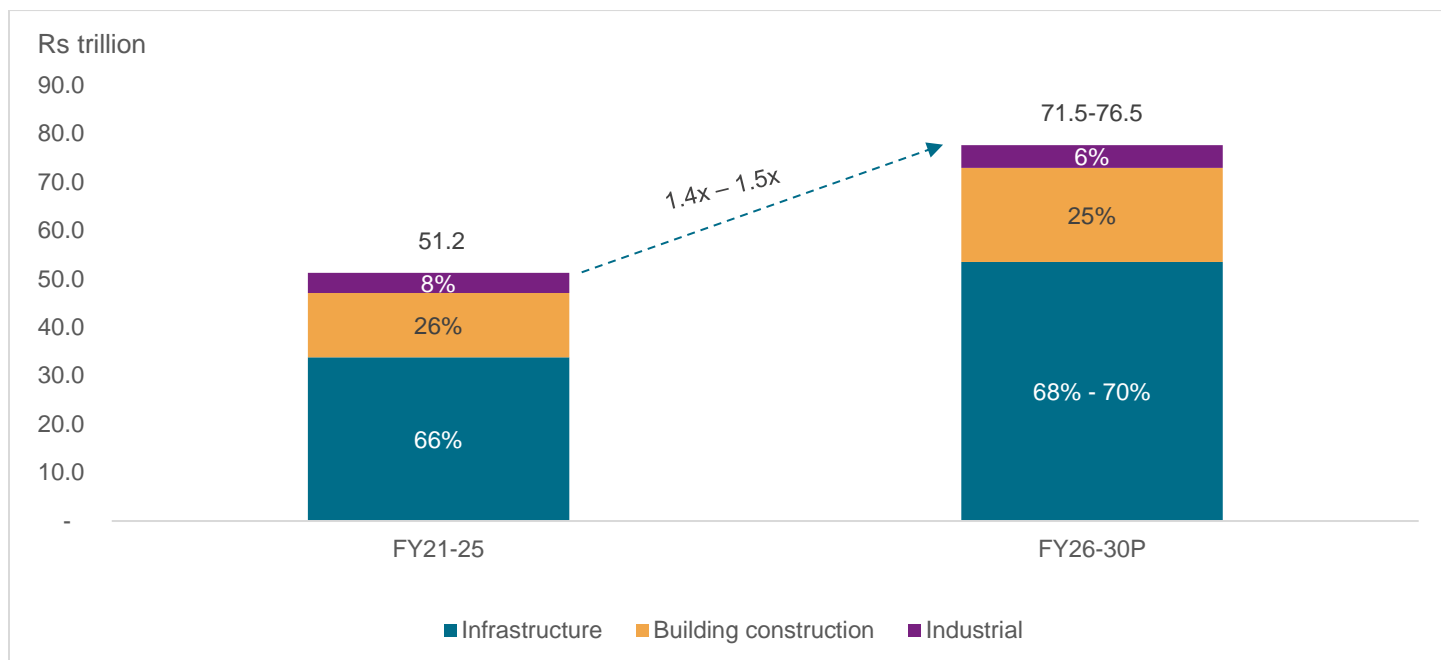
Construction expenditure to grow 6-8% between FY26 to FY30

The construction industry in India is expected to grow steadily at an annual rate of 6-8% between fiscal years 2026 and 2030. This growth will be mainly driven by increased spending on infrastructure projects such as roads and railways, supported by both central and state government investments.

In fiscal year 2025, construction capital expenditure rose by 7% compared to the previous year, reaching Rs. 12.7 trillion. This increase aligns with the government's emphasis on infrastructure development, as seen in the rising budget allocations aimed at achieving the goals outlined in the National Infrastructure Pipeline (NIP). Previously, the construction sector faced challenges like policy delays in infrastructure and low industrial investments. Residential construction also declined due to weak demand, affordability issues, and a sluggish economy. However, recent government initiatives have revitalized construction activity, especially in infrastructure.

The share of infrastructure projects is expected to stabilize in the ~68-70% range in the next five years as against ~66% for FY21-25, as Infrastructure investments are seen growing faster than the other two segments due to the Government's focus on Infrastructure under the NIP, NMP and the Gati Shakti initiative. The Central government's focus on roads, urban infrastructure and railways will boost infrastructure investments. Roads, railways, irrigation & Power sectors will continue to drive the bulk of these investments. Building & construction and industrial segments are expected to witness muted growth.

Break-up of the domestic construction sector spending (Rs. Trillion)



Note: A - Actual, P - Projected

The numbers represent cumulative investments for the specific period

Source: Crisil Intelligence

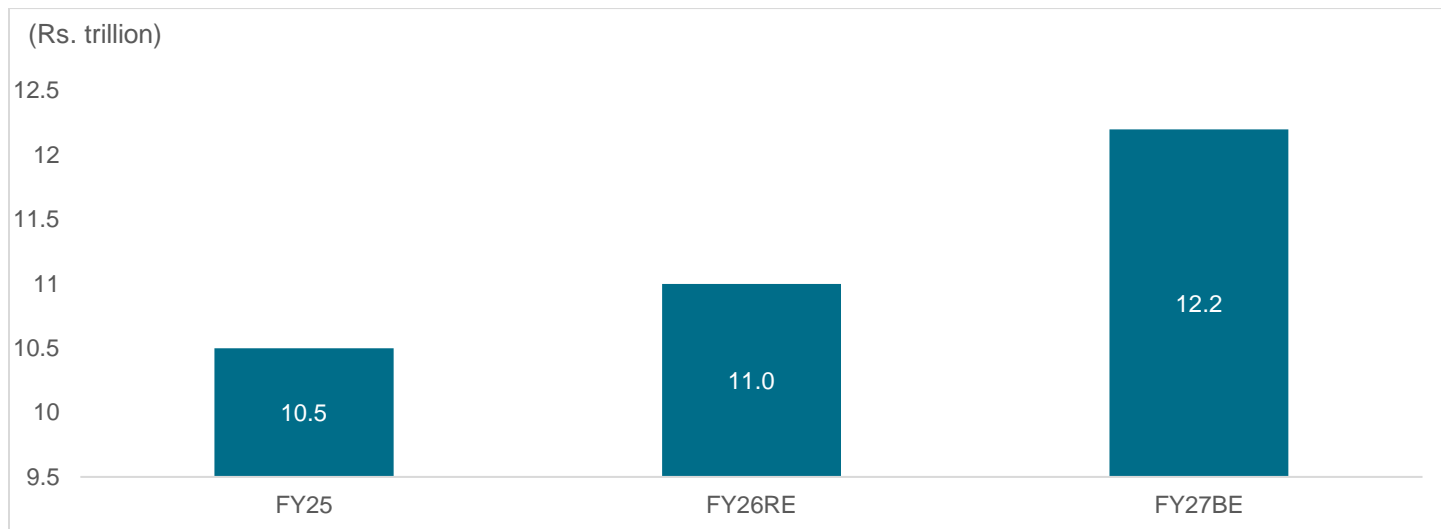
Capital expenditure is estimated to be Rs 12.2 trillion in FY26-27, up 16.2% from FY25

The capex is estimated at Rs 12.2 trillion for FY26, up 16.2% from FY25. This increase aligns with the government’s emphasis on infrastructure development, as seen in the rising budget allocations aimed at achieving the goals outlined in the National Infrastructure Pipeline (NIP).

The current fiscal has seen a sharp rise in implementation of reforms. It has been a mix of structural reforms (such as revamp of income tax, GST, labour laws), increasing foreign direct investment (FDI) limits (100% in insurance) and rationalizing compliance requirements. Broadly, greater attention is now focused on measures aimed at absorbing gains from past reforms and infrastructure build-up.

Infrastructure capex for FY27-31P is projected to be Rs. 105.2 trillion, 52.7% higher than FY22-26E which is estimated at Rs. 68.9 trillion, an increase largely driven by investments in logistics, power and affordable housing.

Trend in capital expenditure



Note: RE- Revised estimates, BE-Budgeted estimates, P - Projected

Source: Budget documents, Crisil Intelligence

Share of infrastructure segment is estimated to increase further

Infrastructure investments have grown faster than building and industrial sector investments due to the government's push through the NIP, NMP and the Gati Shakti initiatives. Construction investments in this sector are expected to be ~Rs 50-54 trillion between FY26 and FY30, up from Rs 34 trillion between FY21 and FY25. The share of infrastructure projects is expected to stabilize in the ~67-70% range in five years (FY25-30). The central government's focus on roads, urban infrastructure and railways will boost infrastructure investments. Roads, railways, irrigation and power sectors will continue to drive the bulk of these investments.

According to Crisil Intelligence, the building and construction sector grew 4-6% in FY25. The real estate sector is likely to see a demand slowdown, along with a rise in inventory in key cities. The increase in execution of deferred projects and government schemes such as the PMAY is expected to provide strong support to the sector. Over FY26-30, the sector is expected to rise to Rs 19-20 trillion from Rs 13 trillion in the period between FY21-25.

Construction spending in industrial sector in FY26 is likely to rise 3-4% with help from oil and gas, and metals. FY25 had a high base anyway because of deferred investments from FY21-22, and a rise in capex investments from the PLI scheme. Based on an analysis of eight key sectors, Crisil Intelligence estimates construction investment in the industrial sector at Rs 4.8-5.5 trillion over FY26-30, compared with Rs 4 trillion spent in FY21-25. The rise in investment is projected due to the inclusion of the PLI scheme in the capex investments of the industrial sector. Crisil has only considered 3 capex-intensive sectors in case of PLI scheme, viz., auto and auto components, textiles and specialty steel for inclusion in our estimates.

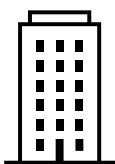
Overview of investments across building, Infrastructure and Industrial in overall construction segment



Infrastructure

FY 21-25: **Rs. 33-35 trillion**
 FY26-30P: **Rs. 51-54 trillion**
 Projected growth: 1.7x-1.8x

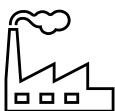
- Infrastructure investments are seen growing faster than the other two sectors due to the government's focus under the National Infrastructure Pipeline (NIP), National Monetization Pipeline (NMP) and the Gati Shakti initiatives. Total construction investments in this sector are expected to attract investments of ~Rs 51-54 trillion between FY26-30P, up from Rs 34-36 trillion between FY21-25.
- Moving forward, the share of infrastructure projects is expected to stabilize in the ~68-70% range in the next five years (FY26-30). Private sector involvement in infrastructure, which has been increasing, is poised to intensify with the government's renewed emphasis on the build-operate-transfer (BOT) model in roads. **The power sector continues to attract substantial private investment, driven by a sharper focus on non-fossil fuel energy generation.** The government's National Monetization Pipeline is also expected to play a key role in boosting private sector participation by facilitating its greater involvement in infrastructure development.



Building

FY 21-25: **Rs. 13-14 trillion**
 FY25-30P: **Rs. 19-20 trillion**
 Projected growth: 1.4x-1.5x

- Crisil Intelligence estimates Building & Construction sector to see stagnant growth with real estate segment showing a slowdown in demand along with rising inventory levels in key cities. The increase in execution of deferred projects and government schemes such as PMAY is expected to provide the required boost to the sector.
- Between FY26-30P, the sector is expected to rise to Rs 19-20 trillion from an investment of Rs 13-14 trillion between FY 21-25



Industrial

FY 21-25: **Rs. 4-4.5 trillion**
 FY26-30P: **Rs. 4.8 – 5.5 trillion**
 Projected growth: 1.2x-1.3x

- Based on an analysis of eight key sectors, Crisil Intelligence estimates construction investment in the industrial sector at Rs 4.8-5.5 trillion between FY26-30P, compared to Rs 4.5-5 trillion spends seen in FY21-25. The rise in investment is projected due to inclusion of the PLI scheme in the capex investments of the industrial sector.
- Crisil has only considered 3 capex-intensive sectors in case of PLI scheme, viz., auto and auto components, textiles and specialty steel for inclusion in our estimates.

Note: A - Actual, P – Projected

Infrastructure vertical includes warehouse

Building construction includes residential, commercial and non-commercial verticals

Source: Crisil Intelligence

Within the infrastructure investments, Power sector investments are expected to clock the growth rate of 5-7% between FY26-30

Infrastructure investments are estimated at Rs. 9.1 trillion in FY26 and is expected to grow 6-8% between FY26-30. The Central government's focus on roads, urban infrastructure and railways is expected to give a boost to infrastructure investments. Roads, railways, irrigation & Power sectors will continue to drive the bulk of these investments. This surge in infrastructure development is creating robust demand for new sub-stations, transmission lines, high quality cables and conductors.

The Power sector investments which are estimated at Rs. 0.5 trillion in FY25 is expected to grow 13-15% in FY26 on the back of renewable energy capacity additions and policy support aimed at reducing carbon emissions and promoting sustainable energy.

Breakup of investments in the infrastructure segment

Sector	FY21-FY25 CAGR	FY25 (Rs. Trillion)	FY26E (Rs. Trillion)	FY26-30P CAGR
Roads	13%	4.2	4.4	6-8%
Urban Infra	26%	1.1	1.1	4-6%
Railways	12%	1.2	1.2	4-6%
Irrigation	8%	1.1	1.3	10-12%
Power	12%	0.5	0.7	5-7%
Other Infra	8%	0.3	0.4	9-11%
Total Infrastructure	14%	8.5	9.1	6-8%

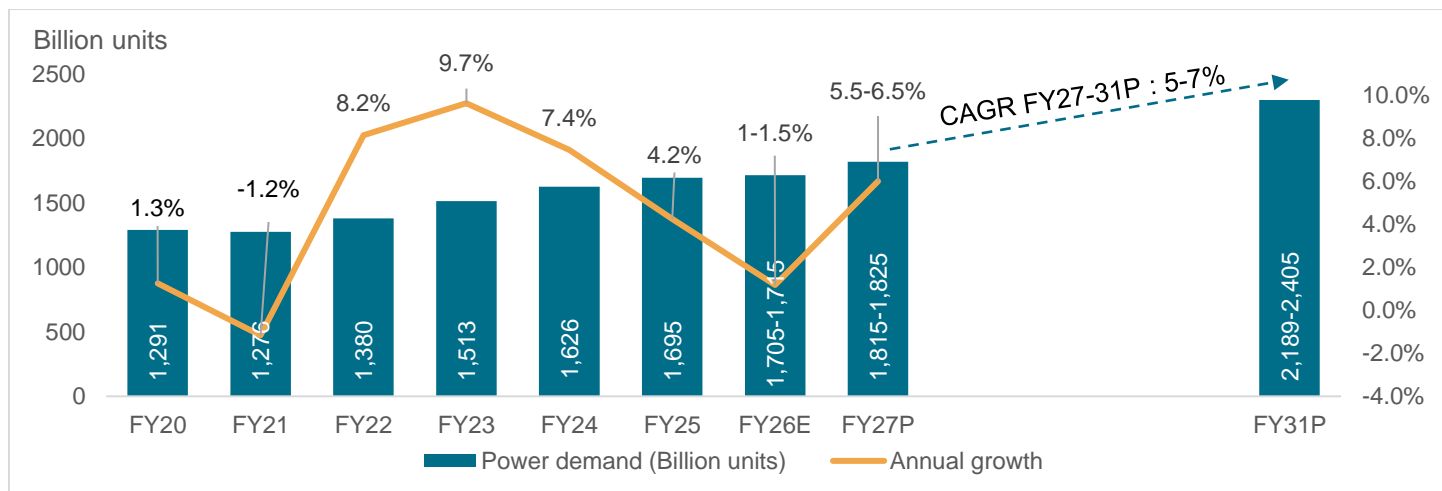
Source: Crisil Intelligence

Power demand to maintain healthy momentum slated to grow at 5-7% CAGR over FY27-31

India's electricity demand has been rising steadily, with a CAGR of ~6% between FY20 and FY24. In FY24, power demand surged by 7.4% driven by El-Nino. The country's power demand had surged in the first quarter of FY23 due to a severe heatwave and continued economic activity, resulting in a 9.7% year-on-year growth from FY22 despite a high base.

In fiscal 2026, power demand is estimated to surge to 1-1.5% on year to 1,705-1,715 BU. This growth comes on the back of three consecutive high growth years starting fiscal 2022 leading to an addition of 315 BU over the period. Crisil Intelligence estimates power demand to rise by 5.5-6.5% on year in fiscal 2027 to 1,815-1,825 BU. This is expected to come on the back of higher temperatures and lower rainfall due to the expected arrival of El-Nino, July 2026 onwards resulting in rise in cooling demand. Over the next few years, from FY27 to FY31, power demand is expected to maintain a CAGR of 5-7%, reaching 2,189-2,405 billion units. This growth will be supported by healthy economic expansion, improvements in distribution infrastructure, and major reforms initiated by the central government to enhance the overall health of the power sector.

Power demand growth (BU) (FY20-FY31P)



Note: E- Estimated, P- Projected

Source: CEA, Crisil Intelligence

The demand for electricity in India is expected to be driven by various sectors, including industrial, commercial, and domestic. The industrial and commercial sectors are expected to be the primary drivers of power demand, with significant investments in manufacturing, infrastructure development, and policies like the Production-Linked Incentive (PLI) scheme. The government's Aatmanirbhar Bharat relief package, spending on infrastructure through the National Infrastructure Pipeline, and commissioning of dedicated freight corridors are also expected to foster power demand. Additionally, the expansion of the services industry, rapid urbanization, and increased farm income from agriculture-related reforms will contribute to the growth in power demand.

The domestic sector is also expected to see a rise in electricity consumption due to improving living standards, increased air conditioning requirements, and government schemes like the Pradhan Mantri Sahaj Bijli Har Ghar Yojana, which has achieved universal household electrification. The scheme has helped electrify 28.6 million households, driving electricity demand and aiming to ensure 24x7 power supply to separate agriculture and non-agriculture feeders. Further, railway electrification, rapid transition to electric vehicles, increased urbanization, and industrialization, smart city projects, and upcoming metro projects are expected to provide impetus to power demand.

Peak demand is expected to grow at annual average 6-8% over fiscal 2026-2031 to reach nearly 335-345 GW by fiscal 2031

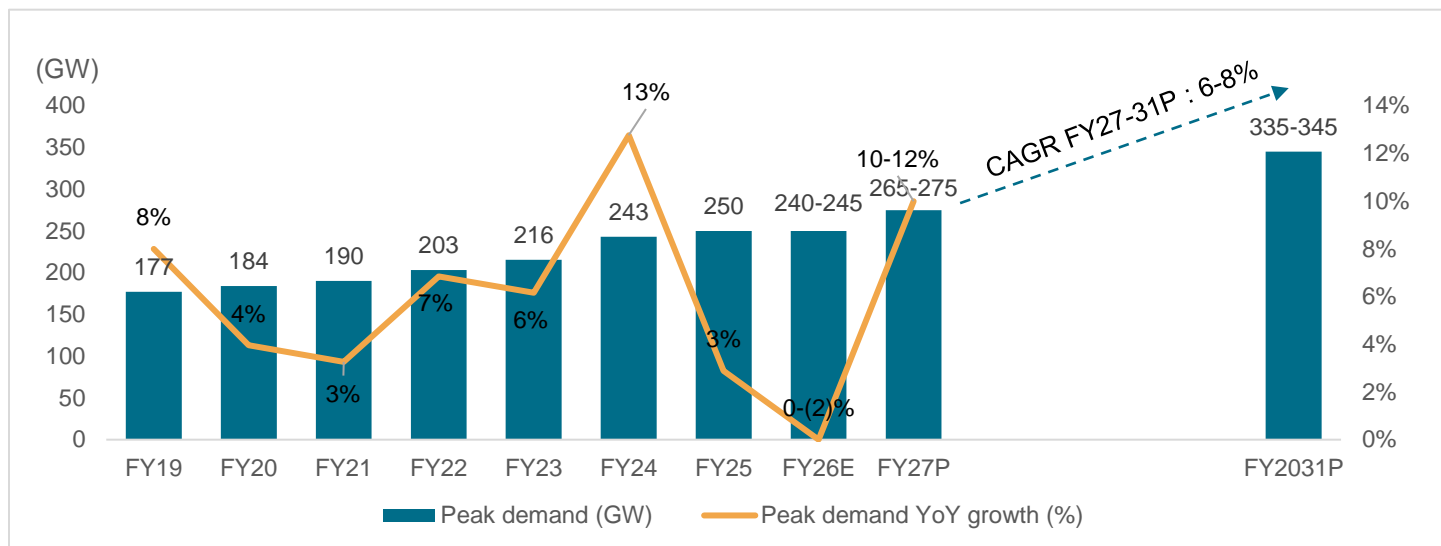
Peak demand is the instantaneous surge in power requirement which occurs for a short duration. This may occur for instance when a large set of consumers utilize electricity simultaneously, such as in the evenings for lighting. Between fiscal 2019 and 2025, peak demand has grown from 177 GW to 250 GW. In January of fiscal 2026, peak power demand surged to 245 GW, surpassing the previous summer peak of 243 GW recorded in June 2025. This increase was primarily driven by heightened heating requirements during a severe cold wave in North India. Crisil Intelligence estimates peak power demand to remain steady in the range of 245-245 in fiscal 2026. Crisil Intelligence believes temperature will continue to remain a key monitorable going forward.

The constant rise in peak demand can be attributed to economic growth, seasonal vagaries, and an increasing daily average temperature that India has experienced over the last decade leading peak demand to touch 250 GW in May 2024.

Peak demand is expected to grow at annual average 6-8% over fiscal 2026-2031 to reach nearly 335-345 GW by fiscal

2031 with expected persistent high temperatures, rising urbanization, economic growth and infrastructure push leading to higher peak power.

Peak demand growth (GW) (FY20-31P)



Note: E: Estimated, P: Projected
Source: CEA, Crisil Intelligence

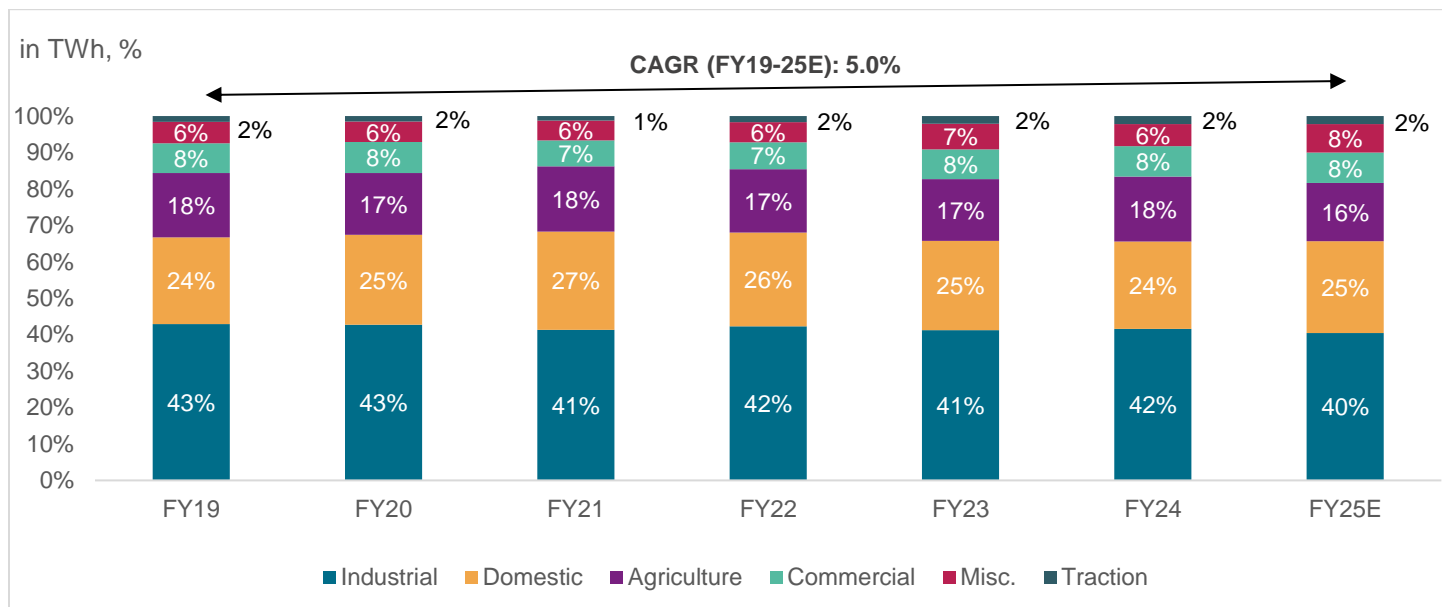
Electricity consumption has grown at a CAGR of 5.0% from FY19 to FY25P

In India, electricity consumption pattern across various sectors has exhibited a steady growth trend over the past five years, with the total consumption increasing at a CAGR of 5.0% from FY19 to FY25. The industrial sector remains the largest consumer of electricity, accounting for approximately 40% of the total consumption in FY25, the sector grew at a CAGR of 5% from FY19 to FY25. The domestic sector was the second-largest consumer in FY25 and grew at a CAGR of 6%, driven by increasing household demand for electricity.

The agriculture sector has also witnessed a steady growth in electricity consumption, with a CAGR of 3.4%, although its share in total consumption has remained relatively stable at around 16%. The commercial sector has experienced a CAGR of 5.5%, with its share in total consumption remaining around 8%. The traction sector, which includes electricity consumption for transportation, has also witnessed a high growth rate of 10.7%, indicating a growing trend towards electrification of transportation

The overall electricity consumption has increased by ~34% from FY19 to FY25P, reaching 1,623 TWh in FY25P. The growth in electricity consumption across various sectors is driven by increasing economic activity, urbanization, and electrification of various sectors. The industrial and domestic sectors are expected to continue driving electricity demand, while the growth in the commercial and miscellaneous sectors is likely to be driven by increasing economic activity and urbanization.

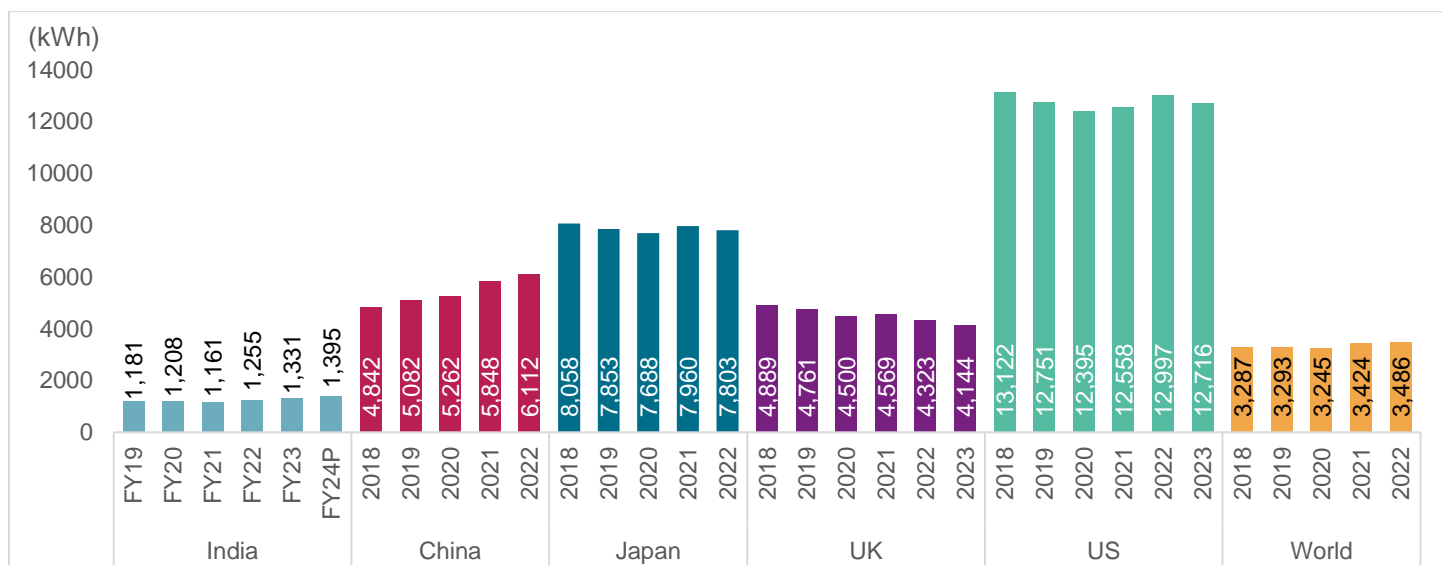
Electricity consumption split (TWh) (FY19-25E)



Electricity consumption split (TWh)	FY19	FY20	FY21	FY22	FY23	FY24	FY25E
Industrial	519	533	509	556	594	641	656
Domestic	288	309	331	340	353	369	409
Agriculture	213	211	221	228	244	275	260
Commercial	98	106	87	97	117	129	135
Misc.	72	70	68	73	102	93	128
Traction	19	19	15	22	30	34	35
Total	1210	1248	1230	1317	1440	1541	1623

Note: E – Estimated; Traction refers to the Electricity consumption for the propulsion of vehicles, primarily railways and other transportation systems
Source: CEA

Per capita electricity consumption across countries (kWh) (FY19-24, CY18-23)



Note: P: Provisional

India numbers are as per CEA, rest of the numbers are as per World Bank / IEA

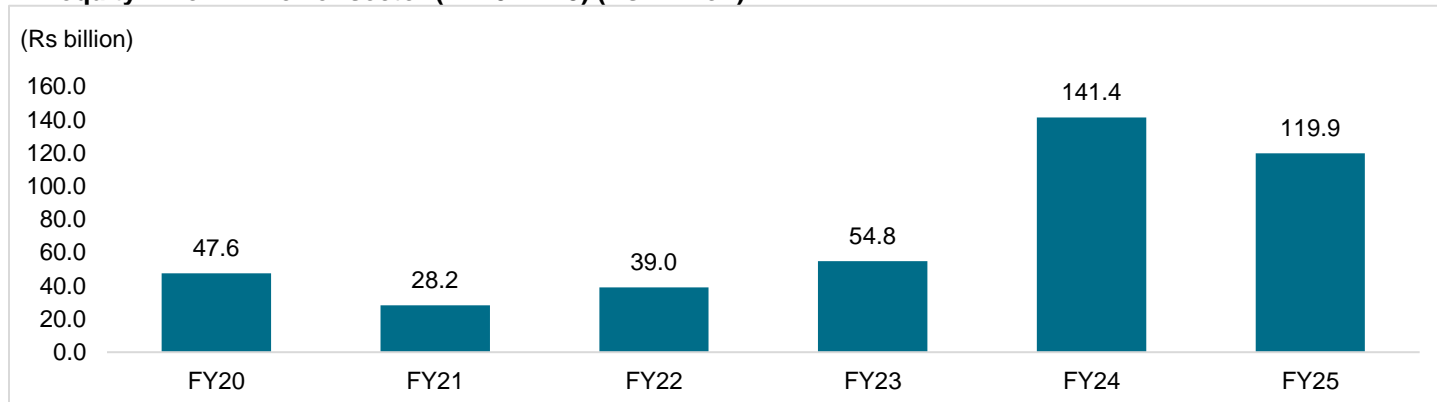
Source: World Bank, IEA, CEA, Crisil Intelligence

Among the selected countries, US has the highest per capita electricity consumption, ranging from 13,122 kWh in CY18 to 12,716 kWh in CY23. In contrast, the world average has grown from 3,287 kWh in CY18 to 3,486 kWh in CY22. China's per capita electricity consumption has been steadily increasing, it has increased from 4,842 kWh in CY18 to 6,112 kWh in CY22 while India's has shown moderate growth, growing from 1,181 kWh in FY19 to 1,395 kWh in FY24.

Power sector FDI grew at a CAGR of ~20% from FY20 to FY25

FDI is crucial to India's economic growth and development particularly in capital intensive sectors like construction and power sector. In the power sector, FDI stood at Rs 119.9 billion in FY25, as against Rs 47.6 billion in FY20, indicating strong momentum in the sector. FDI investments in power sector spiked in FY24 to Rs 141.4 billion due to the government's initiatives to promote renewable energy and reduce dependence on fossil fuels, which led to a surge in investments in solar and wind energy projects, as well as the establishment of new power transmission and distribution infrastructure, making India an attractive destination for foreign investors looking to capitalize on the country's growing energy demands and ambitious renewable energy targets.

FDI equity inflow in Power sector (FY20-FY25) (Rs. Billion)



Source: Department of Industry Policy & Promotion, Crisil Intelligence

Key growth drivers of power demand

Broad-based manufacturing and infrastructural push to boost power demand

India's power demand is closely tied to its GDP, which has grown at a 5.8% CAGR between FY14-24. India became the fourth largest economy in the world in CY25. The country's economy is expected to continue expanding, driven by industrial activity, government spending on infrastructure, and initiatives like the Atmanirbhar Bharat relief package and National Infrastructure Pipeline. Key factors contributing to power demand growth include the dedicated freight corridors, expansion of the services industry, rapid urbanization, and increased farm income. Policy initiatives like production-linked-incentive (PLI) schemes have also boosted large-scale manufacturing, further driving power demand in the country.

Union budget allocation for railway electrification rises to Rs 6,150 crore in FY25 from Rs 5,806 crore in FY24

The Indian Railways, which operates 69,512 rkms of Total Broad-Gauge network as of 31st March 2025 aims to achieve 100% electrification by FY26, delayed from the initial target of December 2023. As of March 2025, ~99% of this network is already electrified. The government has allocated Rs 6,150 crore for electrification projects in FY25, up from Rs 5,806 crore in FY24, as part of the Rs 2.5 lakh crore capital outlay for the Ministry of Railways in FY25. This is expected to lead to an incremental power demand of approximately 27 billion units (BUs) per year between FY26 and FY30, driven by new track laying and electrification of existing lines, supporting the country's goal to become a net zero emitter by 2030.

Substantial spike in the operational & upcoming metro projects to increase electricity requirement

India's metro rail network has seen significant growth, with 943 km of operational routes across 18 cities as of March 2025. Additionally, 732 km of metro lines are under construction and 1,888 km are proposed. The electricity consumption for train traction and station operation is expected to drive an average incremental power demand of 6-7 billion units (BUs) per year between FY26 and FY30. Although metro projects currently constitute a small share of total incremental demand, their contribution is expected to increase in the future due to the large number of planned projects, supporting the growing urban mobility needs.

Gradual transition to electric vehicles to increase the demand for charging infrastructure

The Indian government aims to increase the share of electric vehicles (EVs) to 30% of the overall car population by 2030, driven by demand-side incentives, subsidies, and investments in charging infrastructure. Under the National Electric Mobility Mission plan, the government plans to promote EV adoption and expand charging infrastructure across major cities. As per the Ministry of power, there are a total of 25,202 Electric Vehicle Public Charging Stations (EVPCS) installed in the country as of December 2024. The Union Budget 2019-20 allocated Rs 10 billion for building a nationwide EV charging infrastructure, with plans to install charging stations every 25 km on major highways. Several states, including Gujarat, Maharashtra, Delhi, and Karnataka, have announced favourable policies to boost EV adoption. As a result, EV charging demand is expected to contribute to power demand, with Crisil Intelligence projecting an addition of up to 35 billion units (BUs) of power demand between FY26 and FY30, averaging 8.5-9.5 BUs per year.

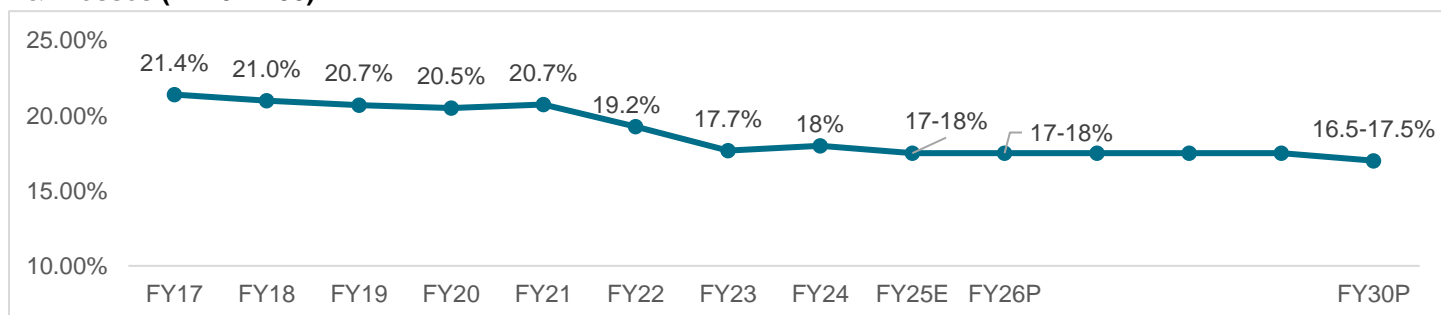
Key challenges influencing power demand

Declining transmission and distribution (T&D) loss to constrain power demand growth

The Indian government has introduced the Revamped Distribution Sector Scheme to improve the power distribution sector's efficiency and reduce Aggregate Technical and Commercial (AT&C) losses to 17-18% nationwide by FY25. The scheme has been extended for two years beyond March 2026 due to its slow progress.

The scheme requires state governments to clear pending payments, install smart meters, and pay subsidies upfront. Additionally, the government has provided incentives for states to reduce AT&C losses and ACS-ARR gaps. As a result, T&D losses have been declining and are expected to continue decreasing, leading to a reduction in power demand by 8-9 billion units (BUs) on average every year between FY26-30. This decline in T&D losses will constrain power demand growth, despite increasing electricity consumption from other sectors.

T&D losses (FY20-FY30)



Note: P: Projected, E: Estimated
ACS: Average Cost of Supply
ARR: Average Revenue Realised
Source: CEA, Crisil Intelligence

Reduction in demand due to increase in off grid/rooftop projects

With boost to rooftop solar and declining cost of renewable energy generation, the off-grid solar generation is expected to increase, reducing power demand from grid. By FY30, installed capacity is expected to be 49-50 GW resulting in diversion of 2-3% of the power demand being met directly at consumer site.

Open access transactions to limit demand for power utilities

Short-term market transactions are expected to account for 12.5-13.5% of power generation as of FY26. Shares of short-term transactions are expected to increase to 13.5-14.5% by FY30 primarily driven by demand pressure, and better price discovery at exchanges. Demand for the short-term market is expected to add an average of 19-20 BUs between FY26-30 resulting in diversion in power supply from utility demand.

2. Assessment of global investments in Power and related sectors

In this section, Crisil Intelligence has given details on global investments in power and related sectors including power generation by source, investment in power grids and storage, renewable energy investment and capacity additions clean energy investments, telecommunication and transport infrastructure investments and global trends shaping the power sector.

In this module, global investments in the power sector and clean energy are estimated basis 3 scenarios as described by IEA, which are defined as:

Stated Policies Scenario (STEPS): This scenario is designed to reflect the impact not just of existing policy frameworks, but also of today's stated policy plans

Announced Pledged Scenario (APS): The Announced Pledges Scenario (APS) assumes that all aspirational targets announced by governments are met on time and in full, including their long-term net zero and energy access goals

Net Zero Emissions by 2050 Scenario (NZE): The scenario maps out a way to achieve a 1.5 °C stabilization in the rise in global average temperatures, alongside universal access to modern energy by 2030

Global investments in power sector

Global power sector investments expected to grow at a CAGR of 7-8% from CY23 to CY30 based on announced pledges scenario (APS)

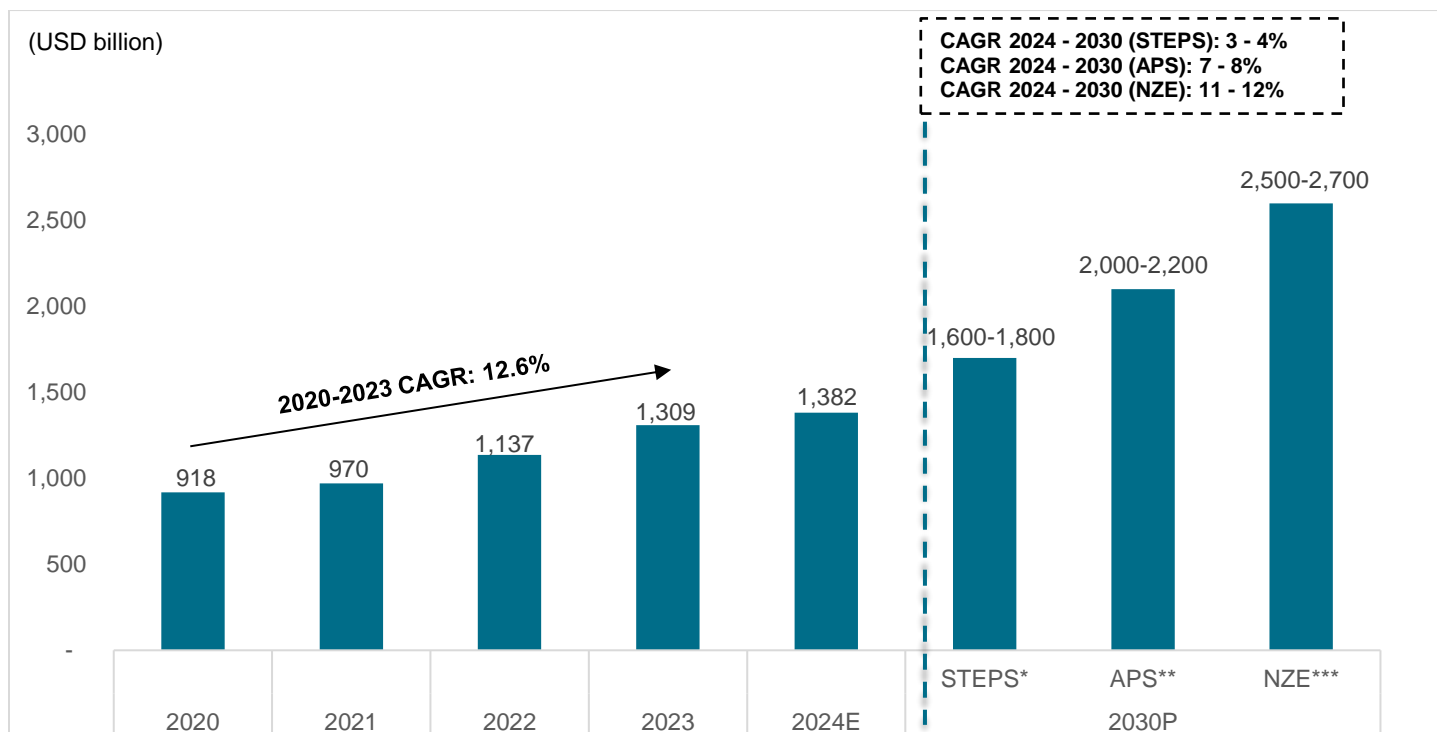
Global power sector investments increased from USD 918 billion in CY20 to USD 1,309 billion in CY23. Power sector investment grew by ~17% in CY22, crossing USD 1,000 billion for the first time, and saw a further increase of 15% in CY23 to ~USD 1,309 billion. Major effect of the global energy crisis has been to accelerate investments in deploying cleaner energy technologies. Moving forward, investments in power sector are estimated to moderately grow by ~6% to reach USD 1,382 billion by CY24 due to cost reductions for renewables and a decline in fossil fuels.

Global investments in renewables reached USD ~605 billion in CY22, driven by solar and wind investments. As there is a push for renewables in large markets such as USA, China, Europe and India, and the gradual decrease in supply chain pressures, higher capacity additions are expected in solar and wind power sectors going forward. As a result, CY23 investments in global renewables reached USD 735 billion.

Moving forward, the investments are estimated to further grow by ~5% to reach ~USD 771 billion by CY24. Factors such as the stabilization of interest rates, ongoing technological advancements, and the increasing competitiveness of renewable energy sources are likely to support this continued investment. However, the market may also face challenges, including regulatory uncertainties and the need for further infrastructure development to accommodate the growing share of renewables in the energy mix.

Moving forward, global power sector investments are estimated to rise to USD 1,600-1,800 billion by CY30 in STEPS scenario, majorly driven by investments in wind PV, solar PV and grids. In the APS scenario, investment is estimated to increase to USD 2,000-2,200 billion by CY30 as low-emissions sources of energy and storage technologies are deployed more rapidly than in the STEPS. In case of NZE scenario, investments in global power sector are estimated to reach USD 2,500-2,700 billion by CY30.

Global investments in power sector (projections based on multiple scenarios) (CY20-CY30)



Note: E stands for estimated, P stands for projected; *2030 projections based on Stated Policies Scenario (STEPS); **As per Announced Pledged Scenario (APS); ***As per Net Zero Emissions (NZE) by 2050 Scenario

All numbers based on 2023 USD rates

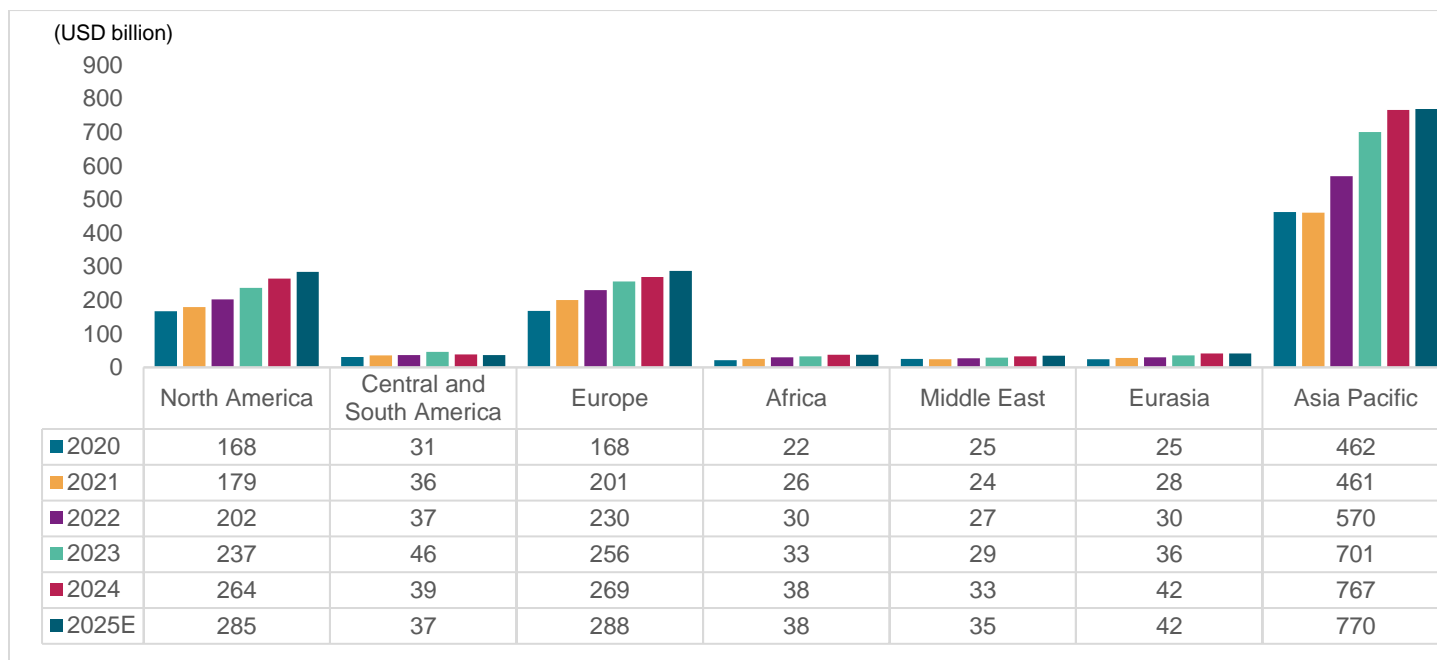
Source: IEA, Crisil Intelligence

Asia Pacific remains the dominant region for power sector investments over CY2020 to CY2025

Asia Pacific stands out as the dominant region in terms of power sector investments, with investments rising from USD 462 billion in CY2020 to an estimated USD 770 billion in CY2025. This surge reflects the regions rapid economic growth, increasing demand for electrification, and a strong push towards expanding and modernizing energy infrastructure. Meanwhile, both North America and Europe showed consistent and substantial increases in power sector investment, underlining their commitment to grid modernization, renewable energy integration and energy transition policies. The power sector investments in North America are estimated to grow from USD 168 billion in CY2020 to USD 285 billion in CY2025 at a CAGR of 11.19%. While in Europe it is estimated to grow from USD 168 billion in CY2020 to USD 288 billion in CY2025 at a CAGR of 11.35%.

Other regions show modest investment trajectories, but with meaningful upward trends. Central and South America’s investments rise incrementally suggesting gradual improvements amid economic and political constraints. Africa’s investment, while lower in absolute terms, is expected to nearly double over the period, pointing to a focus on access expansion and essential infrastructure. Middle East and Eurasia is also expected to experience moderate but steady growth of 7.08% and 10.99% respectively over CY2020 to CY2025, driven by infrastructure modernization and strategic diversification away from fossil fuels.

Region-wise investment in power sector (2020-2025) (USD billion)



Note: E stands for estimated; all numbers based on 2024 USD rates

North America: Canada, Mexico and United States

Central and South America: Argentina, Plurinational State of Bolivia (Bolivia), Brazil, Chile, Colombia, Costa Rica, Cuba, Curaçao, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela (Venezuela), and other Central and South American countries and territories

Europe: European Union and Albania, Belarus, Bosnia and Herzegovina, North Macedonia, Gibraltar, Iceland, Israel, Kosovo, Montenegro, Norway, Serbia, Switzerland, Republic of Moldova, Turkey, Ukraine and United Kingdom

Africa: Algeria, Angola, Benin, Botswana, Cameroon, Congo, Democratic Republic of Congo, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, Gabon, Ghana, Kenya, Libya, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, South Sudan, Sudan, United Republic of Tanzania, Togo, Tunisia, Zambia, Zimbabwe and Other Africa

Middle East: Bahrain, Islamic Republic of Iran (Iran), Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic (Syria), United Arab Emirates and Yemen

Eurasia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan and Uzbekistan

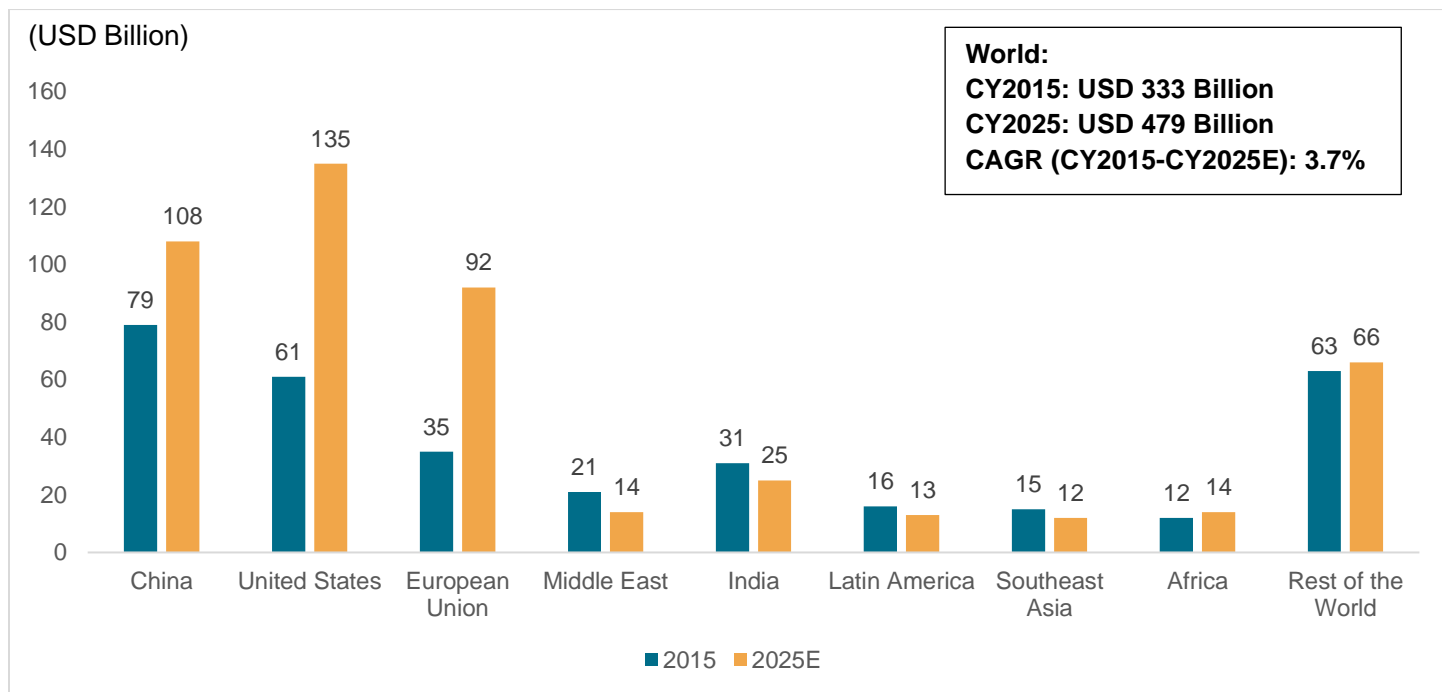
Asia Pacific: Australia, Bangladesh, Brunei Darussalam, Cambodia, China, DPR of Korea, India, Indonesia, Japan, Korea, Laos, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Chinese Taipei, Thailand Viet Nam and Other Asia, Afghanistan, Bhutan, Cook Islands, East Timor, Fiji, French Polynesia, Kiribati, Laos, Macau, Maldives, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu

Source: World Energy Investment 2025, IEA, Crisil Intelligence

Global investments in power grids and storage are estimated to grow at a CAGR of 3.7% from CY2015 to CY2025

Investments in power grids and storage are estimated to grow at 3.7% from CY2015 to CY2025. The US, Europe and China drive this growth and have been the largest contributor to investments in power grids and storage over CY2015 and CY2025 with Europe is expected to show the highest growth in investments rising from USD 35 billion in CY2015 to USD 92 billion in CY2025, at a growth of 10.1% Meanwhile the US is expected to grow at 8.3% and China at 3.2% over the same period. The growth is primarily driven by the accelerating global transition to renewable energy, which demands smarter, more resilient grid infrastructure and advanced energy storage systems to handle variability in power supply. Rising electrification coupled with increased policy focus on decarbonization, and energy security has also spurred higher investment levels, notably emerging regions like India, South Asia and Africa showed gradual yet steady increase in indicating efforts to expand energy access reduce transmission losses and support growing energy demand. Overall, Global investments in power grids and storage are expected to grow at a CAGR of 3.7% from USD 333 Billion in CY2015 to USD 479 Billion in CY2025.

Investments in power grids and storage (CY2015-CY2025) (USD billion)



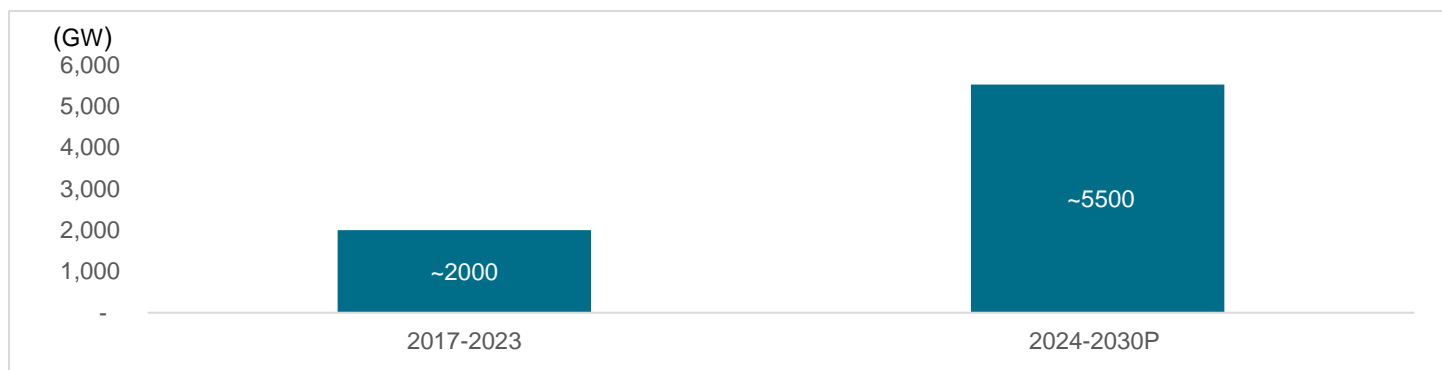
Note: E stands for estimated; all numbers based on 2024 USD rates
Source: World Energy Investment 2025, IEA, Crisil Intelligence

CY2023 is the 22nd year in a row that renewable capacity additions set a record

Renewable electricity capacity additions reached an estimated 507 GW in CY2023, almost 50% higher than in CY2022, with continuous policy support in more than 130 countries spurring a significant change in the global growth trend. This worldwide acceleration in CY2023 was driven mainly by year-on-year expansion in the China booming market for solar PV and wind.

Moving forward, global renewable capacity is expected to increase to over 5,520 GW during CY2024-2030, 2.6 times more than deployment of the last six years (CY2017-2023). Utility scale and distributed solar PV growth more than tripled, accounting for almost 80% of renewable electricity expansion worldwide. Solar PV adoption accelerated due to declining equipment costs, relatively rapid permitting and widespread social acceptance. PV project size can range from few watts to gigawatt-level utility-scale plants, providing low-cost zero-emission electricity to individuals, small companies, large industries and utilities.

Renewable electricity capacity



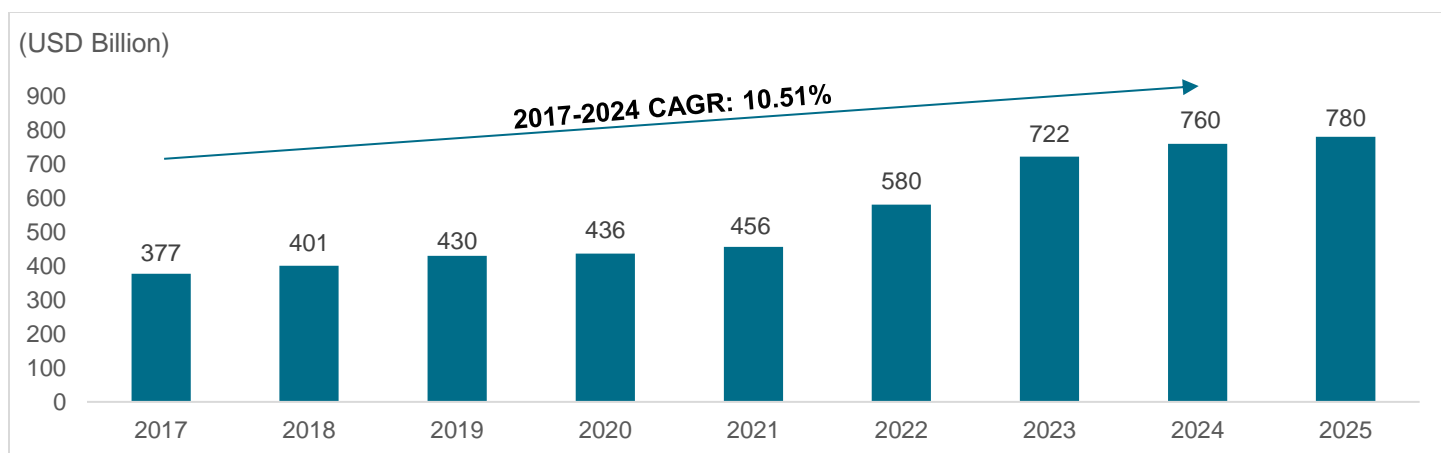
Note: P stands for projected
Source: IEA, Crisil Intelligence

Investments in renewables have accelerated during the global energy crisis

Based on 2024 USD rates, global investments in renewable power have grown from USD ~377 billion in CY2017 to USD ~760 billion in CY2024, registering a CAGR of ~10.51%.

As there is a push for renewables in large markets such as USA, China, Europe and India, higher capacity additions are expected in solar and wind power sectors. As a result, CY2024 saw ~USD 760 billion of global investments in renewable power. Advanced economies (39%) and China (45%) remain the largest markets for renewable power, but 2024 saw solar investment accelerate in emerging market and developing economies such as India, the Middle East and North Africa and Central Asia.

Global investments in renewable power (CY2017-2025)



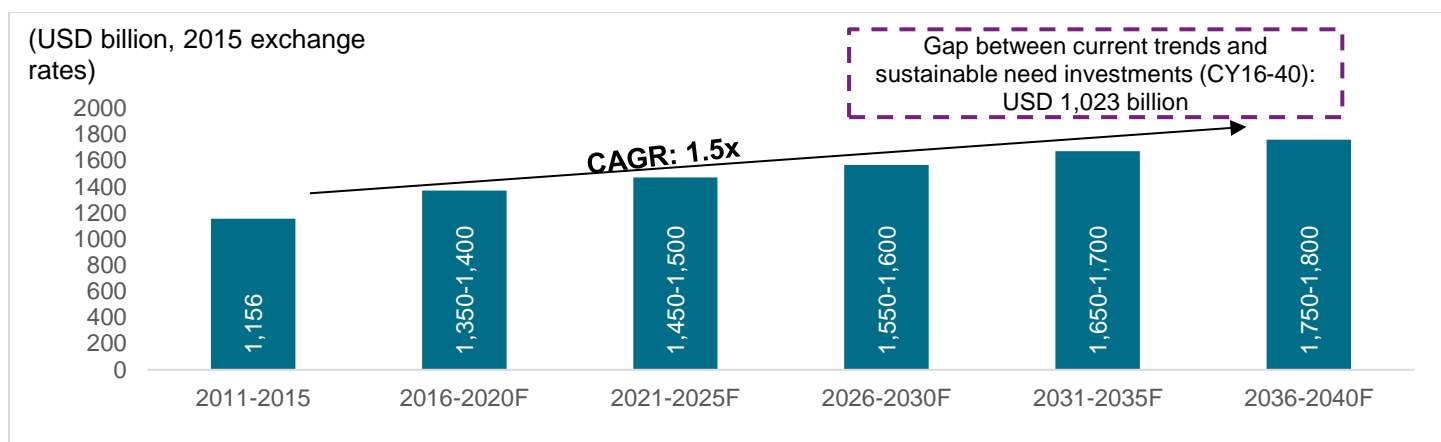
Note: E stands for estimated; all numbers based on 2024 USD rates
Source: IEA, Crisil Intelligence

Overview of global investments in telecommunication & transport infrastructure and growth outlook

Average annual investment in telecommunication sector to increase from USD 233 billion in CY10-15 to USD 314 billion in CY16-40 leading to higher requirement of power & electric equipment

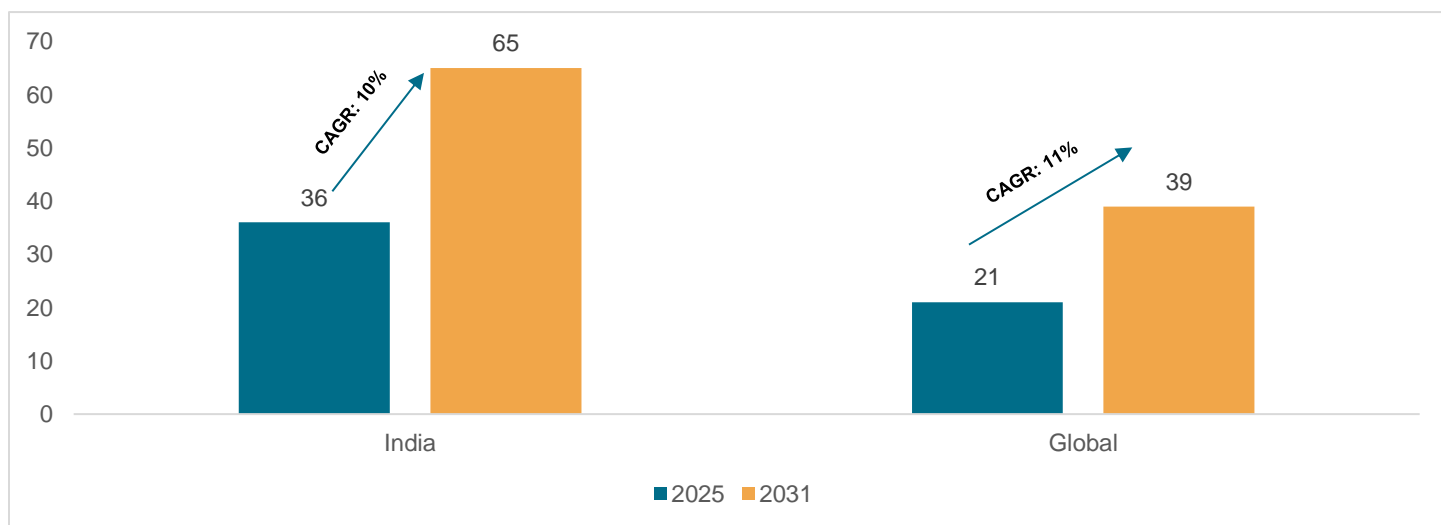
As per G20 Global Infrastructure Outlook Report, global investments in the telecommunication sector increased from USD 240 billion in CY10 to USD 296 billion in CY15 at a CAGR of 4.3%. Average annual spending was USD 233 billion during these years. Based on current trends, cumulative investments in the sector will be ~USD 7,838 billion (CY16-40) recording an average of USD 314 billion. Based on investment needs to achieve sustainable development goals, investments between CY16 and CY40 should be ~USD 8,861 billion, at an annual average of USD 354 billion.

Global telecommunication infrastructure spending



Note: All numbers based on 2015 US dollar prices and exchange rates; forecasts based on current trends given in Global Infrastructure Outlook by G20
Source: G20 Infrastructure Outlook, Crisil Intelligence

Mobile data traffic per active smartphone¹ (GB per month)



Note: 1). Traffic per active smartphone refers to all traffic generated by that device, regardless of number of subscriptions attached
Source: Ericsson mobility report November 2025, Crisil Intelligence

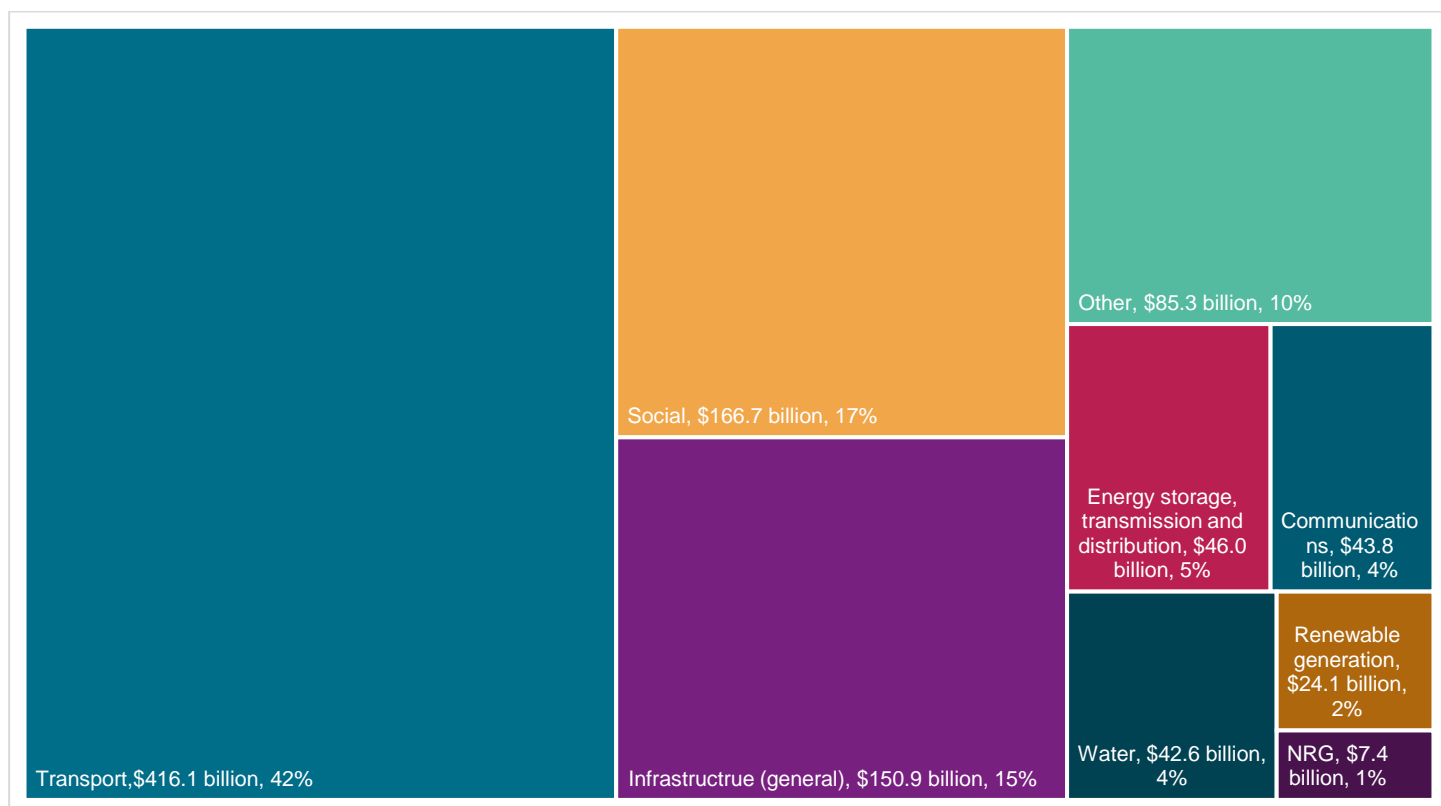
Globally digital transformation is evolving faster. The average mobile data traffic per active smartphone (is projected to grow from 21 GB per month in CY25 to around 39 GB per month in 2031. Additionally, 5G is expected to become the dominant mobile access technology by subscription in 2028. Global 5G subscriptions¹ are forecast to reach close to 5.6 billion in CY29, making up 60 percent of all mobile subscriptions at that time.

India witnessed a surge in internet users over the past few years, internet penetration as a percentage of total population was ~69% in fiscal 2025, compared with less than 20% in fiscal 2015. Crisil Intelligence expects the number of internet subscribers to reach 990-1010 million by fiscal 2026, resulting in ~71% internet penetration. By fiscal 2026, a majority transition of 3G data services to 4G and 4G to 5G technology is expected. This can be attributed to increased demand for data, competitive pricing of 4G services, early conversion to 5G, and availability of affordable handsets. Consequently, narrowband is expected to decline as better speeds are available to users at lower price points.

G20 economies invested the most in transport infrastructure in 2022

Transport infrastructure commands the largest share among public investments in infrastructure at 42% amounting to USD 416.1 billion reflecting the G20 countries' emphasis on improving mobility and trade logistics. Social infrastructure accounting for 17% highlights the growing investments in education, healthcare and housing sectors crucial for long term human capital development, general infrastructure follows closely at 15%. The focus on energy storage, transmission and distribution (5%) and renewable generation (2%) suggest a gradual transition towards cleaner energy systems. Meanwhile allocations to water communications and other sectors show that G20 nations are also addressing critical support systems for sustainability and connectivity.

Share of public investment in infrastructure segments by G20 economies (CY22)



Note: NRG – Non-renewable generation

¹ As per Ericsson Mobility report, 5G subscription is counted as such when associated with a device that supports New Radio (NR), as specified in 3GPP Release 15 and is connected to a 5G-enabled network.

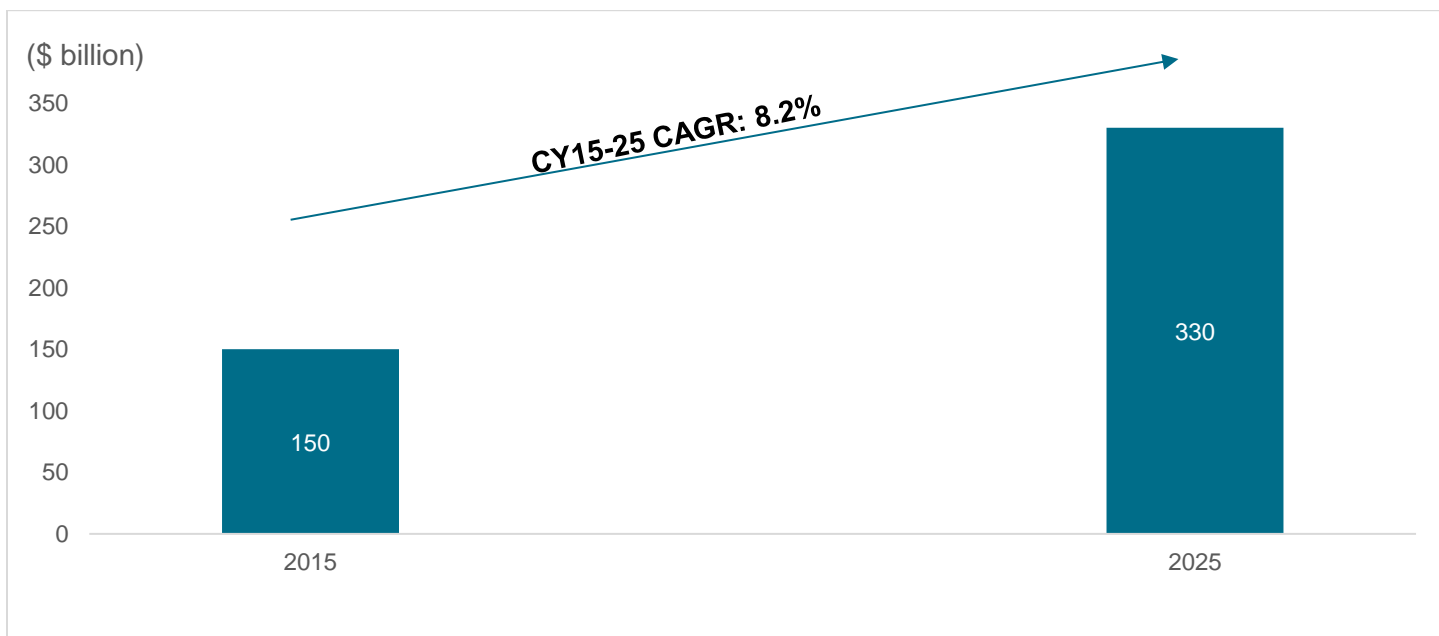
Source: Global Infrastructure Hub, World Bank, Crisil Intelligence

Electrification drives growth in transport investment

Global investment in transport has undergone a significant transformation over the past decade, with total investment more than doubling and estimated to reach USD 330 billion by CY25. The primary catalyst behind this remarkable growth is the electrification of transport, particularly electric vehicles (EVs), which account for approximately USD 175 billion of the total investment. Rail electrification also plays a substantial role, with investments totalling nearly USD 35 billion in CY25. Notably, around 60% of all transport investment worldwide is now directed towards electrification, with regional disparities evident. China and Europe are leading the charge, with virtually all their transport sector investments focused on electrification, while North America allocates over 75% of its transport investment towards this goal. The shift towards electrification inherently brings about efficiency gains, but other technological advancements in energy efficiency are also contributing to the investment landscape. For instance, investments in more fuel-efficient vehicles, such as replacing outdated models with cutting-edge alternatives that offer the same services while consuming less energy, are becoming increasingly prominent in the road and rail sectors. These energy-efficiency investments are primarily driven by the adoption of more efficient vehicles, which are revolutionizing the transport sector and paving the way for a more sustainable future.

Parallely railway infrastructure has witnessed renewed momentum as governments strive to enhance sustainable mobility. Significant capital has been channelled into modernizing existing railway lines, expanding metro rail and suburban networks and adopting electrified and high-speed rail corridors to reduce urban congestion and carbon emissions. Notably the World Bank has actively supported such initiatives with Turkey getting a USD 660 million project which aims to electrify 660 kilometres rail corridor boasting freight capacity from 750,000 tons to 20 million tons annually and reducing emissions by over 72,000 tonnes of carbon annually. Additionally, the world bank approved a USD 245 million investment for India in 2022 which supports India's efforts to modernize rail freight and logistics infrastructure. These investments reflect a holistic shift towards low carbon efficient public mobility systems that cater to both intercity travel and last mile connectivity.

Global transport investments (CY15-25) (USD billion)

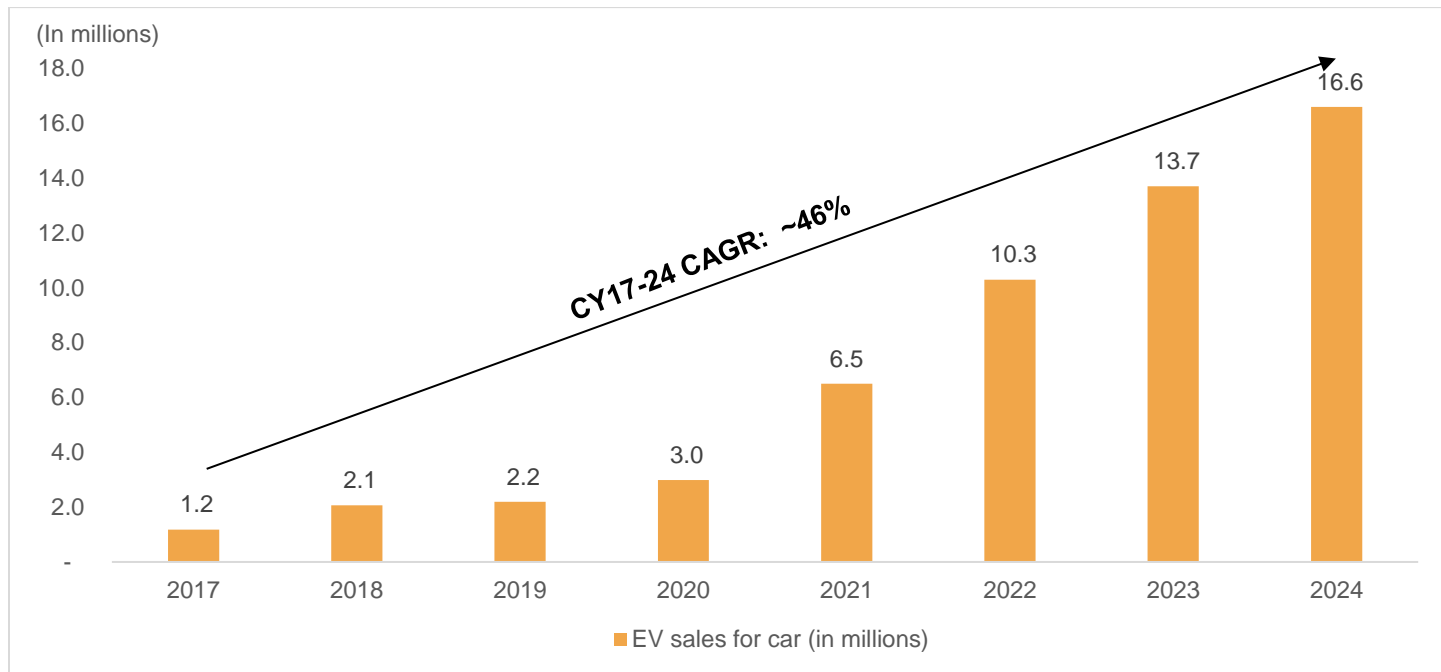


Source: World Energy Investment 2025, IEA, Crisil Intelligence

Global sales of electric cars neared ~17 million in CY24, more than 20% of new cars sold worldwide

Electric car sales in CY24 reached ~16.8 million units which was 3.1 million higher than in CY23, a 21% year-on-year increase. This indicates robust growth even as many major markets enter a new phase, with uptake shifting from early adopters to the mass market. The vast majority of electric car sales in CY24 were in China (61%), Europe (20%) and the United States (10%).

Global sales of electric cars (CY17-24)



Source: IEA, Crisil Intelligence

Global trends in power sector

Parameters	Overview
Decarbonization	The power sector is undergoing a significant transformation towards decarbonization, driven by the need to reduce greenhouse gas emissions and mitigate climate change. This trend is characterized by a shift away from fossil fuels and towards renewable energy sources such as solar, wind, and hydroelectric power, as well as the integration of energy storage and grid management technologies to ensure a stable and reliable supply of electricity.
Digitization	The increasing use of digital technologies such as advanced sensors, smart grids, and data analytics is enabling real-time monitoring and control of energy distribution, consumption, and generation. This trend is improving the efficiency and reliability of the power system, while also enabling new business models and services such as demand response and energy storage.
Electrification of Transportation	The growing adoption of electric vehicles (EVs) is driving a significant increase in electricity demand, with many countries setting targets for EV penetration and investing heavily in charging infrastructure. This trend is expected to continue, with EVs becoming an increasingly important component of the power sector.

Parameters	Overview
Grid Modernization	Power grid modernization, is driven by the need to integrate distributed energy resources, manage peak demand, and ensure grid resilience. This trend is characterized by the adoption of advanced grid management technologies such as smart inverters, energy storage, and grid-scale batteries, as well as the development of new business models and regulatory frameworks to support the integration of distributed energy resources.
Renewable energy Integration	The increasing penetration of renewable energy sources such as solar and wind is one of the key trends in the power sector, with many countries setting ambitious targets for renewable energy adoption. This trend is driving innovation in technologies such as solar panels, wind turbines etc. as well as the development of regulatory frameworks to support the integration of renewable energy into the grid.

Source: Crisil Intelligence

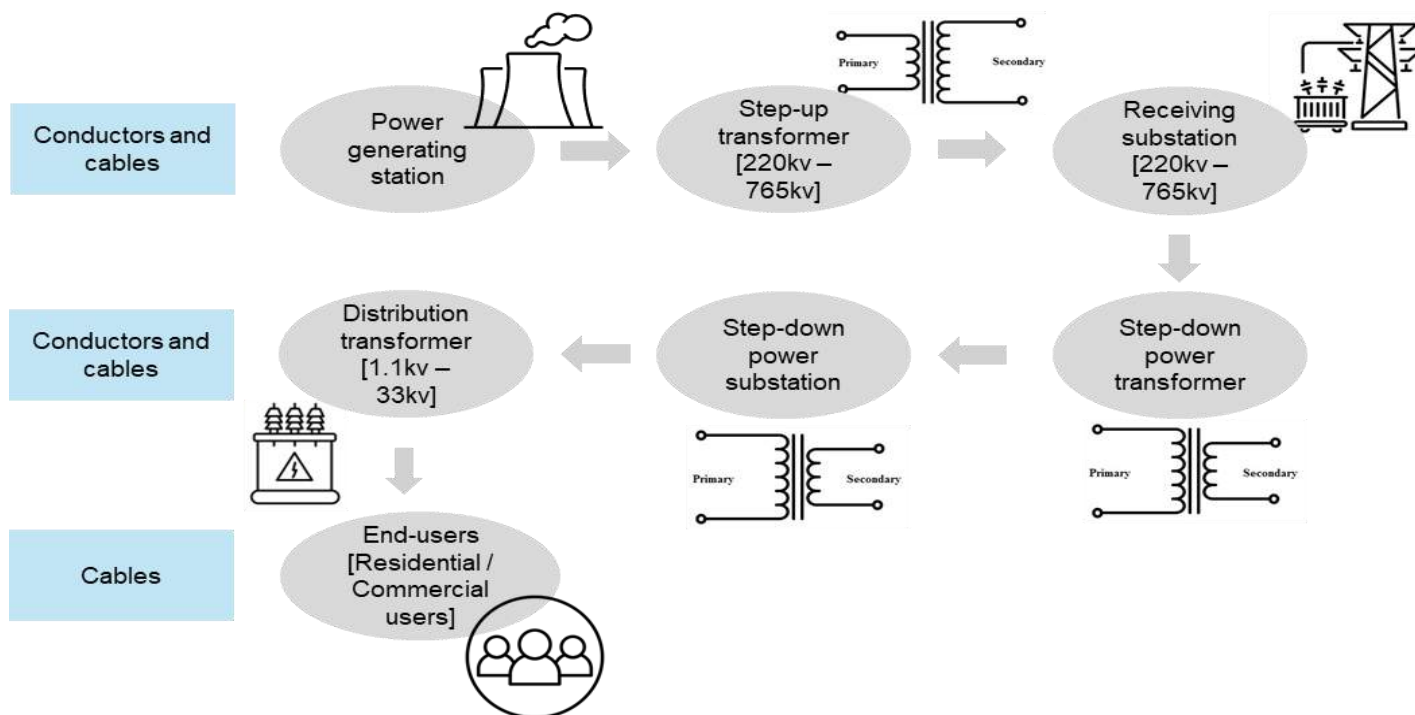
3. Assessment of Indian electrical wires and cables, power conductors and signal cables industry

The Indian electrical wires and cables, power conductors, and signal cables industry has witnessed significant growth in recent years, driven by increasing demand from various sectors such as infrastructure, construction, and telecommunications. As the country continues to urbanize and industrialize, the need for reliable and efficient electrical infrastructure has become paramount. This section provides an assessment of the Indian electrical wires and cables, power conductors, and signal cables industry

Value chain of the power sector

The power sector value chain comprises three segments - generation, transmission, and distribution. Electricity is generated at a power plant from where it is transmitted through conductors to the nearest grid with the help of step-up transformers. From there, it is transmitted through conductors to the state grid with the help of step-up or step-down transformers. This power is then transmitted to a power sub-station, which marks the end of the transmission segment. In the final segment, which is distribution, the voltage is further stepped down to medium and low voltage levels, and the power is transmitted from the sub-station to the end consumers, such as households, businesses, and industries, through a network of distribution lines, substations, and transformers, ultimately delivering electricity to the final users.

Power transmission and distribution chain



Source: Crisil Intelligence



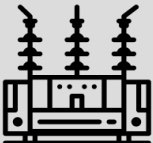
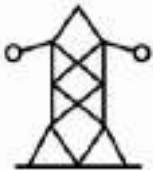


Key differences between cables and conductors

The table highlights the key differences between cables and conductors across various parameters. While conductors are suitable for specific applications like electrical wiring, transmission lines, motor control etc. cables offer greater flexibility, durability, and signal integrity, making them a preferred choice for many industries like, telecommunications, transportation, aerospace etc.

Parameters	Cables	Conductors
Definition	A cable is a collection of two or more wires or conductors bundled together, often with insulation and protective covering.	Conductor is made of strands of conducting material such as aluminium or copper through which power is transmitted.
Insulation	Cables have multiple layers of insulation to protect against electrical shock and environmental factors.	Conductors may have a single layer of insulation or none at all, depending on the application.
Current carrying capacity	As cables are insulated and when bundled, the heat dissipation is reduced leading to lower current carrying capacity for the same conductor size.	Conductors can dissipate more heat easily and hence have higher current carrying capacity.
Cost	Cables are generally more expensive than conductors due to the additional materials and manufacturing complexity. Moreover, they generally have higher profit margins due to added value from insulation, shielding and other complex manufacturing processes.	Conductors are often less expensive, as they require fewer materials and simpler manufacturing process.
Durability	Cables are designed to withstand environmental factors such as temperature, moisture, and mechanical stress.	Conductors are more susceptible to environmental factors, requiring additional protection and maintenance.
Interference protection	Cables are designed with shielding and twisting of pairs to protect against electromagnetic interference (EMI), ensuring minimal signal or power disruptions in electrically noisy environments.	Conductors can be prone to EMI, particularly over long distances or in noisy environments.
Suitability for larger distance	Cables are suitable for longer distances in controlled environments as they offer insulation, shielding, and protection against voltage drops, signal loss and environmental damage.	Conductors may suffer from higher energy loss over long distances due to lack of insulation and exposure to environmental factors, unless used with additional infrastructure like transmission towers or insulators.

Source: Industry, Crisil Intelligence

Types of cables and conductors used across the power sector value chain

Value chain	Required features	Cables	Conductors
 Power generation	High-temperature resistant with high current carrying capacity and robust insulation, able to withstand harsh environmental conditions and mechanical stress	<ul style="list-style-type: none"> MV insulated cables (XLPE/EPR, 11-33 kV) 	<ul style="list-style-type: none"> Copper busbars and station wiring Bare copper conductors in busbars and grounding systems
 HV transmission	Extra High-voltage cables/conductors with low loss and high current carrying capacity, able to transmit power over long distances with minimal energy loss and withstand extreme weather conditions	<ul style="list-style-type: none"> XLPE-insulated EHV cables (132/400Kv) 	<ul style="list-style-type: none"> HTLS overhead conductors, ACSR, AAAC, AAC Etc.
 Sub stations	Reliability, mechanical strength, effective insulation for safe switching and load balancing	<ul style="list-style-type: none"> XLPE/EPR insulated cables (up to 66 kV) Control cables 	<ul style="list-style-type: none"> Copper or aluminium busbars ACSR or AAC conductors
 MV Distribution	Medium voltage insulation, flexibility, mechanical strength, underground/overhead suitability	<ul style="list-style-type: none"> XLPE/EPR insulated MV cables (11–33 kV) 	<ul style="list-style-type: none"> AAAC or ACSR conductors for overhead MV lines
 LV Transmission	Low voltage insulation, high flexibility and durability, resistance to frequent connections/disconnections, underground/overhead installations	<ul style="list-style-type: none"> PVC insulated LV cables (0.6/1 kV) LV aerial bundled cables steel wire armoured cables 	<ul style="list-style-type: none"> Bare or insulated copper/aluminium conductors
 End users	Safe final delivery, thermal stability, insulation quality for domestic/industrial use	<ul style="list-style-type: none"> PVC/XLPE insulated flexible cables House wiring cables 	<ul style="list-style-type: none"> Copper/aluminium conductors

Note: The examples provided in the above table is only an indicative list and not exhaustive

Source: Crisil Intelligence

Introduction to electrical wires and cables

Electrical wires and cables are essential components used for transmitting electricity, data, or signals. While a wire typically consists of a single conductor, a cable is an assembly of one or more conductors, often insulated and bundled together. There are various types and varieties of cables, each designed to perform a specific function. Classification is based on the core structure of the conductor metal (majorly copper and aluminium), number of cores, type of insulation material and arrangement, etc.

Power and electrical cables are segmented into the following, based on voltage capacity

Category	Voltage Capacity
Low Tension / Voltage (LV)	Generally, below 3.3kV
High & Medium Tension / Voltage (HV)	Generally, between 3.3KV to 33.0kV
Extra High voltage (EHV)	Generally, above 33 KV

Source: Crisil Intelligence

Major uses of power cables are in the power sector (central, state and private electricity utilities) and sectors like petrochemicals, mining, steel, non-ferrous, shipbuilding, cement, railway, and defence.

The performance and durability of cables depend on the quality of raw materials. Specialized applications require superior chemical, mechanical, thermal and electrical performance from cables, resulting in usage of high-performance materials in cable built and manufacturing process. Additionally, it is seen that in order to achieve properties suited for varying applications, every cable has a distinguished construction. In India, the cables and conductors' industry are constrained by the raw material price risk and stiff competition.

The number of SKUs of cables and wires are very high, with 500-600 fastest selling SKUs, differing in application and offering variation in cross-sectional area (size), number of cores used, core material (mainly copper or aluminium), insulation material used, armoured or unarmoured construction for strength, etc.

Type of cables and its applications

Types of cables	Description	Applications
Railway signal cables	Railway signal cables are specialized cables designed to provide reliable and safe transmission of signal information for railway operations. These cables are designed to withstand harsh environmental conditions, such as extreme temperatures, vibration, and moisture, and are used to control and monitor railway signals, track circuits, and other safety systems.	Used in railway signalling systems to control and monitor train movements, track circuits, and other safety systems, ensuring safe and efficient railway operations.
Building Wires	Building wires are usually made up of copper and aluminium. These are majorly used in residential settings and their carrying capacity/voltage depends on their end use.	Commonly used in everyday household items like for connecting household appliances, power outlets, etc.
Communication Cables	Communication cables are specifically designed to support data transmission across distance at high speed and minimal loss. Examples include, LAN cables, Optic fibre cables, etc.	Used for transmission of data/ voice/ video signals at high speed without major energy loss.
Control and Instrumentation cables	Control and Instrumentation cables are generally used in industrial settings to carry low voltage signals with high accuracy. These cables are properly shielded to ensure no external signal interference and are mainly used to monitor/ control electric systems. The functions of measurement and control are vital in manufacturing and processing applications.	Few of the applications include industrial equipment control, process controls, for e.g. in oil and gas or chemical plants, or mass transit systems which require cables to be heat resistant, resistance due to harsh environment and chemicals, etc.
Power Cable	A power cable is an assembly of two or more conductors with insulation and a protective jacket. The power cables industry is classified into low voltage (3.3 kV and below), medium voltage and high voltage (3.3-33.0 kV), and extra high voltage (33 kV and	Transmission and distribution of electricity in mainly commercial and industrial settings

Types of cables	Description	Applications
	above) cables. These cables are predominantly used in sub-transmission and distribution of power.	
Other special cables	This class of cables includes cables that are especially designed for a particular end use/ industry due to particular requirements. These types of cables are usually provided as customized solutions against stringent requirements, including temperature, tensile strength, and chemical resistance. For example, Solar cables, which are required to have lifetime reliability of up to 30 years, resistance to extreme temperatures (-40°C to 120°C), ozone, and ultraviolet (UV), halogen free, flame and fire retardancy, etc.	Multiple specialized applications including sonar detection, mine sweeping and defense purposes across industries like marine, defense, aerospace, etc.

Source: Crisil Intelligence

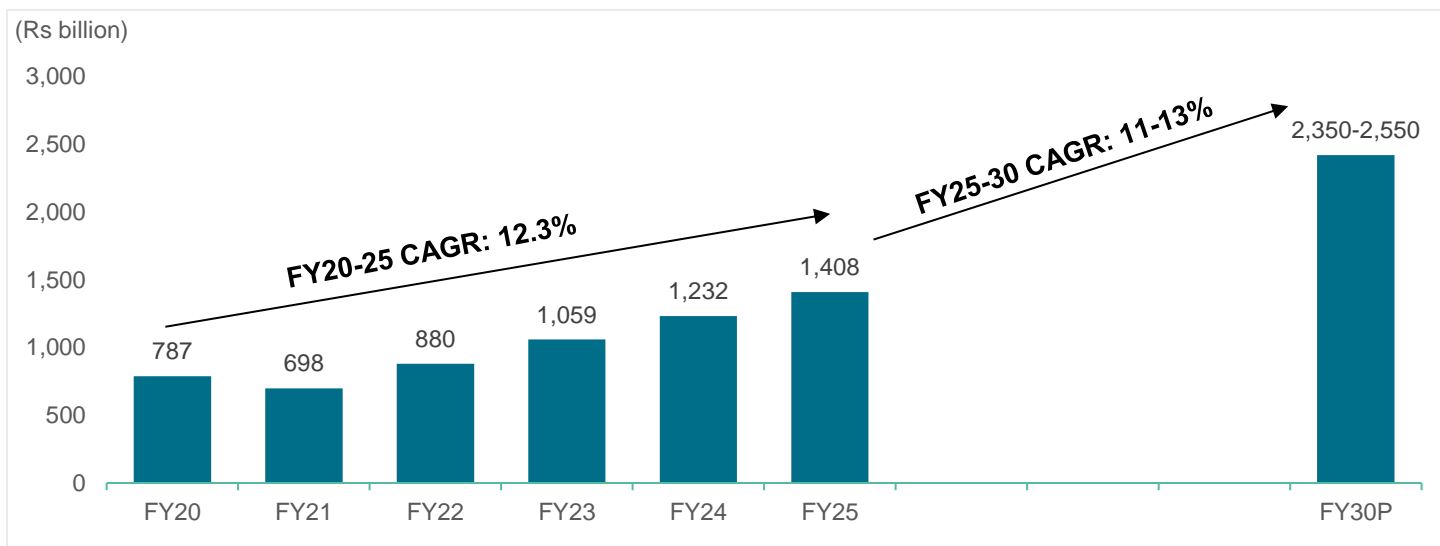
Overview of India wires & cables market

India wires & cables market to grow at 11-13% CAGR between FY25-30

In FY25, cables and wire market were valued at ~Rs 1,408 billion, up from Rs 787 billion in FY20, registering a CAGR of 12.3%. This notable surge can be primarily attributed to a remarkable growth of High Voltage (HV) & Extra-High Voltage (EHV)- Above 33 KV cables and Elastomeric Cables also known as rubber cables, are a type of electrical cable that uses an elastomer (a flexible, rubber-like material) for insulation and/or sheathing, which have registered exponential growth on the back of increased expansion of transmission lines and electrification initiatives in rural areas. Other cable categories contributing substantially to the accelerated market growth include PVC Control Cables & Instrumentation, building wires, and switchboard cables, driven by pickup in construction activities in both commercial and residential sectors post COVID-19.

Moving forward, Crisil Intelligence expects the wires and cables market size to grow at a CAGR of 11-13% between FY25 and FY30 and reach Rs 2,350 billion - Rs 2,550 billion by FY30 due to ongoing infrastructure development projects, surge in construction activities and increasing digital connectivity, railway electrification, smart grid investments and export demand.

Market size of wires and cables in India



Note: The market size estimates for the Indian wires and cables sector have been updated by CRISIL Limited from the data included in its previous report titled 'Assessment of cables, conductors industries and investments in power sector in India' dated September 2025. These revisions are pursuant to a change in methodology adopted by Indian Electrical & Electronics Manufacturers' Association (IEEMA) for certain product categories as well as consequential recalibration by CRISIL Limited of its estimation framework, including refinement of the organised-unorganised market split. Pursuant to

these changes, certain historical organised-market size and implied growth have been revised, which may affect previously reported figures and growth rates. The revised estimates are based on triangulation with industry participants and external data sources that intend to provide a more accurate and consistent view of current market trends.

Source: IEEMA, Crisil Intelligence

Cables and wires production crossed 20 million km in FY25

In FY25, cables and wire production in India crossed 20 million km, up from 16 million km in FY19, registering a CAGR growth of 4.0%. Out of the 20.2 million km, cables accounted for ~8.1 million km in FY25. Major factors contributing to this growth included an overall upswing in exports, favourable government initiatives such as the REC, rural electrification programs and demand stemming from various segments. Notably, the production of High Voltage (HV) and Extra-High Voltage (EHV) cables (Above 33 KV) registered a strong CAGR of 36.9% from FY19 to FY25, primarily due to increased investments in power transmission infrastructure and ambitious grid modernization projects supporting renewable energy integration. Medium Voltage (MV) and High Voltage (HV) (3.3 – 33KV) benefitted from ongoing electrification and industrial and urban expansion, as well as upgrades in distribution networks to meet rising demand and enhance reliability. Elastomeric cables saw a CAGR of 6.3% from FY19 to FY25 driven by their adoption in specialized, demanding environment across heavy engineering, automotive, railways and infrastructure where flexibility, heat resistance and durability are critical requirements. The post-pandemic recovery in construction activity has simultaneously bolstered demand for building wires and switchboard cables, as rapid urbanization and infrastructure projects surged.

Collectively, the growth momentum for specialty product segments is underpinned by strategic sectoral investments, evolving industry requirements, technological advancements, and a supportive policy environment all contributing to the sector' expansion.

Total production of cables and wires

Production (in '000 kms)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	CAGR FY19-25
LV (PVC & XLPE Cables) – below 3.3 kV	726	617	478	472	567	645	736	0.2%
MV & HV- 3.3 to 33 kV	52	49	54	49	57	97	118	14.6%
EHV- Above 33 kV	2	6	3	3	5	9	11	36.9%
Control and instrumentation cables	756	626	543	598	758	845	740	-0.4%
Elastomeric cables	179	165	158	158	200	203	258	6.3%
Jelly filled cables	181	129	84	86	47	53	34	-24.3%
Switchboard cables	982	890	781	834	1,041	1,035	1,154	2.7%
Building wires	9,818	8,966	7,793	8,685	10,951	11,368	11,998	3.4%
Flexible cables	3,326	3,265	3,056	3,519	4,243	4,955	5,212	7.8%
Total Production (in '000 kms)	16,021	14,713	12,950	14,404	17,870	19,209	20,261	4.0%

Note: The market size estimates for the Indian wires and cables sector have been updated by CRISIL Limited from the data included in its previous report titled 'Assessment of cables, conductors industries and investments in power sector in India' dated September 2025. These revisions are pursuant to a change in methodology adopted by Indian Electrical & Electronics Manufacturers' Association (IEEMA) for certain product categories as well as consequential recalibration by CRISIL Limited of its estimation framework, including refinement of the organised–unorganised market split. Pursuant to these changes, certain historical organised-market size and implied growth have been revised, which may affect previously reported figures and growth rates. The revised estimates are based on triangulation with industry participants and external data sources that intend to provide a more accurate and consistent view of current market trends

Production data of Elastomeric cables is in core kilometres

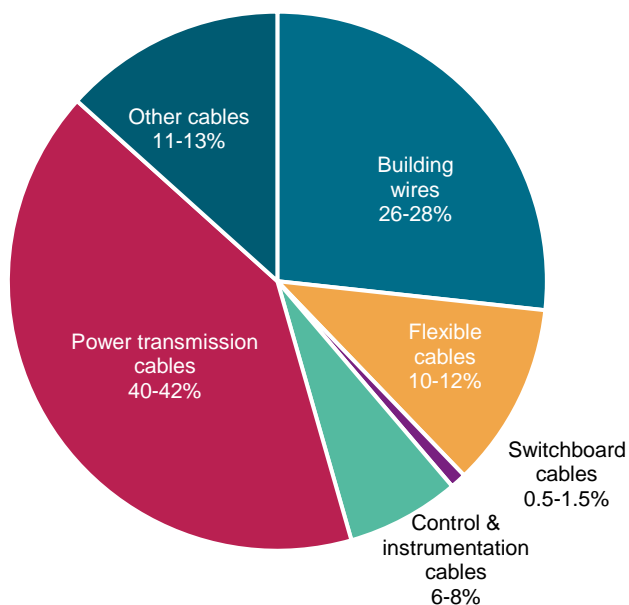
LV-PVC: Low Voltage Polyvinyl Chloride

XLPE: Cross-Linked Polyethylene

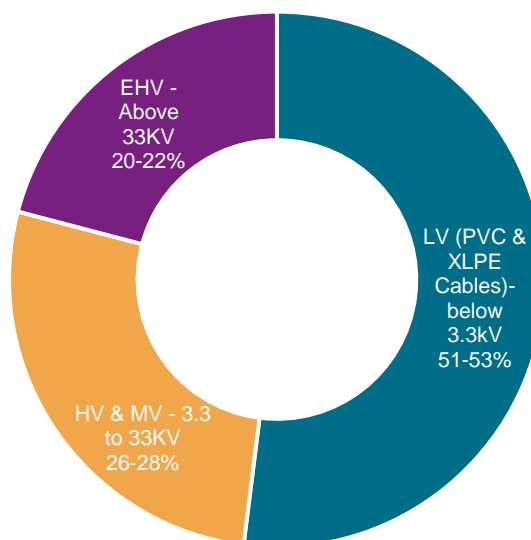
MV: Medium Voltage
 HV: High Voltage
 EHV: Extra-High Voltage
 Source: IEEMA, Crisil Intelligence

Power transmission cables formed the highest market share in FY25 in value terms

Segment wise split of cables and wires market (FY25)



Segment wise split of power transmission cables (FY25)



Note: The market size estimates for the Indian wires and cables sector have been updated by CRISIL Limited from the data included in its previous report titled 'Assessment of cables, conductors industries and investments in power sector in India' dated September 2025. These revisions are pursuant to a change in methodology adopted by Indian Electrical & Electronics Manufacturers' Association (IEEMA) for certain product categories as well as consequential recalibration by CRISIL Limited of its estimation framework, including refinement of the organised–unorganised market split. Pursuant to these changes, certain historical organised-market size and implied growth have been revised, which may affect previously reported figures and growth rates. The revised estimates are based on triangulation with industry participants and external data sources that intend to provide a more accurate and consistent view of current market trends

Source: IEEMA, Crisil Intelligence

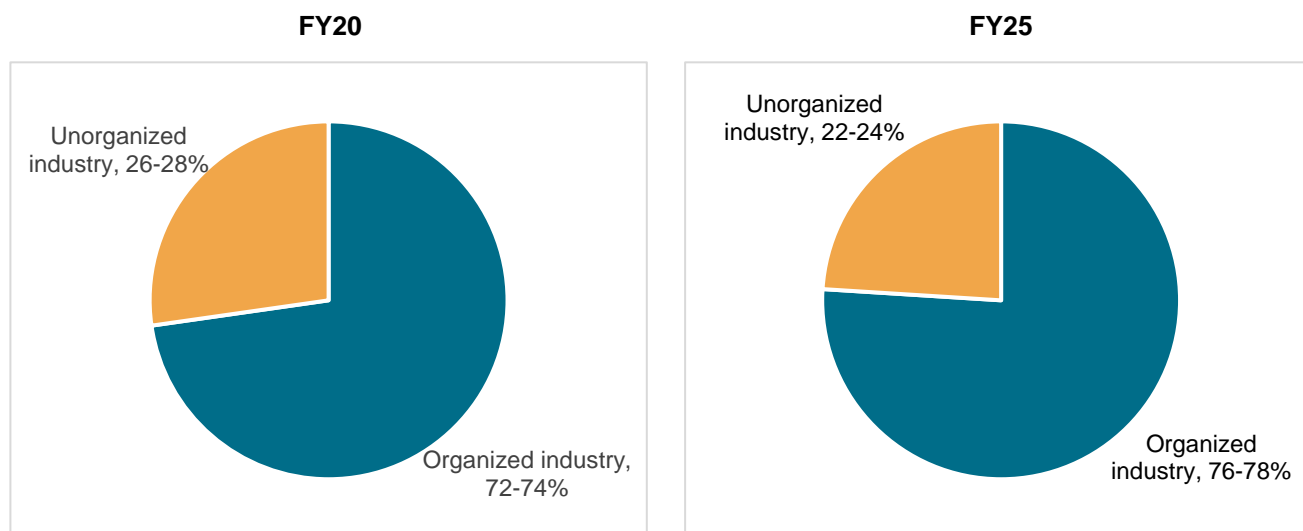
In FY25, power transmission cables formed the highest market share in the overall domestic cables and wire industry at 40-42%, followed closely by building wires at 26-28%.

Within power transmission cables, Low Voltage Polyvinyl Chloride (LV-PVC) and Cross-Linked Polyethylene (XLPE) Cables had the highest share of 51-53%, followed by HV and MV (3.3 to 33 KV) at 26-28% and EHV (above 33 KV) at 20-22%.

The presence of high share of power transmission cables is owing to favourable government initiatives in power segment like rural electrification schemes, railway electrification, etc.

Additionally, increasing construction spends in building segments coupled with growing Fast-Moving Electric Goods (FMEG) industry is contributing to the demand of building wires

Organized players dominate the overall domestic cables and wires industry



Source: IEEMA, Crisil Intelligence

The share of organized players has improved between FY20 and FY25 from ~72-74% to 76-78%. Consequently, share of unorganized industry has dropped from 26-28% in FY20 to 22-24% in FY25.

Additionally, within the overall industry, share of organized players is relatively higher in cables like power transmission cables.

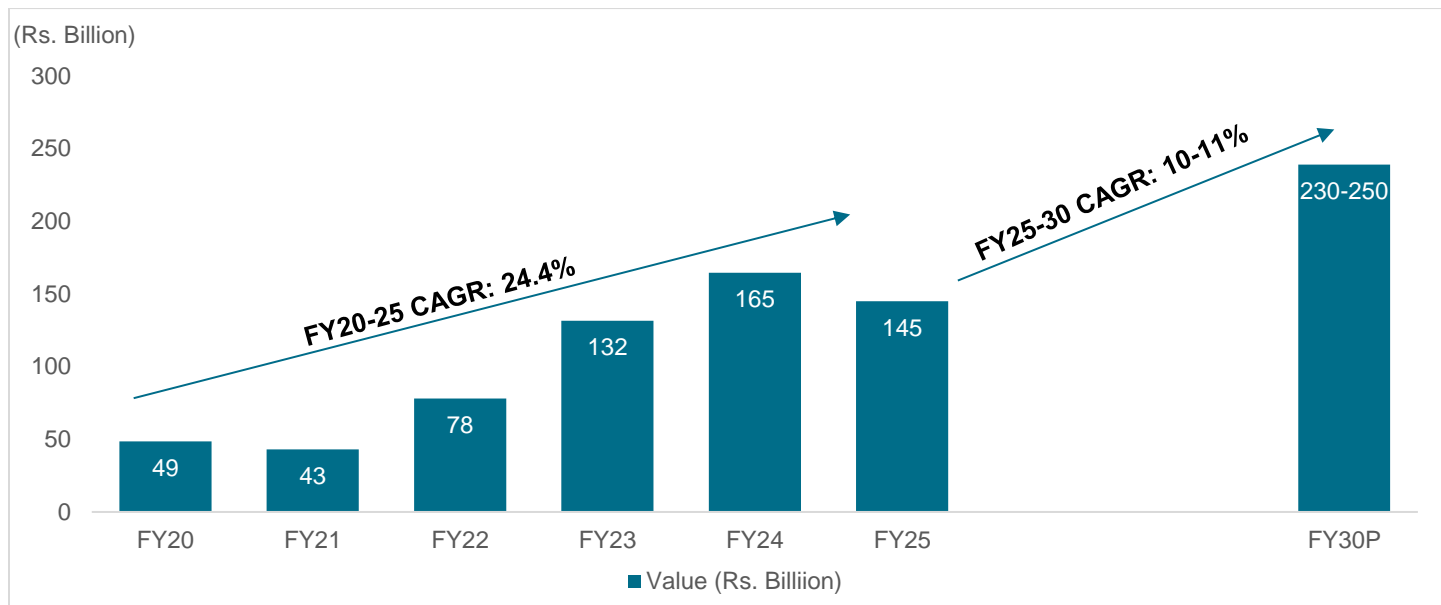
Moving forward, the share of organized players is expected to increase further as the industry consolidates.

Exports of wires & cables to grow at a CAGR of 10-11% between FY25-30

The exports of wire and cables grew to ~Rs 145 billion in FY25, marking a substantial increase from Rs 49 billion in FY20 and registering a CAGR of 24.4%. This growth can be principally attributed to heightened international demand stemming investments in transmission projects by organizations like International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD). Some of the key export partners for wires and cables in FY25 include Saudi Arabia, USA, UAE, UK, Australia, etc. Export destinations for wires and cables among African countries was led by Nigeria, South Africa, Liberia, Tanzania, Kenya etc.

Moving forward, Crisil Intelligence expects cables and wires export to moderate and grow at a CAGR of 10-11% between FY25-30 and reach Rs 230-250 billion in FY30.

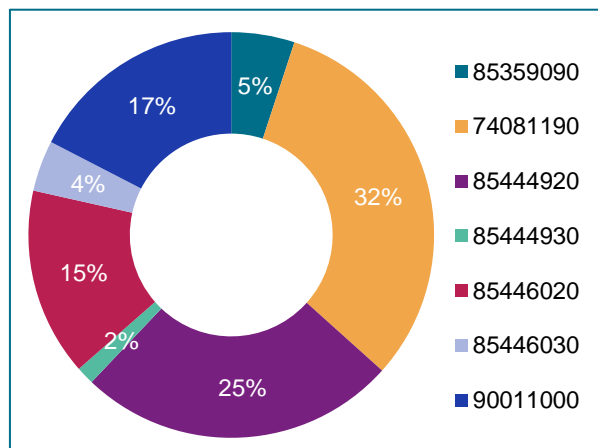
Export value for wire and cables



Note: Crisil Intelligence has considered following HSN codes for the analysis of wires and cables exports from India- 74081190, 85359090, 85444920, 85444930, 85446020, 85446030, 90011000. These include copper wires, plastic insulated conductors, optical fibres, etc.

Source: Ministry of Commerce & Industry, Crisil Intelligence

HS code wise share of export of wires and cables for FY25



Export Code	Description
74081190	OTHR COPPR WIRE WTH MAX CRS-SEC DIAMTR>6MM
85359090	OTHERS
85444920	PLSTIC INSLTD CNDCTRS FR <= 1000V NOT FITTED WITH CONNECTORS
85444930	RUBBER INSLTD CNDCTRS FR <= 1000V USED FOR NOT FITTED WITH CONNECTORS
85446020	PLASTIC INSLTD CNDCTRS FR VLTGE >1000 V
85446030	RUBBER INSLTD CNDCTRS FR VLTGE >1000 V
90011000	OPTCL FIBRS, OPTICAL FIBRE BUNDLES AND CABLES

Source: Ministry of Commerce & Industry, Crisil Intelligence

Demand for wires & cables expected to grow from renewables sector due to planned capacity expansions

The solar power sector is poised for significant growth, with Crisil Intelligence forecasting a surge in capacity additions to 140-160 GW from fiscal years 2026 to 2030 significantly surpassing the 78 GW added between fiscal years 2020 and 2025. This substantial increase is driven by robust government support, technological advancements (e.g., floating solar and module efficiency), and affordable financing. As the solar industry continues to expand, the demand for specialized solar cables is expected to rise in tandem. These cables play a crucial role in connecting solar panels to the electrical grid, withstanding harsh weather conditions, UV exposure, and high electrical loads. With the Indian government's emphasis on renewable energy and initiatives to promote solar projects, the solar cables industry is likely to experience remarkable growth, driven by the need for reliable and efficient power transmission.

Similarly, the wind power sector is also expected to experience steady growth, with Crisil Intelligence expecting capacity additions of 25-27 GW over FY26 to 2030. This growth is expected to be driven by pipeline build-up under existing schemes, new tendering schemes, and improvements in technology. As wind energy installations increase, the demand for high-quality cables that can withstand challenging environmental conditions, such as exposure to wind, moisture, and temperature fluctuations, will also rise. The need for reliable power transmission from wind turbines to distribution networks will drive the demand for specialized wind cables, which are engineered to provide flexibility, durability, and reliability.

Introduction to conductors

Conductors are materials that allow the flow of electrical current. There are various types of conductors, including All Aluminium Conductors (AAC), All Alloy Aluminium Conductors (AAAC), Aluminium Conductors Steel Reinforced (ACSR) High Ampacity Conductors, AL-59 Alloy Conductors etc. These conductors play a crucial role in transmitting bulk power from generating stations to load centers and industrial consumers, typically at voltage levels of 220 kV and above.

The Transmission system is to deliver bulk power from power stations to the load centres and large industrial consumers beyond the economical service range of the regular primary distribution lines whereas distribution system is to deliver power from power sector or substations to the various consumers.

Major types of Conductors

Conductor	Description
AAC – All Aluminium Conductors	The AAC conductors are used in low and high voltage overhead lines, majorly in urban areas where spans are usually short but high conductivity is required.
ACSR – Aluminium Conductor Steel Reinforced	ACSR conductor is a high-capacity, high-strength stranded conductor typically used in overhead power lines due to its superior conductivity, low weight and low cost.
AAAC – All Aluminium Alloy Conductors	AAAC conductors are made from high strength Aluminium Magnesium-Silicon Alloy, designed to get better strength to weight ratio and offer improved electrical properties, excellent sag-tension characteristics and superior corrosion resistance when compared with ACSR.
ACSS - Aluminium Conductor Steel Support	ACSS conductor is a high-temperature, low-sag stranded conductor typically used in overhead power lines due to its superior heat resistance, high strength and low sag characteristics.
Eco-conductors	ECO conductors are designed to reduce energy losses and minimize environmental impact, offering improved conductivity, lower resistance and enhanced durability, making them suitable for use in eco-friendly power transmission and distribution systems.
MVCC- MV overhead covered conductor	MVCC conductors are designed to improve the reliability of electricity distribution, consisting of a conductor surrounded by an insulating covering to prevent accidental contacts with other conductors or grounded parts, and are suitable for medium-voltage applications between 6.6KV to 33KV.
AECC - Aluminium Encapsulated Carbon Core Conductor	AECC conductors feature a pre-tensioned carbon fiber core protected by a seamless aluminium encapsulation layer, delivering 2-3 times the capacity of ACSR with half the line losses, while maintaining low thermal sag and compatibility with traditional installation methods, making them a cost-effective solution for grid modernization.
OPGW- Optical Ground Wire/ Optical fibre composite overhead ground wire	OPGW is a type of cable/ wire used in transmission lines construction. Additionally, OPGW replacing earth wires expected to create backbone for intercountry high-capacity data transmission across all transmission networks.

Conductor	Description
High ampacity conductors	These conductors are designed to carry a large amount of current without significant voltage drop or overheating. They typically have larger cross-sectional area, which reduces resistance and allows them to carry higher currents safely.
AL-59 alloy conductors	These are alloy conductors of Aluminium + Magnesium + Silica Alloy type. They have high conductivity and hence have less DC resistance and high current carrying capacity.
HPC - High Performance conductors	High Performance Conductor (HPC) is stranded with combination of annealed aluminium or aluminium alloy wires for conductivity and reinforced by core wires. High Performance Conductors are capable of continuous operation at temperatures in excess of 150°C with stable electrical and mechanical properties.
HTLS – High Temperature Low Sag Conductors	HTLS are made from Aluminium Conductor Alloy Reinforced (ACAR) or Aluminium Conductor Steel Reinforced (ACSR) which enhance their mechanical strength and thermal stability as these conductors are designed to operate at temperatures up to 250°C or higher making them ideal for high-voltage transmission lines.

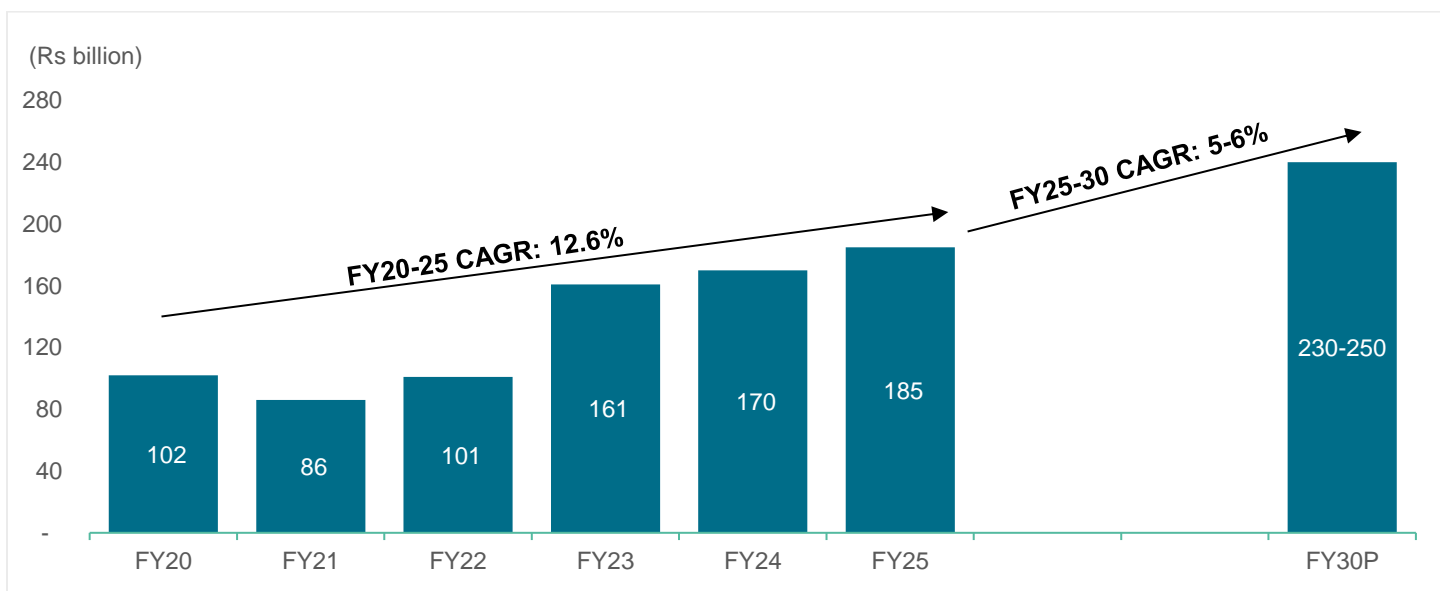
Source: Crisil Intelligence

Market size of conductors to reach ~Rs 230-250 billion by FY30

In FY25, total market size of conductors reached Rs 185 billion up from Rs 102 billion in FY20, registering a CAGR growth of 12.6%. Major factors influencing this demand include railway electrification, reconductoring, healthy transmission line additions, etc.

Moving forward, Crisil Intelligence expects conductor industry to grow at a CAGR of ~5-6% from FY25-30 due to ongoing government schemes in power segment as well increased exports of conductors from India.

Market size: Conductors



Source: IEEMA, Crisil Intelligence

Conductors' production stood at 587,948 MT in FY25

In FY23, conductors' production in India reached 419,653 MT. Newer technology conductors' entry in the market (high ampacity conductors and AL-59 conductors), drop in overall orders and the Covid-19 pandemic saw production of conductors drop between FY20-22.

Volumes recovered in FY23. Major factors contributing to this recovery included an overall upswing in exports, favourable government initiatives such as the REC and rural electrification initiatives fostering demand for conductors, and large planned capacity addition of renewable energy in the country, thereby providing an impetus to the growth of conductors' market in India. Additionally, infrastructure investments in Indian railways, Metros and High-speed rail are expected to grow exponentially, which will further boost the conductor industry. Consequently, the increasing thrust on high-voltage transmission lines will stimulate demand for high-voltage power conductors going ahead

In FY25, production volume of conductors stood at 587,948 MT up ~2% on the back of healthy demand for AL-59 conductors.

Total production of conductors

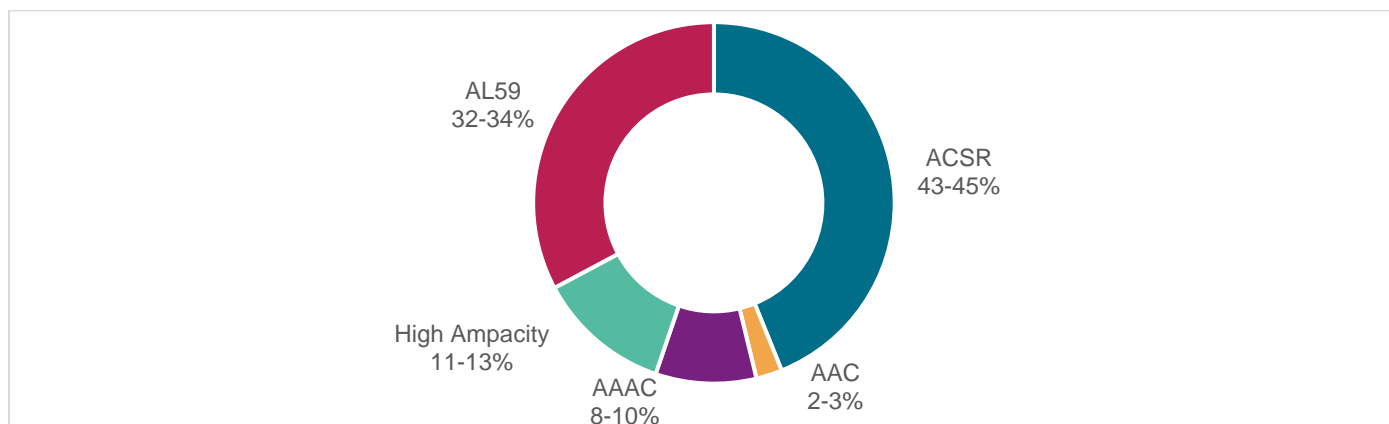
Production	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY19-FY25 CAGR
Conductor volumes (in MT)	517,051	454,805	377,609	282,933	419,653	576,226	587,948	2.2%

Source: IEEMA, Crisil Intelligence

ACSR conductors had the most share of 43-45% in the conductors' market in FY25

The conductor's market in India is dominated by ACSR conductor which accounts for a share of 43-45%. This significant lead can be attributed to its widespread use in overhead power transmission due to its high strength and durability. In comparison, AL59 conductors, which made up 32-34% of the market, are increasingly preferred for their superior conductivity and better corrosion resistance, making them ideal for coastal and high-load regions. The demand for AL59 conductors is further supported by their higher current carrying capacity compared to ACSR, along with improved resistance to thermal expansion, which makes them suitable for long-span transmission. In addition, the market is witnessing a notable rise in the adoption of advanced conductors including high ampacity types which had a share of 11-13% and HTLS conductors as utilities look to boost efficiency, reduce losses, and upgrade transmission corridors. Meanwhile, AAAC and AAC had a share of 8-10% and 2-3% respectively reflecting a shift towards more efficient power transmission solutions.

Segment wise share of conductors (FY25)



Source: IEEMA, Crisil Intelligence

Overview of new age cables and conductors

Cable/ Conductor type	Description	Applications
Covered Conductors	Insulated conductors that reduce power losses and increase safety	Overhead transmission lines, rural electrification, and renewable energy projects. Mainly used for medium voltage applications
AL59 conductors	High-strength, low-weight conductor for high-temperature applications	High-voltage transmission lines, urban power distribution, and industrial power supply. Corrosion resistant properties make it an ideal conductor for coastal regions
Eco Conductors (Solar)	Specialized conductors for solar power plants, designed for high efficiency and durability	Solar power plants, renewable energy projects, and green buildings
High Current Carrying Conductors	Conductors designed to carry high electrical currents, reducing power losses and increasing grid efficiency	High-voltage transmission lines, urban power distribution, and industrial power supply
Special Cables (e.g., fire-resistant, oil-resistant)	Cables designed for specific applications, such as fire safety or oil and gas industries	Industrial power supply, oil and gas refineries, and high-rise buildings
Aluminium Encapsulated Carbon Core Conductor (AECC) conductors	Conductors designed to offer superior thermal stability and minimal sag at temperatures up to 200° C, lightweight and corrosion resistant, AECC enables higher current capacity with reduced line losses, ideal for compact lines, long spans and high reliability corridors.	Reconductoring existing transmission lines to increase power capacity, long distance transmission. The enhanced characteristics are advantageous for utilities seeking to upgrade existing transmission lines without expanding right-of-way or undergoing costly infrastructure overhauls.

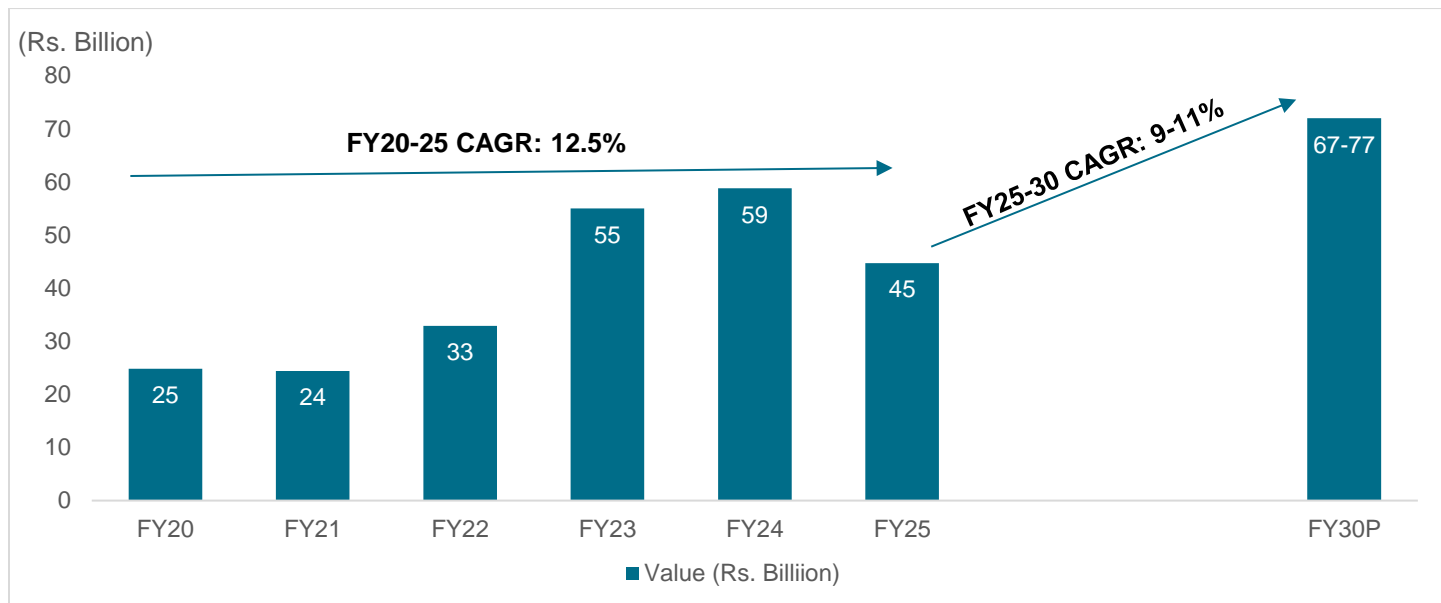
Note: The above list of applications is not exhaustive and only an indicative list
 Source: Crisil Intelligence

Conductors export grew at a CAGR of 12.5% in value between FY20-25

The export demand of power conductors has grown at a CAGR of 12.5% between FY20-25 and reached Rs ~45 billion in FY25 from Rs 25 billion in FY20 due to increased international demand. Some of the key countries to which India exported conductors and its share in total conductor exports in FY25 are USA (23%), Bangladesh (10%), Iraq (10%), Cameroon (7%), Egypt (6%), Nepal (5%), Ghana (5%) etc.

Furthermore, multilateral organizations such as the World Bank and International Bank for Reconstruction and Development (IBRD), are actively involved in funding various power transmission projects in regions including Africa, Central Asia, South, and East Asia, which are further expected to boost the exports of power conductors.

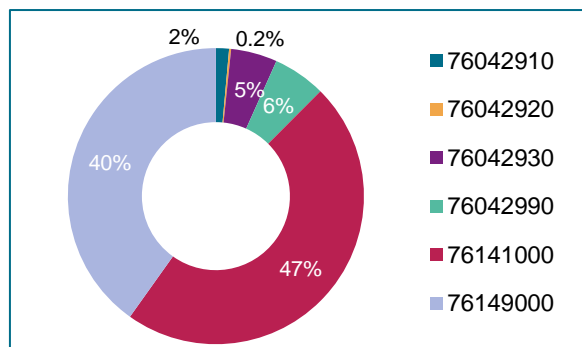
Export value of conductors



Note: Crisil Intelligence has considered following HSN codes for the analysis of conductor's exports from India - 76042910, 76042920, 76042930, 76042990, 76141000, 76149000. These include hard drawn bare Aluminium conductors steel re-in forced, wire rods, stranded wires, cables with steel core, etc.

Source: Ministry of Commerce & Industry, Crisil Intelligence

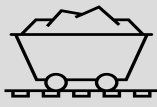
HS code wise share of export of conductors for FY25





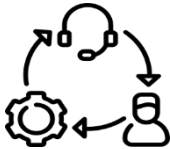
Export Code	Description
76042910	HRD DRWN BARE ALMNM CONDUCTRS STL RE-INFRCD
76042920	OTHER WIRE RODS
76042930	OTHER BARS AND RODS, OTHER THAN WIRE RODS
76042990	OTHR BARS, RODS PROFILS OF ALMN ALLOYS NES
76141000	STRANDED WIRE, CBLS ETC WTH STEEL CORE
76149000	OTHR STRNDED WIRE, CBLS PLAITD BNDS ETC

Source: Ministry of Commerce & Industry, Crisil Intelligence

Cables and conductors manufacturing value chain

Value chain components	Description
 Raw material sourcing	<p>The cable and conductor manufacturing value chain commences with raw material sourcing, where major metal suppliers such as BALCO and NALCO for aluminium, and Hindalco for copper play a crucial role in providing the necessary materials. These suppliers are responsible for extracting, refining, and processing the raw materials, which are then sold to cable and conductor manufacturers. The quality and availability of these raw materials are critical to the production of high-quality cables and conductors. As such, manufacturers must carefully select and manage their relationships with raw material suppliers to ensure a stable and reliable supply chain.</p>

Value chain components	Description
 <p>Product manufacturing</p>	<p>Conductor Manufacturing: The process for electrical conductors begins with drawing raw metal (usually copper or aluminium) through a series of progressively smaller dies to reduce its diameter and increase its length. This is followed by annealing, a heat treatment that softens the wire, making it flexible and improving its conductivity. For multi-strand conductors, individual wires are then twisted or bunched together to achieve the desired cross-sectional area and flexibility.</p> <p>Cable Manufacturing: Cable manufacturing involves a series of intricate processes that transform basic conductors into finished cables, delivering higher value creation compared to conductor manufacturing alone. The following process takes place after the conductor's preparation:</p> <ul style="list-style-type: none"> • Multi Stranding: Drawn wires are stranded or bunched together in the multi stranding process, forming conductors with the desired structure for increased flexibility and electrical performance. • Insulation: After stranding, conductors receive a layer of insulation. This step involves applying a protective and dielectric coating (often PVC or XLPE) that electrically isolates individual conductors and enhances cable safety. • Laid-up Core: Insulated conductors are then twisted or grouped together to form the laid-up core. This step organizes the conductors according to the cable's design, creating the main functional core of the cable. • Inner Sheath: After the laid-up core is formed, it is covered with inner sheath, which is a layer of synthetic polymer that binds the core assembly and provides an initial level of mechanical protection as well as maintain the cable's circular shape. • Armouring: The inner sheathed core may be wrapped with armouring, typically metal wires or tapes to provide extra protection against mechanical stresses, physical impacts and other external threats. • Outer Sheath: Next, an outer sheath of plastic or another durable material is extruded over the armoured assembly, offering a barrier against environmental hazards such as moisture, chemicals and abrasion. • QC Testing: Comprehensive Quality Control (QC) testing is performed at critical stages to ensure that the finished cable meets all specified electrical, mechanical and safety standards. • Final Dispatch: Once all processes are complete and QC has approved the product, finished cables are prepared for final dispatch to customers, marking the culmination of the manufacturing process. <p>These comprehensive processes demonstrate the multiple value-addition steps involved in cable manufacturing, significantly enhancing both its complexity and end value.</p>
 <p>Transportation and distribution</p>	<p>Following manufacturing, cables are transported and distributed to customers through various modes of transportation, including road, rail, sea, and air. The choice of transportation depends on the distance, weight, and urgency of the shipment, as well as the customer's location and preferences. The cables are stored in warehouses and distribution centers to manage inventory levels and ensure timely delivery. Effective transportation and distribution are critical to ensure that cables reach customers in a timely and cost-effective manner, and that inventory levels are managed efficiently to minimize waste and reduce costs.</p>

Value chain components	Description
 <p>Customer Support & Interaction</p>	<p>Once the products reach the customers, the focus shifts to customer support and interaction, which involves providing pre-sales support, post-sales support and building long-term relationships with customers through regular communication and feedback. This is where the benefits of backward integration become particularly evident, as it enables manufacturers to have greater control over the entire value chain, allowing for more efficient production planning, reduced lead times, and improved delivery schedules, ultimately leading to enhanced customer satisfaction. The benefits of backward integration in the cables and conductors' industry include:</p> <ul style="list-style-type: none"> • Cost savings through reduced procurement costs and optimized production planning • Improved quality control and reduced risk of defects • Increased efficiency and reduced lead times • Enhanced customer service and support <p>Reduced dependence on third-party suppliers and improved profitability</p>

Source: Crisil Intelligence

Overview of Contract Award Process for Electrical Wires, Cables, and Conductors in India

Contracts for cables and conductors follow a standardized public procurement process: advertised tender, pre-qualification, two-part bid evaluation (technical first, then financial), and formal award. All stages – tender notice, bid submission, evaluation – are handled on recognized e-procurement portals. Bidders must meet strict technical criteria (BIS license, capacity, test labs) and financial thresholds to pre-qualify. Procurement rules require local content and give preference to Indian manufacturers in the evaluation. By following structured procedures and policies, central and state power utilities ensure open competition while safeguarding quality and promoting domestic industry in the procurement.

Types of Contracts

Type	Description
Supply contracts	Delivery of goods as per certain specifications
Rate contracts	Agreements at pre-negotiated unit rates for bulk supplies over a long-term period
Engineering, Procurement & Construction (EPC) and turnkey contracts	Include major delivery-and-works obligations covering end-to-end services. In a turnkey/EPC contract the contractor delivers a complete functioning installation (design, manufacture, erection, testing).

Source: Crisil Intelligence

Pre-Qualification (Technical & Financial Eligibility)

Before bids are evaluated, buyers conduct a pre-qualification of bidders based on technical and financial criteria. Typical requirements include:

Criteria	Description
Manufacturer credentials	The bidder is usually required to be an established entity with credible track record. Relevant and valid licenses for the required products are mandatory.
Manufacturing capacity	The bidder must have adequate in-house plant and installed production capacity, usually a stated minimum output (e.g., km per year), to supply the tendered quantity on schedule, backed by evidence of owned plant, machinery and facilities
Quality and testing infrastructure	The tender commonly requires bidders to have in-house testing facilities for routine and acceptance tests.
Experience	Bidders must provide evidence of prior supply of similar products and services within the last 5-10 years, such as purchase orders or performance certificates.
Financial strength	Bidders must meet minimum financial thresholds, such as a specified average annual turnover and positive net worth and provide financial proofs like audited accounts to verify their financial stability.

Source: Crisil Intelligence

These criteria are laid out in the tender's Pre-Qualification (PQ) or Bidder Qualification Criteria (BQC) section. Only bidders satisfying all technical and financial benchmarks are allowed to proceed with bid evaluation.

Bidding (Tendering) Process



Source: Crisil Intelligence

Contract Award and Finalization

Once evaluation is complete, the purchaser issues a formal Letter of Award (LoA) or Letter of Intent (LoI) to the successful bidder. The LoA names the contractor, scope, awarded value and schedule. The bidder then executes the contract agreement, covering detailed terms and conditions (price, delivery schedule, payment terms, warranties, etc.).

Key steps in award include:

- **Contract signing:** Both parties sign the procurement contract (or order), often after the contractor submits required documents.

- **Performance Security:** A Performance Bank Guarantee (PBG) or security deposit is obtained from the contractor at contract stage. Typically, this is certain percentage of contract value.

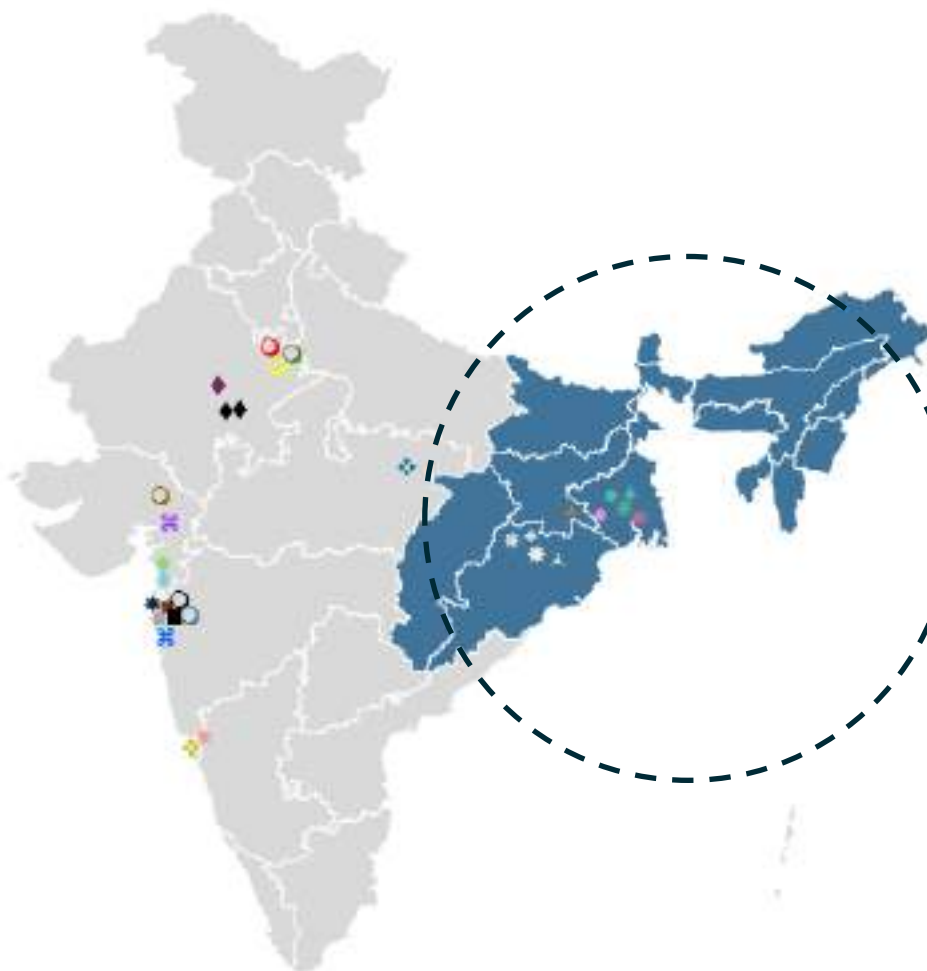
Once the contract is in force, the supplier then mobilizes to manufacture and deliver as per the agreed schedule. Post-award, buyers enforce provisions like milestone payments (often against delivery certificates or site acceptance), retention amounts, and warranty terms.

Electrical Wires, Cables, and Conductors Industry in India with a focus on East India

In this section, we will assess the key cables and conductors' players with facilities in eastern India, the location advantage that eastern India provides and the key upcoming projects in east India*. Some of the key players in India include Anvil Energy Pvt. Ltd. Apar Industries Ltd. Cabcon India Ltd. Laser Power and Infra Ltd., Lumino Industries Ltd., Sterlite Electric Ltd., Dynamic Cables Ltd., JSK Industries Pvt. Ltd., KEI Industries Ltd., Universal Cables Ltd., and Polycab India Ltd.

* East India comprises of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

Key cables and conductors players in East India



Symbol	Company
▲	Anvil Energy Private Ltd.
●	Apar Industries Ltd.
○	Cabcon India Ltd.
●	Laser Power and Infra Ltd.
+	Lumino Industries
+	Sterlite Power Transmission Ltd.
◆	Dynamic Cables Limited
■	JSK Industries Pvt Ltd.
○	KEI Industries Ltd.
+	Universal Cables Ltd.
⊞	Polycab India Ltd.

Color	Location
Light Blue	Jharsuguda, Odisha
Light Orange	Lapanga Sambalpur, Odisha
Light Green	Baripada, Odisha
Orange	Jamshedpur, Jharkhand
Light Blue	Howrah, West Bengal
Pink	Kharagpur, West Bengal
Purple	Kolkata, West Bengal
Light Blue	Khetolwada, Gujarat
Light Green	Umbergaon, Gujarat
Light Green	Sanand, Gujarat
Dark Blue	Silvassa, Dadra and Nagar Haveli
Dark Blue	Athola, Dadra and Nagar Haveli
Dark Blue	Khenvel, Dadra and Nagar Haveli
Black	Japur, Rajasthan
Purple	Reengus, Rajasthan
Red	Bhivadi, Rajasthan
Green	Chopenki, Rajasthan
Yellow	Pathredi, Rajasthan
Orange	Rakholi, Dadra and Nagar Haveli
Dark Blue	Chichpada, Dadra and Nagar Haveli
Dark Blue	Satna, Madhya Pradesh
Light Green	South Goa, Goa
Purple	Itanil, Gujarat
Blue	Daman, Diu and Daman
Light Blue	Rabale, Maharashtra

Source: Crisil Intelligence

Brief overview of select key players in east India

The provided information highlights select key players in the cables and conductors manufacturing sector in East India, specifying their facility locations, production capacities and main product offerings. Anvil Energy Pvt. Ltd. operates manufacturing units in Jamshedpur, Jharkhand, and Baripada, Odisha with a total capacity of 36,000MT for both cables and conductors. Apar Industries Ltd. has facilities in Jharsuguda and Lapanga in Odisha, focused primarily on conductors though its capacity details are not specified. Cabcon India Ltd. manufactures both cables and conductors at its plants in Howrah and Kolkata, West Bengal, with an aggregate capacity of 30,000MT. Laser Power and Infra Ltd. has its manufacturing facilities in Howrah and Kharagpur, West Bengal, and has the reported capacity of 85,448MT for cables and conductors in Fiscal 2026. Lumino Industries Ltd. also has its manufacturing facility based in Howrah, West Bengal, with a production capacity of 40,000MT for both cables and conductors. Lastly, Sterlite Electric Ltd. operates a manufacturing facility in Jharsuguda, Odisha, focusing on conductors, and has the production capacity of 48,768 MT.

Company	Manufacturing facility in East India	Capacity (FY26)	Key Products
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Anvil Energy Private Ltd.	<ul style="list-style-type: none"> Jamshedpur (Jharkhand) Baripada (Odisha) 	36,000 MT ¹	Cables and Conductors
Apar Industries Ltd.	<ul style="list-style-type: none"> Jharsuguda (Odisha) Lapanga Sambhalpur (Odisha) 	NA	Conductors
Cabcon India Ltd.	<ul style="list-style-type: none"> Howrah (West Bengal) Kolkata (West Bengal) 	30,000 MT ¹	Cables and Conductors
Laser Power and Infra Ltd.	<ul style="list-style-type: none"> Howrah (West Bengal) Kharagpur (West Bengal) 	85,448 MT	Cables and Conductors
Lumino Industries Ltd.	<ul style="list-style-type: none"> Howrah (West Bengal) 	40,000 MT	Cables and Conductors
Sterlite Electric Ltd.	<ul style="list-style-type: none"> Jharsuguda (Odisha) 	48,768 MT	Conductors

Note: The above list of players and its manufacturing facilities is only an indicative list and not exhaustive

¹ For Anvil Energy Private Ltd. and Cabcon India Ltd., the capacity for FY26 is based on the information available on ratings rationale report, dated January 2026

Source: Crisil Intelligence

- Laser Power and Infra is one of the leading players in terms of manufacturing capacity of 85,448 MT for power cables and conductors in Fiscal 2026, among the power cable and conductors players having manufacturing facilities of power cables and conductors in East India.

Location Advantages

Eastern India offers notable advantages for wire, cable, and conductor manufacturers due to logistics infrastructure (well-connected through ports and rail), proximity to raw material resources, and supportive policies, making it an attractive manufacturing base:

- **Proximity to Raw Materials:** Eastern states host abundant mineral resources. Odisha and Jharkhand are major hubs for aluminium and steel production – for example, Vedanta and NALCO's aluminium smelters and Tata Steel and SAIL's steel plants (Tata Steel, SAIL) provide local sourcing of metal for conductors. This nearness cuts material transport costs and ensures steady supply. For copper, eastern coast ports allow easy import of copper to feed cable plants. Manufacturers have capitalized on Odisha's resources by setting up conductor facilities near Jharsuguda aluminium industry, securing ready access to molten aluminium and rod stock.
- **Strategic Ports and Connectivity:** Eastern India's coastline (ports at Kolkata, Haldia, Paradip, etc.) facilitates import of raw materials and export of finished products. These ports, along with an improving highway and rail network, integrate the region into global and domestic supply chains. The completion of the Eastern Dedicated Freight Corridor (Ludhiana to West Bengal) is lowering logistics costs and spurring new industrial hubs in the eastern states. This enhanced connectivity enables manufacturers in West Bengal, Odisha, Bihar, and Jharkhand to efficiently ship products across India and to neighbouring international markets while receiving raw inputs in bulk.

Rising Demand

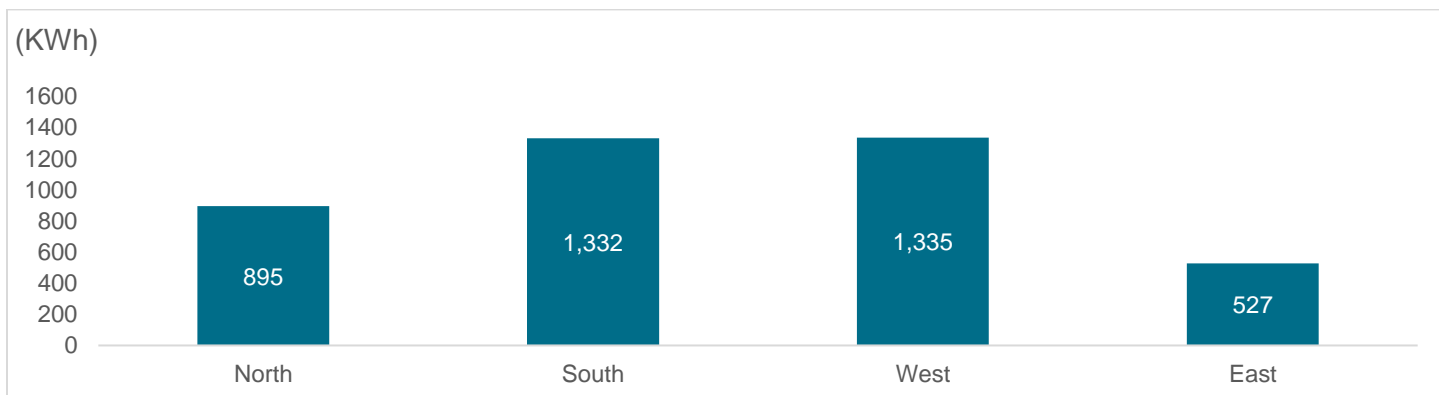
Demand for all types of cables and conductors is rising rapidly in Eastern India, driven by several key factors:

- Low consumption, High growth potential:** Despite significant strides in electrification and industrial development, Eastern India continues to have the lowest per capita electricity consumption among all regions, at only 527 kWh in FY24, compared to 1,335 kWh in the West, 1332 kWh in the South and 895 kWh in the North. This considerable gap highlights both untapped demand and the significant challenges faced in developing power infrastructure in the region. The execution of power infrastructure in East India is often hampered by difficult terrain, dense forests and extreme climatic conditions, which increases both cost and complexity of building transmission and distribution networks thereby resulting in slower electrification and limited access to reliable power for households and industries contributing to the regions low per capita electricity consumption.

Despite these challenges, recent years have seen renewed power infrastructure investments in East India, driven by a need to bridge the gap with other regions and meet the rising aspirations of local populations. Government backed schemes are accelerating the pace of electrification, while specialized companies such as Laser power and Infra Ltd., Sterlite Electric Ltd. and others capable of handling tough geographies are undertaking complex projects in the region collectively improving connectivity and boosting overall grid reliability.

Overall, as power accessibility improves and household, commercial, and industrial usage increases, there will be substantial need for expanding the entire electricity infrastructure network. This directly translates into increased demand for a wide range of cables including transmission, distribution and LV/HV power cables as the region scales up sub-stations, transformers, and distribution lines to support higher loads and future-proof systems.

Region wise per capita consumption of electricity (FY24)



Note:

North regions consist of states like UT of Jammu and Kashmir and Ladakh, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Delhi, Uttar Pradesh, Chandigarh and Rajasthan

South region consists of Kerala, Telangana, Tamil Nadu, Karnataka, Andhra Pradesh and Union territories of Andaman Nicobar, Puducherry and Lakshadweep

West region consists of states like Maharashtra, Goa, Gujarat, Madhya Pradesh, Union territories of Daman, Diu and Dadra Nagar Haveli

East region consists of states like Bihar, Jharkhand, West Bengal, Odisha, Chhattisgarh, Arunachal Pradesh, Assam, Mizoram, Meghalaya, Manipur, Nagaland, Sikkim and Tripura

Source: Crisil Intelligence

- Electrification & Grid Expansion:** Eastern states have seen aggressive electrification initiatives supported by government schemes like Saubhagya and Deen Dayal Upadhyaya Gram Jyoti Yojana. These schemes have connected rural households to the grid, boosting the need for LV distribution cables. Between 2014–2019, Eastern Railway alone electrified 1,290 km of tracks in West Bengal (nearly double the 710 km in the previous five years) – each kilometre of new railway electrification requires overhead conductors and cabling. Today, eastern railway is 100% electrified. Further, the Revamped Distribution Sector Scheme (RDSS) is upgrading Eastern India’s power lines, transformers, and underground cables. These efforts to provide 24x7 reliable power is driving demand for power cables (HT and LT) in the region.

- **Industrial and Infrastructure Projects:** Eastern India is witnessing industrial growth, with large projects in manufacturing, steel, power, and petrochemicals that would consume high volumes of power and control cables during construction and operation. The region’s industrial electricity consumption is rising in tandem with new factories and mines, necessitating new sub-stations, transmission lines, and associated conductors.

Key upcoming infra projects in Eastern India*

Project Name	Promoter Name	Project Cost (Rs. Billion)
Integrated Steel Plant (Mahakalpara)	ArcelorMittal Nippon Steel India Ltd.	1,340
Steel (Angul) Project - Expansion	Jindal Steel & Power Ltd.	1,200
Aluminium Refinery & Smelter (Raygada) Project	Vedanta Ltd.	915
Nuclear Power Project	NTPC Green Energy Ltd.	800
Refinery (Subarnarekha Port) Project	Haldia Petrochemicals Ltd.	782
Steel Plant (Jatadhar) - Expansion	JSW Utkal Steel Ltd	750
East West Dedicated Freight Corridor Project	Dedicated Freight Corridor Corpn. of India Ltd.	738
Crude Steel (Paradip) Project	JSW Utkal Steel Ltd	671
Steel (Kalinganagar) Project - Expansion	Neelachal Ispat Nigam Ltd.	630
Petrochemical Complex (Paradip)	Indian Oil Corpn. Ltd.	611
Integrated Steel (Kalinganagar) Project	Tata Steel Orissa Ltd	610
Expressway (Raxaul to Haldia Port) Project	National Highways Authority of India	600
Green Hydrogen & Green Ammonia (Gopalpur) Project	Acme Clean Energy Pvt. Ltd.	582
East Coast Corridor Project	Dedicated Freight Corridor Corpn. of India Ltd.	567
Steel (Thelkoloji) Project - Expansion	Bhushan Power & Steel Ltd.	550

Note: * States considered are Bihar, Odisha, West Bengal, Chhattisgarh, and Jharkhand

The above list is only indicative and comprises of nascent, planning, under execution, and partially completed projects

Source: Projects Today, Crisil Intelligence

- **Urbanization and Electrification of Transport:** Eastern India’s urban population is rising, leading to real estate booms and upgrades in city utilities. Construction of new residential complexes, commercial centers, and IT hubs in cities like Kolkata and Bhubaneswar drives demand for building wires (PVC insulated cables for internal wiring) and MV cables for feeders. Additionally, expansion of urban infrastructure in the region is fuelled by metro rail lines, flyovers, IT parks, and smart city upgrades. Each new metro corridor or smart city project entails laying specialized cables (fire-resistant cables, fibre optics, etc.) for power, signalling, and communications.

Key type of technology used in cables

The Indian wire and cable industry has made significant strides in adopting advanced manufacturing technologies, resulting in improved quality, efficiency, and voltage ratings of electrical cables. The adoption of triple extrusion, dry curing, electron-beam crosslinking, and continuous vulcanization technologies has enabled Indian manufacturers to produce high-quality cables that meet international standards, making them competitive in the global market.

Technology	Description
Triple Extrusion Technology	One of the notable technologies is the triple extrusion process, which involves the simultaneous extrusion of three critical layers - the inner semi-conductive screen, the main insulation, and the outer semi-conductive screen - in a single operation. This process ensures excellent bonding between layers, minimizes contamination, and prevents dust or moisture from entering between layers, resulting in reduced eccentricity and ovality of the cable core. The triple extrusion process has become a standard in India's quality-focused cable production, enabling the manufacture of reliable medium, high, and extra-high voltage cables.
Curing Processes: Dry-Cure vs. Wet-Cure	In addition to triple extrusion, Indian manufacturers have also adopted curing processes, including dry-cure and wet-cure methods. Historically, wet curing with steam was widely used, but it introduced moisture, leading to micro-voids in the insulation that could reduce cable performance and limit voltage class. To address this issue, Indian manufacturers have transitioned to dry curing processes, which use an inert gas environment to cure the cable, resulting in a virtually moisture-free insulation with minimal voids or contaminants. Dry curing has become the norm in India for medium and high voltage cables, bringing quality in line with international standards.
Electron-Beam Crosslinking	Another technology that has been adopted in India is electron-beam crosslinking, which uses high-energy electron irradiation to cross-link cable insulation or jacketing. This process is particularly useful for thin insulation and specialty cables that require superior thermal and mechanical properties. Electron-beam technology is used predominantly for niche products such as automotive wires, rolling stock cables, solar PV cables, defense and aerospace wiring, and other specialty cables. The e-beam process yields cables that are halogen-free, flame-retardant, and extremely heat-resistant, with thin wall insulation that still meets performance requirements.
Continuous Catenary Vulcanization (CCV) Lines and VCV Technology	Indian manufacturers have also employed state-of-the-art continuous catenary vulcanization (CCV) lines, which produce medium, high, and extra-high voltage XLPE cables. In addition to conventional CCV, India has also begun adopting vertical continuous vulcanization (VCV) technology for the highest voltage grades. VCV involves a very tall vertical curing tube in which the cable hangs and cures as it travels upward or downward, providing extremely uniform curing and meeting stringent international specifications. The vertical process minimizes eccentricity, eliminates cable sag marks, and is favoured for ultra-high voltage cable manufacturing.

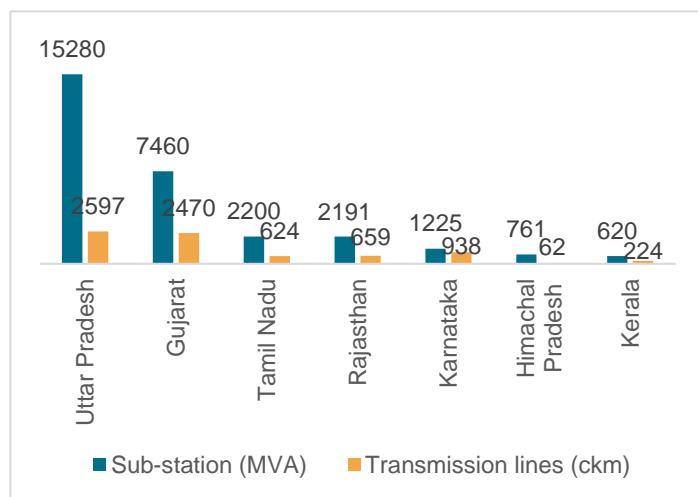
Source: Crisil Intelligence

Key growth drivers for the power cables and power conductors industry

Renewable integration through Green Energy Corridor (GEC) to lead to growth in the high voltage segments

The GEC initiative is poised to be a significant growth driver for the power cables and conductors industry in India. With a substantial investment of over Rs. 10,000 crores for the intra-state component and approximately Rs. 11,369 crores for the inter-state component in Phase-I, the project has already demonstrated its potential to boost demand for high-voltage transmission lines. Although the inter-state component was completed in March 2020, the intra-state component still has 632 ckm of transmission lines to be completed as of June 2024. The upcoming Phase-II of the GEC is expected to witness investments of around Rs. 12,000 crores, with Uttar Pradesh and Gujarat accounting for approximately 70% of the investments. This phase will play a crucial role in providing connectivity for around 19 GW of renewable capacity, thereby driving demand for high-voltage power cables and conductors. Furthermore, the Ministry of New and Renewable Energy (MNRE) will facilitate a credit facility of 33% for State Transmission Utilities (STUs) during the second phase, while the remaining 67% of the project cost can be availed through loans from KfW, PFC, or REC. This financial support is expected to accelerate the completion of the project, leading to a significant increase in demand for power cables and conductors, and subsequently, driving growth in the industry. Overall, the GEC initiative is a testament to the government's commitment to promoting renewable energy and strengthening the country's power transmission infrastructure, which is expected to have a positive impact on the power cables and conductors' industry in the coming years.

Planned grid augmentation under GEC Phase-2



Source: Ministry of Power, Crisil Intelligence

GEC Phase-2 estimated project cost (Rs. billion)

State	Estimated project cost	Central financial Assistance (CFA)
Gujarat	36.7	12.0
Himachal Pradesh	4.9	1.6
Karnataka	10.4	3.4
Kerala	4.2	1.4
Rajasthan	9.1	2.9
Tamil Nadu	7.2	2.4
Uttar Pradesh	48.5	16.0
Total	120.9	39.7

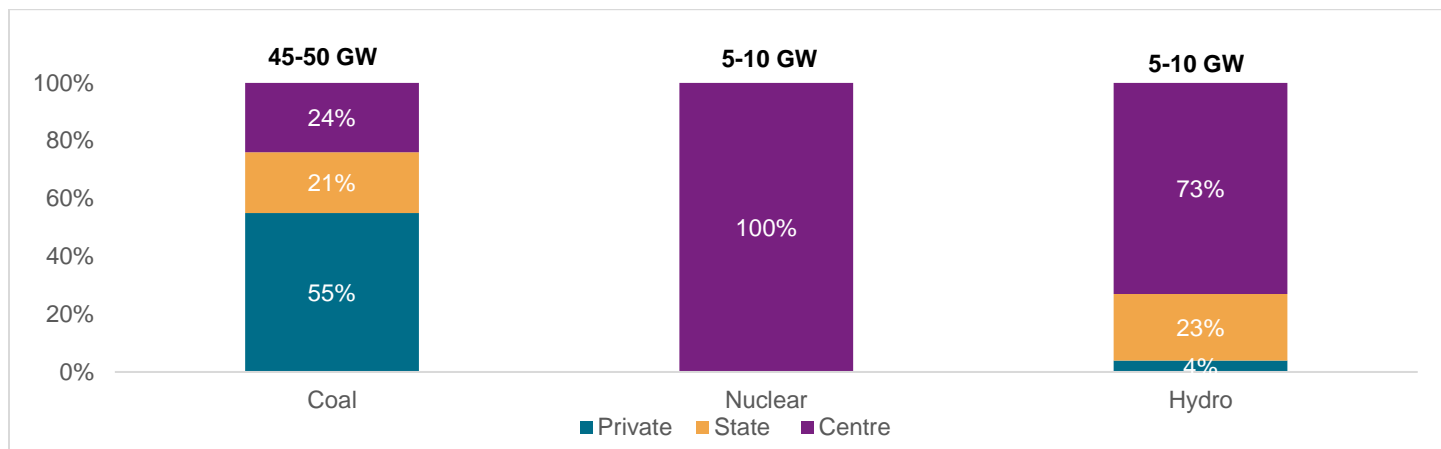
Indian railway aims to achieve 100% electrification by FY26

The Indian Railways' ambitious plan to achieve 100% electrification by FY26 is a significant growth driver for the cable and conductor industry. With ~99% of the 69,512 km Broad-Gauge network already electrified as of March 31st, 2025, the government's allocation of Rs 6,150 crore for electrification projects in FY25 is expected to boost demand for railway signalling cables, overhead conductors, feeder cables, and other specialized cables. This will also drive the adoption of advanced cable technologies, such as fiber optic cables and high-temperature resistant cables. As the rail network becomes increasingly electrified, the demand for cables and conductors is expected to increase, driven by the need for efficient and reliable conductor systems, including high-speed overhead conductors and advanced pantograph systems.

Coal additions continue to top conventional fuels by FY31.

Additions in FY25 have been limited to 4.2 GW compared to 7.1 GW in FY24. Coal's share in total installed capacity set to decline to 25-30% by fiscal 2031 due to cost and time overruns and lack of intent in some cases. As per Crisil intelligence estimates, additions of 8-9 GW on average are expected in coal, hydro and nuclear capacities by FY31.

Sector wise fossil and non-fossil capacity additions by FY31



Source: Crisil Intelligence

State transmission line additions up after pandemic

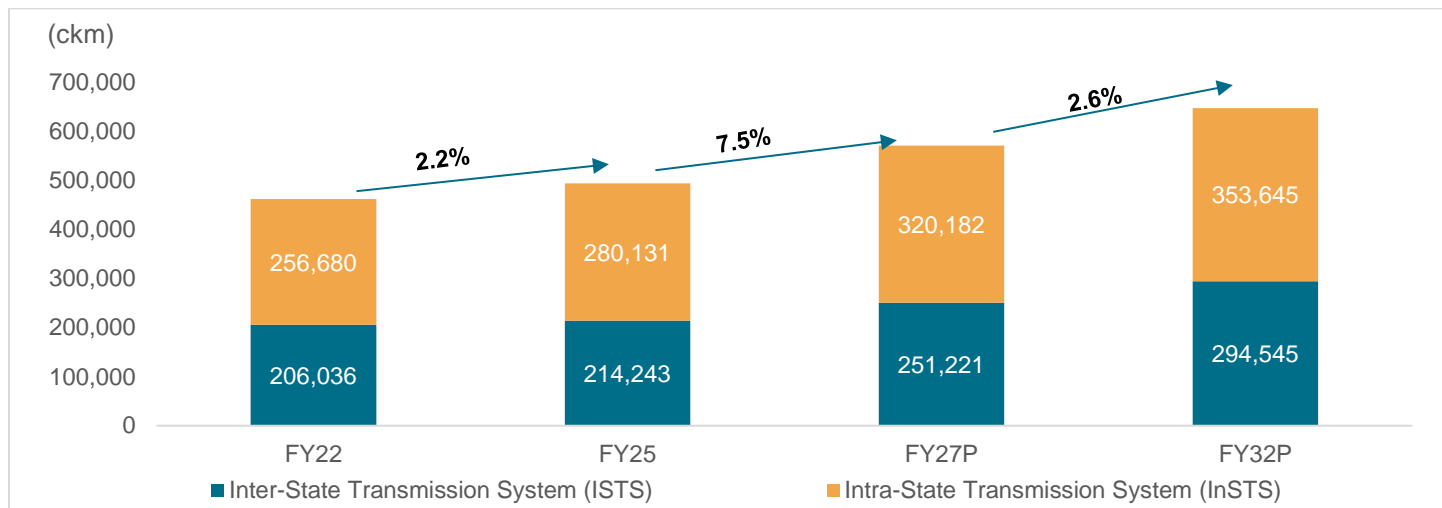
The Central Electricity Authority (CEA) has released the National Electricity Plan (NEP) (Volume II: Transmission), which outlines the development of the transmission system from 2017-2022 and provides a roadmap for 2022-2027, with a perspective on 2027-2032. The NEP 2.0 is the Government of India's strategic framework aimed at achieving universal and sustainable electricity access, particularly across rural, remote, and underserved regions. NEP 2.0 is in alignment with broader missions like Powering Bharat 2.0, RDSS, and Energy for All, NEP 2.0 is critical to realizing India's vision of energy equity, economic empowerment, and climate-resilient infrastructure. It also supports government of India's ambition of becoming a \$5 trillion economy by ensuring that every citizen and enterprise has access to dependable and affordable electricity. The plan is based on projected peak electricity demand and anticipated generation capacity additions. Key highlights include:

Category	2024	2027	2032	Growth (2027-2032)
Transmission line capacity	485,544 ckm	571,403 ckm	648,190 ckm	13.4%
Substation capacity	-	1,881,780 MVA	2,411,885 MVA	28.2%

Note: MVA: Mega Volt-Amperes, ckm: Circuit Kilometres

Source: Central Electricity Authority, Crisil Intelligence

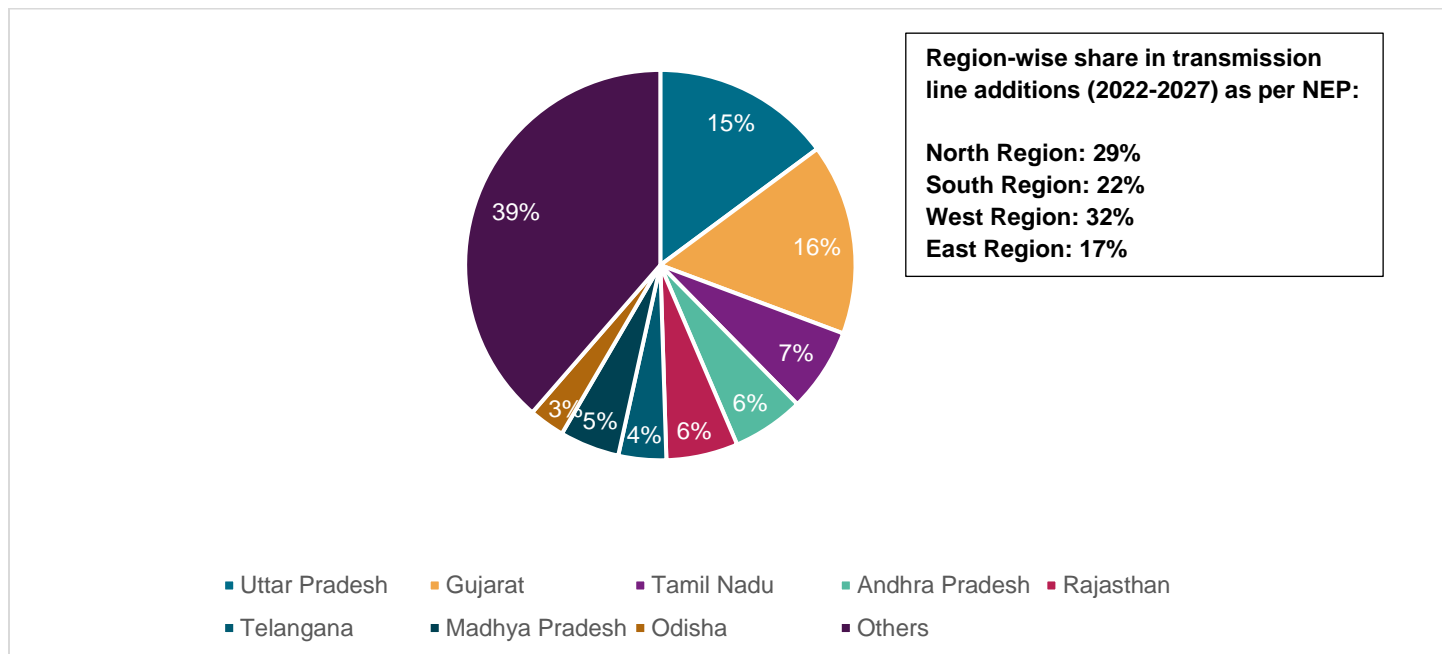
Total transmission line capacity outlined as per NEP



Source: CEA, Crisil Intelligence

To achieve the targeted 500 GW RE capacity by 2030, the central government has proposed an additional 63,502 ckm of transmission lines under intrastate transmission (InSTS) by 2027 on top of the existing 256,680 ckm as of March 2022 leading to a total InSTS line of 320,182 ckm. As of March 2025, India's InSTS line is 279,732 ckm. Central government agencies will issue the tenders for these lines and bidding will be open for government-owned (central and state) and private players. The top 10 states (by InSTS transmission line additions) are expected to account for ~81% of the transmission line additions by 2027 under InSTS. Gujarat is expected to lead the way with nearly 16% share in expected additions followed by Uttar Pradesh (16%) and Maharashtra (11%).

Share of states in transmission lines addition over 2022-2027



Note: The data pertains to intra-state transmission line additions (ckm)

Source: CEA, Crisil Intelligence

Increased capacity additions in solar and wind energy to drive demand for solar and wind cables

CRISIL Intelligence estimates 140-160 GW of solar capacity additions over FY26-30, driven by central schemes, state solar policies, PSUs, rooftop solar projects, and open-access solar projects. This growth will be fuelled by various initiatives, including SECI tenders, state-led projects, and PSU investments, such as NTPC's target of 35 GW of renewable energy capacities by FY28 and Indian Railways' commitment to 20 GW of solar power by 2030. Additionally, rooftop solar projects, led by PM Surya Ghar Yojana, and open-access solar projects, driven by green energy open access rules and corporate sustainability initiatives, are expected to contribute 30-35 GW and 12-17 GW, respectively. This rapid expansion of solar capacity is expected to drive the demand for the solar cables industry, as the demand for high-quality cables to connect and transmit solar power increases.

The wind power sector is expected to experience significant growth, with CRISIL Intelligence forecasting capacity additions of 25-27 GW over FY26 to FY30, driven by a pipeline build-up under existing schemes, new tendering schemes, and advancements in technology. The adoption of mixed resource models is anticipated to be a key driver of this growth, contributing 18-19 GW by FY30, while standalone capacity additions are expected to add a further 7-8 GW.

Key trends and innovation influencing cables and conductors industry

Key trends & drivers	Description
Advanced conductors and uprating solutions	Utilities are increasingly turning to HTLS, AL59/AL69, and compacted conductors to address rising load requirements and space constraints. Instead of creating new corridors, the focus is on uprating existing lines to carry higher power with reduced losses, which also supports renewable integration into the grid.
Undergrounding and urban infrastructure	The demand for EHV/HV XLPE cables, covered conductors, and fire-survival/LSZH cables is expanding in cities due to space limitations, regulatory compliance, and safety standards. Undergrounding is particularly relevant for metro networks, airports, and smart-city projects where overhead lines are not feasible.
Grid modernization and digitalization	Operators are deploying OPGW, distributed acoustic and temperature sensing (DAS/DTS), and digital supply chain tools such as QR/RFID tracking. These measures are aimed at improving grid visibility, enabling predictive maintenance, and ensuring authenticity and traceability of cable and conductor supplies.
Renewable energy and HVDC corridors	With large-scale renewable energy projects being developed, there is a growing need for high-ampacity conductors and specialized cabling to evacuate power from solar and wind hubs. At the same time, inter-state bulk power transfer requirements are driving investments in HVDC corridors for long-distance transmission.
Transport electrification and EV ecosystem	Railway and metro electrification projects, along with the rollout of charging infrastructure for electric vehicles, are contributing to higher demand for traction cables, high-voltage automotive wires, and charging solutions. This reflects the broader push towards clean mobility and transport modernization.
Materials and technology innovation	The industry is witnessing a transition toward aluminium-based conductors in place of copper, greater emphasis on recycling, and the adoption of high-temperature XLPE and nano-filled compounds. Advanced accessories and terminations are also being developed to ensure reliable performance and longer service life under demanding operating conditions.
Growing shift towards high temperature low sag (HTLS) conductors	Crisil Intelligence expects a pickup in demand for high-voltage conductors, giving increasing focus on adding transmission lines of higher voltage levels, for evacuation of bulk power. Also, the importance of high-voltage (HV) lines of 400 kV and 765 kV in the intra-state transmission network is also increasing, as higher voltage level enhances power density, reduces losses and efficiently delivers bulk power. In addition to increase in voltage levels, high efficiency conductors (the one which can carry more current compared to conventional conductors) will also see increased usage. Moreover, it reduces requirement of right-of-way requirement, a key challenge facing the transmission sector. Consequently, the increasing thrust on high-voltage transmission lines will stimulate demand for high-voltage power conductors going ahead. Also, as electric consumption in

Key trends & drivers	Description
	urban areas is higher, there is a need for higher ampacity transmission lines through limited ROW-HTLS conductors and reconducting turnkey solutions.
Reconducting	Reconducting is a growing trend in the transmission sector, driven by the need to enhance efficiency and capacity of existing infrastructure. It involves replacing traditional conductors with high-performance, high-temperature low-sag (HTLS) conductors that can carry more power without compromising safety. This innovative approach can increase transmission capacity, reduce costs and have an environmental impact.

Source: Crisil Intelligence

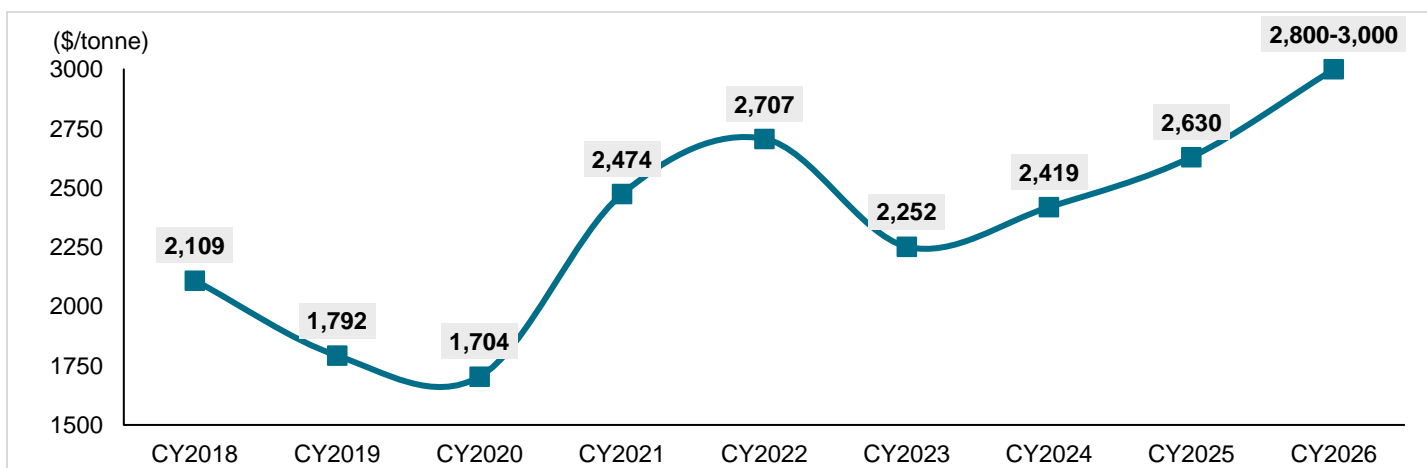
Key risks and challenges impacting the power cables and conductors industry

Rise in commodity prices

Profitability of players in the power conductor segment majorly relies on the input prices of raw material as well as capacity utilization levels of their production plants. Power conductor industry has high working capital requirements, given long gestation periods. The industry's profile is further constrained by the raw material price risk and stiff competition. As raw material cost accounts for nearly 70-75% of net sales, effective inventory management remains critical, especially given the prevalent volatility in global commodity prices. In cable industry too, a prevalent challenge lies in the volatility of raw material prices. Particularly the surge in costs for essential materials like copper, zinc, and aluminium. This price increase significantly affects profit margins within industry.

The polymer market is witnessing notable price escalation, largely stemming from heightened geopolitical instability across the Middle East. The ongoing conflict involving the U.S., Israel, and Iran has severely disrupted energy supply chains and petrochemical trade routes. A key flashpoint has been the near-closure of the Strait of Hormuz, coupled with sustained attacks on Gulf energy assets, which has driven sharp increases in crude oil and naphtha prices, the primary feedstocks for polymer manufacturing. Given that roughly a fifth of the world's oil supply transits this corridor, the supply shock has meaningfully eroded production economics across the polymer value chain. As a consequence, prices of widely used polymers including polyethylene (PE), polypropylene (PP), and PET have seen considerable upward movement over a relatively short period.

Aluminium prices (London metal exchange)



Source: LME, Crisil Intelligence

Weak financial health of state distribution companies

The distribution sector is controlled by state distribution utilities (SDU) with private participation limited to circles such as Mumbai, Ahmedabad, Surat, Delhi, Agra, and Kolkata. State distribution utilities continue to reel under huge losses due to unprofitable tariff structures, high AT&C losses and inadequate subsidies received from state governments coupled with delays in payments. The sector is marred with financial irregularities due to the nature of the business. Inability to increase power tariffs along with high commercial and technical losses have led to high losses for the discoms.

Keeping up with competition and innovations

Keeping up with competition and innovations is a significant challenge for companies in the wire and cables industry. The sector is characterized by a diverse pace of innovations in product development, with new technologies and materials emerging rapidly. To stay ahead of the curve, companies must continuously update their technology and manufacturing processes to compete in the market. This requires significant investments in research and development, as well as a commitment to adopting new materials and production methods. Furthermore, the increasing demand for high-performance and specialized cables, such as those used in renewable energy and electric vehicle applications, has created a need for companies to develop new products and solutions that meet these emerging requirements. Additionally, the rise of digitalization and Industry 4.0 has introduced new challenges, such as the need for cables and connectors that can support high-speed data transmission and connectivity. Moreover, the pressure to reduce costs, improve efficiency, and minimize environmental impact adds to the complexity, making it a challenging task for companies to balance innovation with sustainability and profitability.

Overview of impact of AI on manufacturing and demand side of the industry

Artificial Intelligence (AI) is increasingly exerting a profound influence on the industry, spanning both the manufacturing and demand aspects. Companies are integrating AI and digital technologies into their production processes, while utilities are leveraging AI-driven systems, such as smart grids and smart meters, to optimize power distribution. This integration is yielding a more agile manufacturing base and an electrical infrastructure that is better equipped to meet the demands of a sustainable, smart grid future.

Manufacturing-Side Impact: Harnessing the Power of AI and Industry 4.0

The convergence of AI and Industry 4.0 technologies is revolutionizing manufacturing by enhancing efficiency, quality, and reliability. Leading firms in India have embarked on a digital transformation journey to augment production transparency, boost energy efficiency, and uphold stringent quality and safety standards. Advanced control systems and sensors enable real-time quality monitoring in factories, with certain manufacturers deploying SCADA systems to continuously monitor dimensions and process parameters, thereby ensuring consistent product quality. Furthermore, manufacturers are utilizing data analytics to streamline their supply chains, optimizing inventory and logistics to reduce costs and enhance responsiveness. Additionally, AI-powered predictive maintenance is emerging as a critical tool to minimize downtime, as AI systems analyse sensor data from machinery to predict equipment failures and schedule maintenance proactively, allowing manufacturers to significantly reduce unplanned downtime and boost productivity. These innovations on the shop floor are resulting in more efficient production and higher-quality products.

Demand-Side Impact: The Rise of AI-Driven Smart Grid Technologies

On the demand side, AI-driven smart grid technologies are redefining how cables and conductors are specified and utilized. Utilities are leveraging AI to manage their grids more effectively, processing real-time sensor data to enable predictive maintenance of network assets, optimize power flows, and forecast energy demand patterns. Distribution entities are employing AI-based energy forecasting to improve grid reliability and planning, while India's massive smart meter rollout is feeding data into analytics for better energy management. The combination of smart meters and machine learning is enabling utilities to reduce losses by detecting theft or anomalies and facilitating peak load forecasting. As the grid becomes increasingly smart, the demand for cables is evolving, with a growing need for advanced conductors and "smart" cables that integrate communication fibres or sensors. Indian manufacturers are responding to this demand by developing innovative solutions, such as Optical Ground Wire (OPGW) cables, which enable enhanced data communication and grid intelligence in transmission networks. In summary, AI-driven smart grid and energy management initiatives are driving the industry towards higher-performance, intelligent cables that can support real-time monitoring and a more efficient, reliable power system.

Source: Crisil Intelligence

Overview of BESS

A battery energy storage system (BESS) is an electrochemical device that charges (or collects energy) from the grid and discharges that energy at a later time to provide electricity or other grid services when needed.

The battery system comprises the battery pack, which connects multiple cells to appropriate voltage and capacity; the battery management system (BMS); and the battery thermal management system. The BMS protects the cells from harmful operation, in terms of voltage, temperature and current, to achieve reliable and safe operation and balances varying cell states-of-charge (SOCs) within a serial connection. The battery thermal management system controls the temperature of the cells according to their specifications in terms of absolute values and temperature gradients within the pack. The inverter system, also called power conversion system, converts the DC power to AC power while discharging and converts the AC power to DC power while charging the batteries.

As the demand for BESS systems continues to grow, the market for specialized cables is growing to support these installations. Typically, BESS applications require DC cables to connect batteries and inverters, AC cables for linking inverters to grid or loads, and LV cables and accessories for auxiliary systems. Specialized battery cables are used for high-current connections between battery modules and inverter systems, sometimes utilizing multi-conductor designs for control and monitoring functions. Common cable types include conductor materials such as copper or aluminium, with insulation options like XLPE (cross-linked polyethylene), TPE (Thermoplastic elastomer) or PVC for flame retardance and temperature resistance. Cable ratings usually range from low voltage (0.6-1Kv) for internal links to higher voltages for grid-scale utility connections. Additionally, control cables, signal cables for BMS communications and grounding cables are vital for reliable system operation.

Benefits of BESS

Benefits	Description
Grid stability	A BESS stores the excess energy that is produced during peak production time, which can be released during low demand period. This consistent flow of energy/ power helps in proper functioning of the grid and allows to maintain an optimal balance of power/energy demand and supply.
Power backup	As BESS can store excess energy within itself, it helps in providing a reliable power backup in areas with frequent power outages or in facilities that require continuous power supply.

Potentially reduced carbon footprint

Deploying a BESS can also help in reducing carbon footprint by storing electricity, which can be used during high demand/ peak demand times.

Source: Crisil Intelligence

Introduction to railway power cable, signal & quad cables market

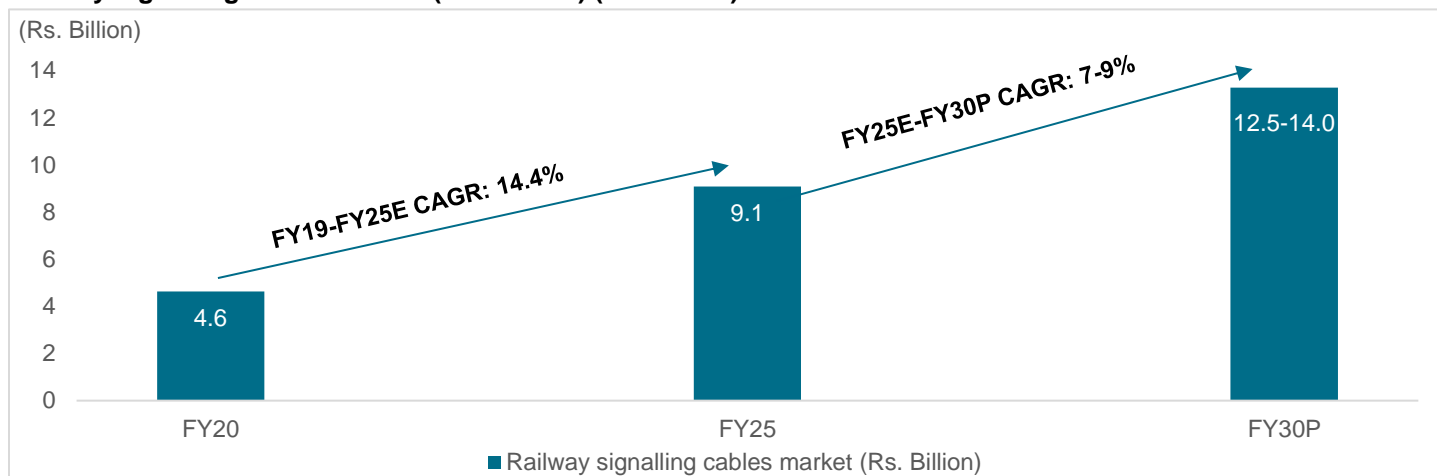
The railway power cable, signal, and quad cables market is a specialized sector that plays a crucial role in the safe and efficient operation of railway systems worldwide. As railways continue to modernize and expand, the demand for reliable and high-performance cables is on the rise, driven by the need for enhanced passenger safety, increased train speeds, and improved communication systems. Railway power cables, in particular, are designed to withstand the harsh environments and unique demands of railway applications, including exposure to extreme temperatures, vibrations, and humidity, while also meeting stringent safety standards. Signal cables, on the other hand, are used for communication and control purposes, enabling the transmission of critical signals and data between trains, stations, and control centers. Quad cables, which combine four conductors in a single cable, offer a compact and efficient solution for railway applications, reducing installation costs and improving overall system reliability. As the railway industry continues to evolve, the market for cable, signal, and quad cables is expected to grow, driven by increasing investments in railway infrastructure and the adoption of advanced technologies, such as high-speed rail and smart railways.

Railway signalling cables market expected to grow at a CAGR of 7-9% from FY25 to FY30

The Indian railway signalling cables market witnessed a remarkable growth, expanding from Rs. 4.6 billion in FY20 to Rs. 9.1 billion in FY25 at a compounded annual growth rate (CAGR) of 14.4%. This impressive growth can be attributed to several factors, including the government's concerted efforts to enhance railway connectivity, particularly in rural and underserved areas, as well as the increasing focus on modernizing the existing rail infrastructure. The healthy track additions, coupled with the rising demand for efficient and reliable signalling systems, have also contributed to the market's upward trajectory. Furthermore, the growing emphasis on safety and the need to reduce accidents have led to a surge in the adoption of advanced signalling technologies, such as automated train protection systems and communication-based train control systems. Going forward, the market is expected to grow at a CAGR of 7-9% from FY25 to FY30 to reach a market size of Rs. 12.5-14.0 billion in FY30.

In terms of application, the railway signalling cables market can be segmented into three primary categories: signalling, communication, and train control. Signalling accounts for the largest share of the market, this is because signalling cables are essential for ensuring the smooth and secure operation of trains, facilitating the exchange of critical information between trains, trackside equipment, and control centers. This information includes vital data on train movement, track conditions, and other essential parameters. Another key application is communication, which enables effective communication between train operators, station staff, and control centers. To support this, cables must deliver high-fidelity voice and data transmission, even in challenging environments such as remote areas or high-speed trains. The train control segment is also gaining prominence, driven by the increasing use of automation and advanced technologies to monitor and control train movements. In this context, cables must provide fast and reliable data transmission to support real-time monitoring and control of train performance, ultimately enhancing the overall efficiency and safety of rail operations.

Railway signalling cables market (FY20-FY30) (Rs. billion)



Source: Crisil Intelligence

Key types of railway cables

Cable type	Description
Quad cables	These cables have four conductors, typically used for track circuit signalling, where two conductors are used for the track circuit and the other two for the signal circuit.
Multi-core cables	These cables have multiple conductors, often used for complex signalling systems, such as those found in large stations or junctions
Fibre Optic Cables	These cables use light to transmit signals, providing high-speed data transmission and immunity to electromagnetic interference
Coaxial Cables	These cables have a central conductor surrounded by insulation, a braided shield, and an outer jacket, used for high-frequency signal transmission, such as in radio-based train control systems.
Railway signalling power cables	These cables are designed to supply power to signalling equipment, such as signals, track circuits, and interlockings.
Axle Counter Cables	These cables are used in axle counter systems, which detect the presence of trains by counting the number of axles on a section of track.

Note: The above list of key types of railway cables is only an indicative list and not exhaustive

Source: Crisil Intelligence

Product wise RDSO approved and developmental vendors based in East India with capacity

Company	Location	Manufacturing capacity
PVC Insulated Armoured, Unscreened Underground Power cable		
Laser Power and Infra Pvt. Ltd.	Kolkata, West Bengal	4,752* KM
Maxxcab Wires and Cables Pvt. Ltd.	Howrah, West Bengal	4,536 KM

Company	Location	Manufacturing capacity
Quad cables for S&T Installations		
Laser Power and Infra Pvt. Ltd.	Kolkata, West Bengal	3,400 KM
Lumino Industries Ltd.	Kolkata, West Bengal	3,630 KM
PVC Insulated Armoured, Unscreened, Underground Railway Signalling Cable		
Gupta Power Infrastructure Ltd.	Bhubaneswar, Odisha	6,600 KM
Laser Power and Infra Pvt. Ltd.	Kolkata, West Bengal	27,216* KM
Lumino Industries Ltd.	Kolkata, West Bengal	14,976 KM
Maxxcab Wires and Cables Pvt. Ltd.	Howrah, West Bengal	15,759 KM

Note: As per the RDSO website accessed on 25th April 2026, there were 23 approved and 10 developmental pan India vendors for PVC Insulated Armoured, Unscreened Underground Power cable

As per the RDSO website accessed on 25th April 2026, there were 17 approved and 3 developmental pan India vendors for Quad cables for S&T Installations

As per the RDSO website accessed on 25th April 2026, there were 38 approved and 15 developmental pan India vendors for PVC Insulated Armoured, Unscreened, Underground Railway Signalling Cable

* For Laser Power and Infra the production capacity is combined for power and signalling cable

Source: RDSO website accessed on 25th April 2026, Crisil Intelligence

- Laser Power and Infra Ltd. is a registered supplier to Indian Railways, accredited by the Research Design & Standard Organization (“RDSO”) and one of the largest approved vendors of PVC Insulated Armoured Unscreened Underground Power cable, Quad Cables for S&T Installations and PVC Insulated Armoured Unscreened Underground Railway Signalling cable signalling control, quad and power cables based on capacities of these products, among the approved vendors in East India.

Key growth drivers for railway power and signalling cables

National Rail Plan (NRP) – 2030

The National Rail Plan (NRP) for India – 2030 aims to develop a *future-ready railway system* by enhancing capacity ahead of demand and increasing the modal share of railways in freight traffic to 45%, sustaining it through to 2050. Key strategies include operational improvements and commercial policy initiatives to boost freight movement.

To achieve this objective, following main features of the National Rail Plan have been identified:

- **Increasing freight speed:** Raising the average speed of freight trains to 50 kmph to reduce transit times.
- **Infrastructure expansion:** Identifying new Dedicated Freight Corridors and High-Speed Rail Corridors.
- **Resource assessment:** Evaluating future needs for rolling stock, wagons, and locomotives in alignment with electrification and freight goals.

- **Investment planning:** Estimating the required capital investment with phased timelines.
- **Private sector participation:** Encouraging private involvement in operations, infrastructure development, and ownership of assets.

Total Cost of the proposals given in National Rail Plan

Sr no	Project	2021-26	2026-31	2031-41	2041-51	Total
1.	North-South DFC, East-West DFC, East Cost, and Eastern DFC corridors		Rs 1,517.20 billion; 3,793 km	Rs 482.40 billion; 1,206 km	Rs 300.4 billion; 751 km	Rs 2,300 billion; 5,750 km
2.	HSR Corridor: <ul style="list-style-type: none"> • Delhi-Varanasi • Varanasi-Patna • Patna-Kolkata • Delhi-Ahmedabad • Hyderabad-Bangalore • Nagpur-Varanasi • Mumbai-Nagpur, • Mumbai-Hyderabad • Patna-Guwahati • Delhi-Amritsar • Amritsar-Jammu • Chennai-Mysuru 		Rs 5,042 billion; 2,521 km	Rs 2,946 billion; 1,473 km	Rs 6,970 billion; 3,485 km	Rs 14,958 billion; 7,479 km
3.	Indian Railways network	Rs 1,269.14 billion	Rs 713.58 billion	Rs 2,214.56 billion	Rs 1,819.67 billion	Rs 6,016.96 billion
4.	Flyovers and Bypasses	Rs 799 billion	-	-	-	Rs 799 billion
5.	Terminal development	Rs 605.57 billion	Rs 203.36 billion	Rs 93.25 billion	Rs 40.41 billion	Rs 942.59 billion
6.	Electric locomotives	Rs 1,543.36 billion	Rs 650.44 billion	Rs 1,891.40 billion	Rs 2,357.18 billion	Rs 6,442.38 billion
7.	Wagons	Rs 388.38 billion	Rs 464.30 billion	Rs 862.74 billion	Rs 1,259.90 billion	Rs 2,975.32 billion
8.	Coaches	Rs 1,212.76 billion	Rs 564.39 billion	Rs 855.08 billion	Rs 1,138.58 billion	Rs 3,770.91 billion
9.	Total	Rs 5,818.21 billion	Rs 9,155.27 billion	Rs 9,345.43 billion	Rs 13,886.14 billion	Rs 38,205.16 billion

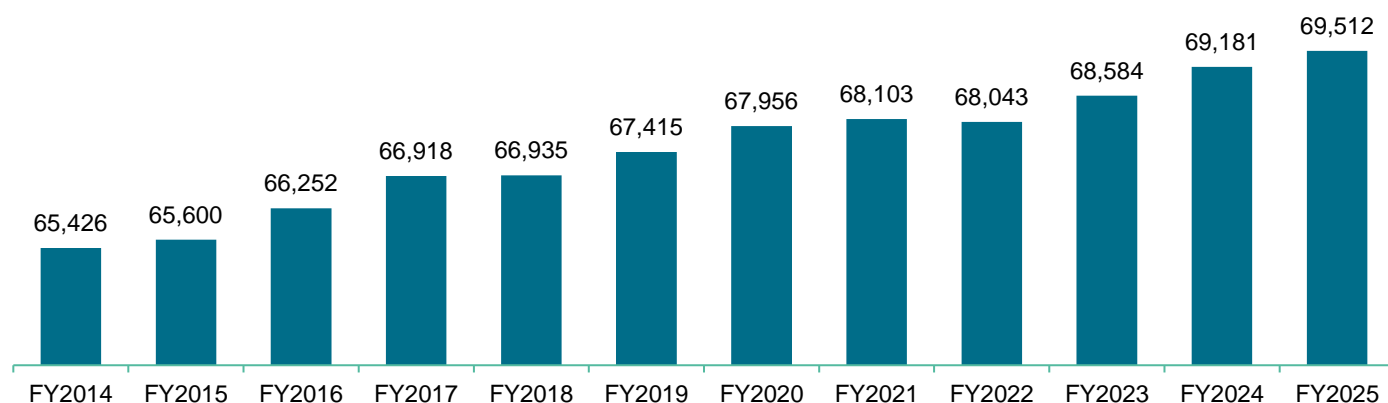
Source: National Rail Plan – India, Crisil Intelligence

Expanding railway networks and electrification projects

The Indian railway network is undergoing modernization to cope with increasing traffic and high-speed operations. As of FY25, the broad-gauge network spans 69,512 route kilometres, with 94.52% (65,701 Rkms) already electrified. Only 811 Rkms remain to be electrified. The annual electrification pace has been steadily increasing, reaching 7,188 Rkms in a year, driving the need for track upgrades and expansion to maintain efficiency.

Total broad-gauge network – Route kilometres

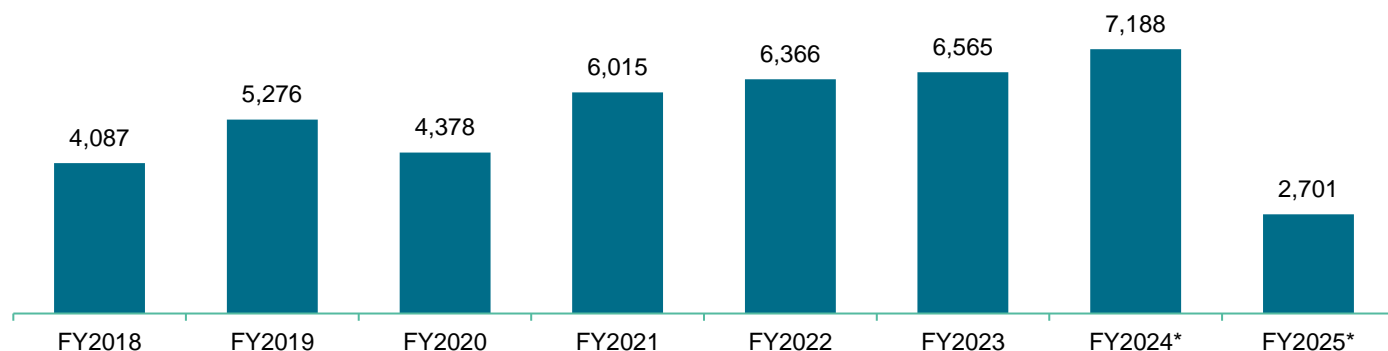
(Rkms)



Source: Annual Reports, Indian Railways, Crisil Intelligence

Annual railway electrification (Rkms)

(Rkms)



Note:

* Including Dedicated freight corridor corporation of India Limited

Source: Annual Reports, Indian Railways, Crisil Intelligence

List of ongoing / upcoming projects in Indian railway and metro sector

Project name	Implementing agency	Cost (Rs Bn)
Mainline Railway Network		
Udhampur-Qazigund-Srinagar-Baramula BG Railway Line	Northern Railway	411.2
Gunupur-Therubali Railway Line Project	Indian Railways	246.6
Junagarh-Nabrangpur Railway Line Project		
Badampahar-Kendujhargarh Railway Line Project		
Bangriposi-Gorumahisani Railway Line Project		
Malkangiri-Pandurangapuram (Via Bhadrachalam) Railway Line Project		
Buramara Chakulia Railway Line Project		

Project name	Implementing agency	Cost (Rs Bn)
Jalna-Jalgaon Railway Line Project		
Bikramshila-Katareah Railway Line Project		
Sub Total - Mainline Railway Network		657.8
Metro projects		
Ahmedabad Metro Rail Project [Phase-II]	Gujarat Metro Rail Corporation (GMRC) Ltd.	650
Chennai Metro Rail Project - Phase II	Chennai Metro Rail Ltd.	632.5
Delhi Metro Rail Project - Phase IV	Delhi Metro Rail Corporation Ltd.	550
Light Metro Rail (Bhopal) Project	Madhya Pradesh Metro Rail Co. Ltd.	225
Light Metro Rail (Indore) Project	Madhya Pradesh Metro Rail Co. Ltd.	223
Surat Metro Rail Project	Gujarat Metro Rail Corporation (GMRC) Ltd.	152.3
Metro Rail (Kanpur) Project	Uttar Pradesh Metro Rail Corpn. Ltd.	137.2
Metro Rail (Agra) Project	Uttar Pradesh Metro Rail Corpn. Ltd.	130
Metro Rail (Nagpur) Project - Phase II	Nagpur Metro Rail Corporation	67.1
Sub Total - Metro Projects		2,767.1
Other special purpose projects		
High Speed Rail Corridor (Mumbai-Ahmedabad) Project	National High Speed Rail Corporation Ltd.	1,080
Regional Rapid Transit System (Delhi-Gurgaon-Shahjahanpur-Behror) Project	National Capital Region Transport Corporation Ltd.	1,000
East West Dedicated Freight Corridor Project	Dedicated Freight Corridor Corporation of India Ltd.	738
Kerala Semi High-Speed Rail Corridor (Thiruvananthapuram-Kasargod) Project	Kerala Rail Development Corporation Ltd.	664.1
East Coast Corridor Project	Dedicated Freight Corridor Corporation of India Ltd.	567.5
Eastern Freight Corridor Project	Dedicated Freight Corridor Corporation of India Ltd.	512.2
Western Freight Corridor Project	Dedicated Freight Corridor Corporation of India Ltd.	461.8
Haryana Orbital Rail Corridor	Haryana Orbital Rail Corporation Limited (HORCL)	56.2
Sub Total - Other special purpose projects		5,079.8
Total - ongoing / upcoming projects in Indian railway and metro sector		8,504.7

Note: The above set of projects is an indicative list and not an exhaustive list of projects

Source: Projects Today, Crisil Intelligence

Investments in High-speed rail (HSR) projects

The Government of India has envisaged development of HSR corridors and has identified 8 corridors for constructing HSR projects of which the Mumbai Ahmedabad corridor is under construction while DPR preparation of the remaining projects is under preparation.

Mumbai-Ahmedabad High Speed Rail (MAHSR) project passes through high growth rate States of Gujarat and Maharashtra connecting business centres of Mumbai, Surat, Vadodara and Ahmedabad. The sanctioned cost of the MAHSR project is Rs. 1,080.0 billion. As of 20th May 2025, 383 km of pier work, 401 km of foundation work and 326 km of girder casting have been completed.

Status of the select HSR projects

Key HSR projects in India				
Sr no	Project	Length (km)	Status	Project cost (Rs billion)
1	Mumbai-Ahmedabad	508	Under Construction	1,080
2	Delhi-Varanasi	855	DPR	1,710
3	Delhi-Ahmedabad	886	DPR	1,772
4	Mumbai-Nagpur	789	DPR	1,578
5	Mumbai-Hyderabad	709	DPR	1,418
6	Chennai-Bengaluru-Mysore	462	DPR	924
7	Delhi-Chandigarh-Amritsar	485	DPR	970
8	Varanasi-Kolkata	~780	DPR	1,560

Source: National Rail Plan – India, CRISIL Intelligence

Adoption of Advanced Signalling Technologies such as European Train Control System (ETCS) and Communications-Based Train Control (CBTC)

The adoption of advanced railway signalling technologies, such as Communication-Based Train Control (CBTC) and European Train Control System (ETCS), is driving growth in the railway signal cables industry. These systems enable efficient and safe railway operations by providing accurate train positioning, automatic train protection, and real-time monitoring. They require significant cable infrastructure to support high-speed data transmission and communication between trains and trackside equipment. As railways adopt these systems, the demand for specialized signal cables is expected to increase, and the driving industry growth.

4. Overview of data centre industry in India

Modern data centers have evolved from their traditional physical infrastructure approach. Infrastructure has shifted from traditional on-premises physical servers to virtual networks that support applications and workloads across pools of physical infrastructure and into a multicloud environment. Today, data exists and is connected across multiple data centers, and public and private clouds. The data center must be able to communicate across these multiple sites, across both on-premises and cloud. Even the public cloud is a collection of data centers situated at some location. When applications are hosted in the cloud, they are using data center resources from the cloud provider.

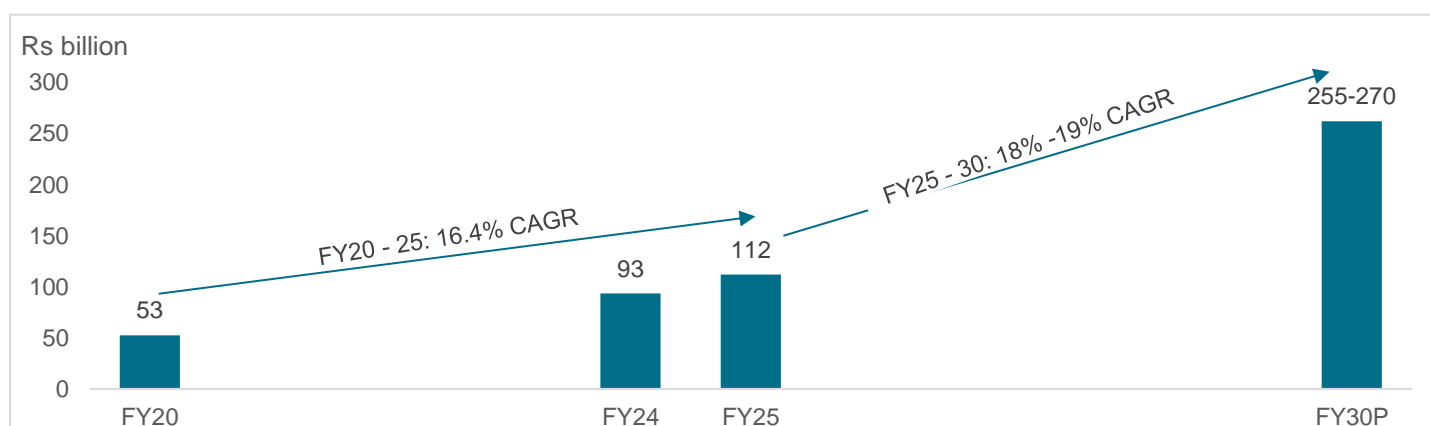
India data centre industry expected to clock a CAGR of 18-19% between FY25 and FY30

From FY20 to FY25, the Indian data centre industry has seen a growth at CAGR of ~16.4% rising from Rs. 53 billion in FY20 to Rs. 112 billion in FY25. This growth can be attributed to factors such as growth in internet accessibility, surge in e-commerce adoption, rise in digital adoption due to government initiatives such as UPI and e-governance. Further, with the increasing number of organizations adopting cloud infrastructure as a means of reducing their expenses has catered to demand growth of data centres during the aforementioned period.

Going forward, the industry is expected to see a CAGR of 18%-19% between FY25 and 2030, reaching ₹ 255 – 270 billion by the end. The growth is enabled by increasing consumption of data, 5G rollouts across India as well as advanced technologies such as IoT, Big data, Artificial intelligence and Machine Learning. In addition to thrust from government through initiatives such as data protection bill 2023, draft data centre policy, infrastructure status for data centre also drives the growth.

Recently, various government organizations have brought in regulations aiding data localization, these include RBI mandating data regarding payment transactions and KYC to be stored in India, SEBI mandating all its regulated entities to store their data in India. Further adoption of localization by government and private entities would bolster the growth in industry.

Data Centre industry in India (Rs. Billion) (FY20-FY30P)

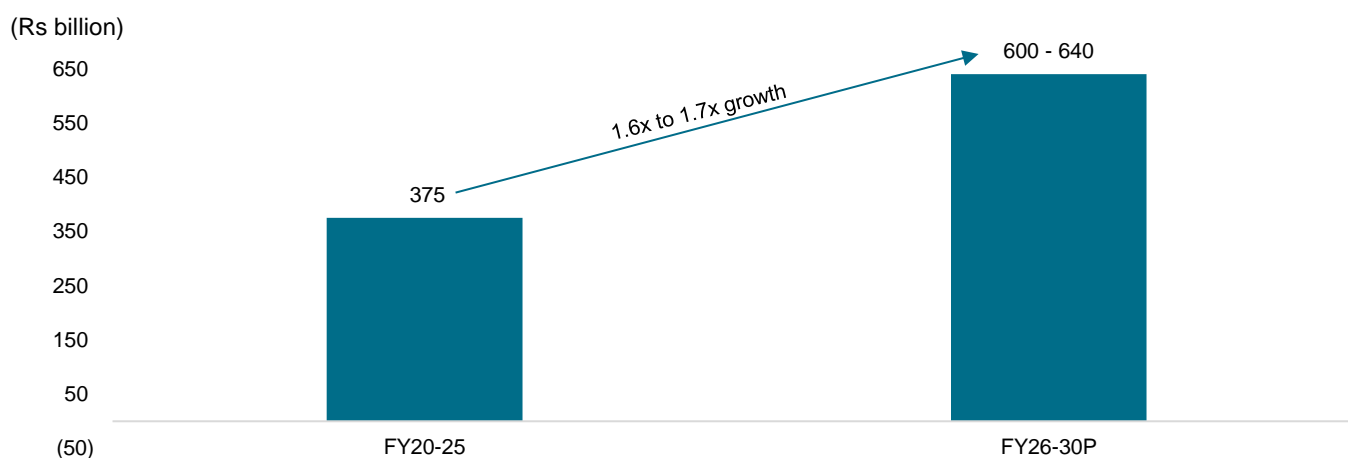


Source: Crisil Intelligence

Overview of data centre construction — Mechanical, Electrical and Plumbing (MEP)

The demand for data centres across the globe is driven by the emergence of AI and ML and the growing digital economy's demands for data-intensive applications, IoT applications, online streaming, gaming, remote work etc. In India, the industry is expected to clock 1.6x to 1.7x growth in capex between FY25 and FY30 towards the mechanical, electrical and plumbing (MEP) components which include power set-up, cooling units, fibre connectivity, racks etc.

Projected data centre construction — MEP capex (including fibre optic connectivity)



Notes:

The above figure includes only the capex towards new data centre construction

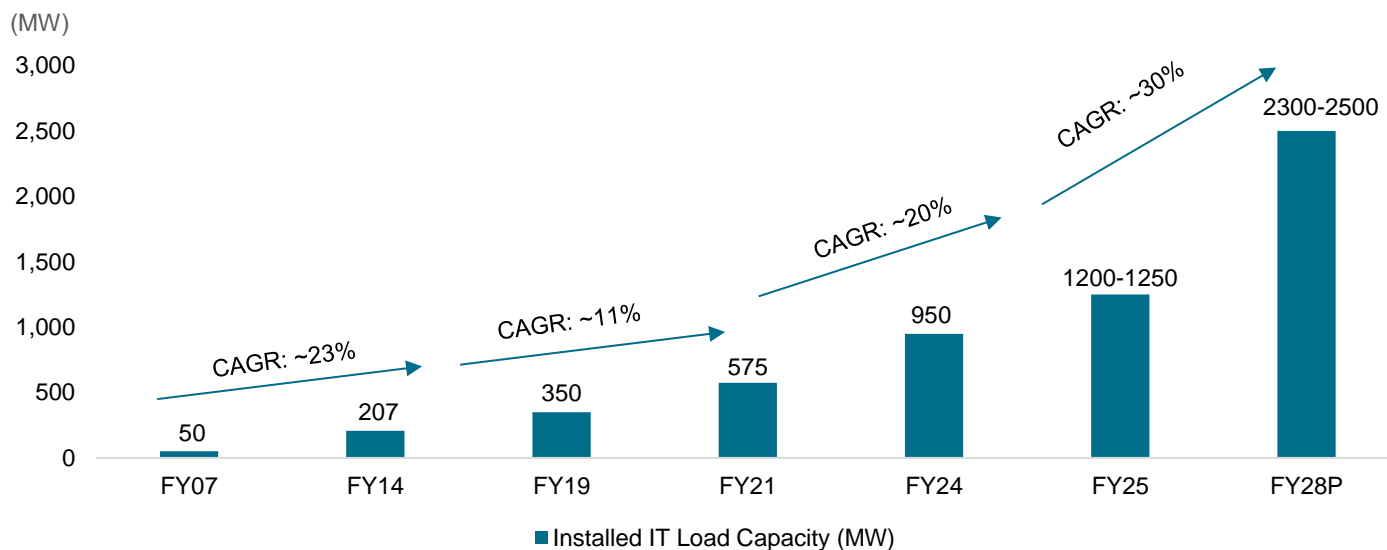
MEP: power set-up, cooling units, fibre connectivity, racks etc.

Source: Industry, Crisil Intelligence

Indian data centre installed capacity to cross 2 GW by FY27

The Indian data centre market has experienced significant growth and transformation in recent years. The key factors that contribute to the dynamism and potential of the market are the Digital India initiative, data localization regulation and rapid growth in data consumption. The increasing global investment and rise of colocation and edge computing have also boosted the overall growth of data centre market in India. Data centre capacity in the country has grown from 350 MW in FY19 to 900-950 MW in FY24 and expected to reach 2,000-2,300 MW by FY27

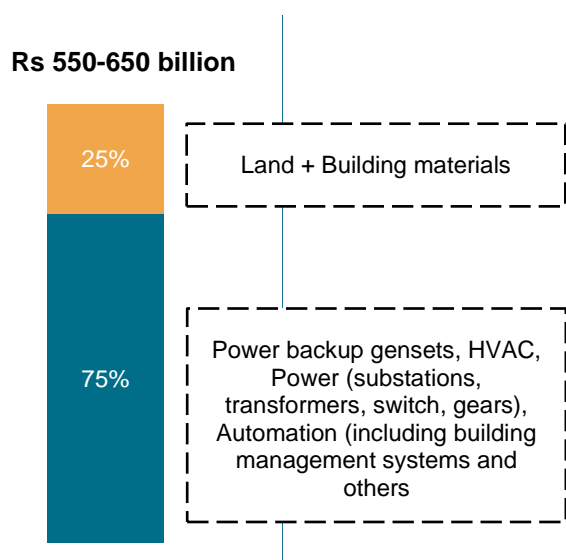
Data Centre capacity in India (FY07-FY27P) (MW)



Note: E – Estimated P – Projected
Source: Industry, Crisil Intelligence

India's data centre capacity is on a remarkable growth trajectory. This explosive growth was driven by a powerful trifecta of factors: i) the data boom fuelled by the proliferation of digital services and the widespread adoption of technology creating an insatiable demand for data storage and processing capabilities; ii) 5G user base to reach over 350 million by FY26 and GenAI, IOT, big data to drive further growth; iii) government regulations mandating data localization (the storage of sensitive data within the country). The regulations align with the government's broader digital initiatives that seek to ensure data sovereignty. Collectively, these dynamics position India as a key player in the global data centre landscape.

Industry to see a capex investment of ₹ 550-650 billion over FY26-28



- CRISIL estimates data centre industry to see a capex of ~Rs 550-650 billion between FY26 and FY28.
- The capex is led by the lower real estate costs and availability of skilled manpower in comparison to countries making India a cost-effective region for construction of data centres.
- Further, players are investing upfront capex such as land, building and common mechanical, electrical and plumbing (MEP) activities to demonstrate their expertise which further indicates the future growth in the industry.

Source: Industry, company reports, Crisil Intelligence

Increasingly, investments in the data centre sector are tied to contractual agreements, providing greater predictability. Industry players are strategically investing upfront in land, construction and shared MEP infrastructure to showcase their expertise and ensure readiness.

Remarkably, nearly half of the capex is expected to be dedicated to modular components, allowing customization according to customers' specific MEP requirements. This approach optimizes resource allocation and aligns with the flexibility demanded by diverse clients in the ever-evolving data centre landscape. It indicates that as a dynamic industry, the data centre operations are adapting to customer needs and also maintaining cost-efficiency and expertise.

Artificial intelligence is transforming green data centres by embedding sustainability

Artificial Intelligence by embedding sustainability into every layer of operation is transforming green data centres. From intelligent energy management to smart cooling and seamless integration of renewables, AI-driven solutions enabling truly eco-friendly facilities that minimize environmental footprints while maximizing computational performances. Additionally, by leveraging advanced machine learning algorithms and real-time analytics, AI empowers operators to fine-tune every aspect of data-centre infrastructure- from power distribution to cooling systems- ensuring that resources are used only when they are needed.

Growth drivers and trends in the Indian data centre industry

Parameters	Overview
Government Initiatives	<p>Recognizing the importance of data centres in driving the growth towards digital economy, the Indian government has brought in several measures to aid the establishment and expansion of data centres across the country. Key measures such as</p> <ul style="list-style-type: none"> • Inclusion of data centres into harmonized lists of infrastructure to aid the industry in availing long-term credit from domestic and international lenders at concessional rates and help in boosting the investments in the industry • Introducing Digital Personal Data Protection Bill (2023) under which personal data collected online or collected offline and digitalized should be processed within India was major focus among others
Increasing adoption of cloud services	<p>The increasing adoption of cloud services allows companies to eliminate upfront capital infrastructure costs, thereby increasing their accessibility of IT services to small and medium sized organizations, as well as startups. Moreover, by reducing the need for extensive on-site hardware, these models are fuelling the demand for data centre services.</p>
Adoption of new technology-based solutions	<p>Firms are consistently incorporating modern technologies into their operations to meet the growing need for IT and related services. As enterprises embrace digital transformation, the infusion of advanced tools like AI, IoT, Big Data analysis, and Machine Learning into their processes requires robust and scalable IT systems, leading to a surge in data centre demand.</p>

Parameters	Overview
Rise in internet penetration	India witnessed a surge in internet users over the past few years, internet penetration as a percentage of total population was ~69% in fiscal 2025, compared with less than 20% in fiscal 2015. Crisil Intelligence expects the number of internet subscribers to reach 990-1010 million by fiscal 2026, resulting in ~71% internet penetration. By fiscal 2026, a majority transition of 3G data services to 4G and 4G to 5G technology is expected. This can be attributed to increased demand for data, competitive pricing of 4G services, early conversion to 5G, and availability of affordable handsets. Consequently, narrowband is expected to decline as better speeds are available to users at lower price points.
Business transformation	As companies across sectors race to modernize their operations, adopt digital technologies, and harness the potential of cloud computing the need to accommodate vast amounts of data, ensure seamless connectivity, and facilitate advanced analytics also increase. This in turn creates a demand for robust, scalable, and efficient data centre infrastructure thus aiding industry growth.
Workplace productivity	The widespread adoption of cloud technology has played crucial role in enhancing workplace productivity. By harnessing the capabilities of the cloud, organizations can streamline operations, optimize resource allocation, and facilitate seamless collaboration among teams, regardless of the geographical constraints.

Source: Crisil Intelligence

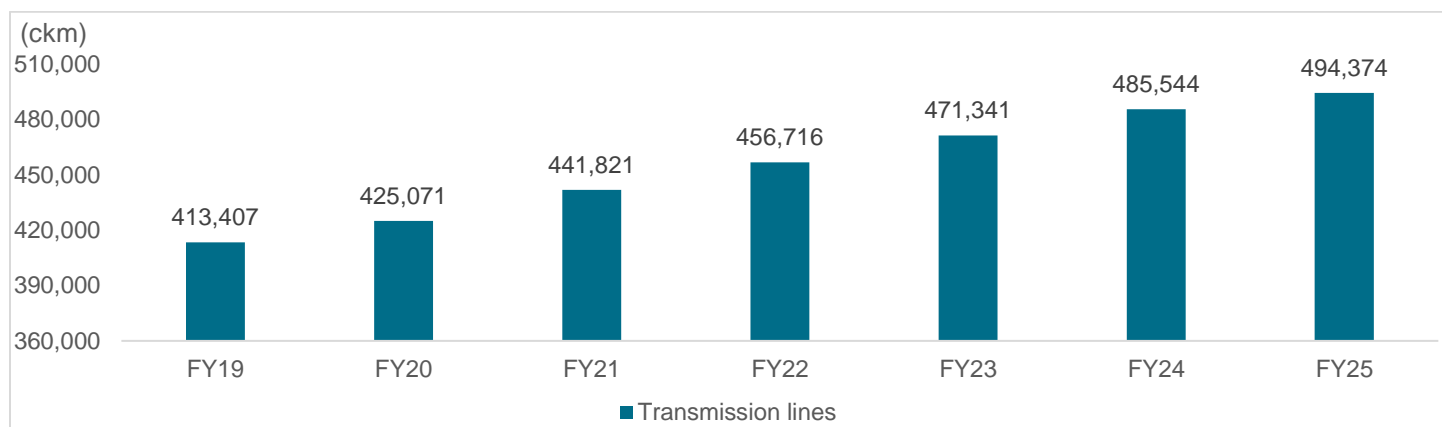
5. Overview of power transmission and distribution in India

India adds 80,967 ckm of power transmission lines between FY19-25

The transmission segment plays a key role in transmitting power continuously to various distribution entities across the country. The transmission sector needs concomitant capacity addition, in line with generation capacity addition, in order to enable seamless flow of power.

Robust generation capacity addition over the years and government's focus on 100% rural electrification through last mile connectivity has led to extensive expansion of the transmission and distribution (T&D) system across the country. The total length of domestic transmission lines rose from 413,407 circuit kilometres (ckm) in FY19 to 494,374 ckm in FY25.

Power transmission lines (220 KV and above)

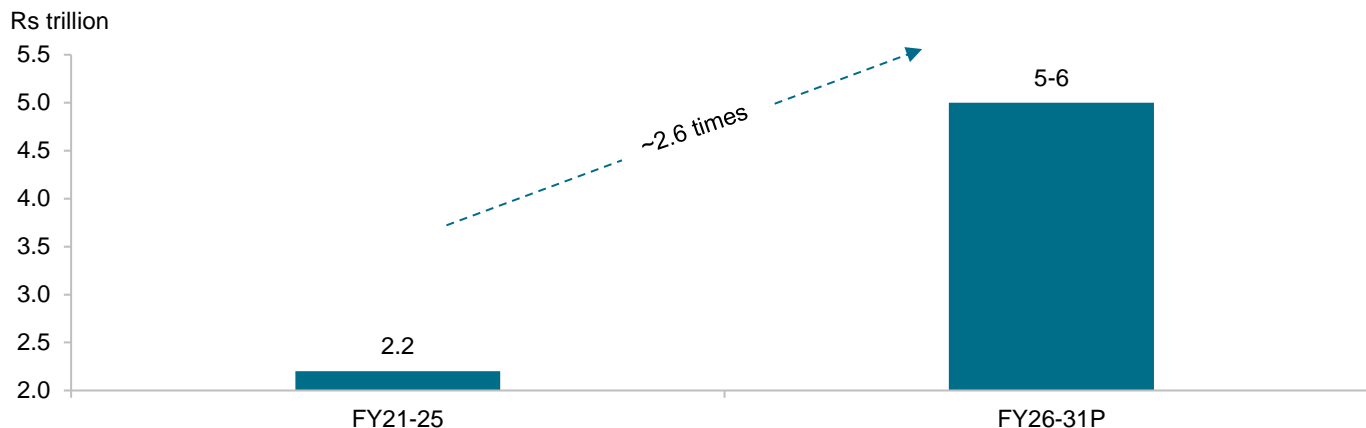


Source: Ministry of power, CEA, Crisil Intelligence

Renewable energy evacuation, Interstate Transmission System (ISTS) network expansion and upgradation to boost investment in transmission

To service a large generation installed base, the estimated investment in the transmission sector is expected to cumulatively reach Rs 5-6 trillion over FY26-31. Investments in the sector are expected to be driven by the need for a robust and reliable transmission system to support continued generation additions and the strong push to the renewable energy sector as well as rural electrification. Renewable energy evacuation will drive the demand for advanced conductors. Also, strong execution capability coupled with healthy financials of PGCIL will drive investments. As the country ramps up its renewable energy capacity, the efficient evacuation of this energy will become crucial, which in turn will drive the demand for advanced conductors that can handle the increased transmission requirements.

Investments in transmission segment of power sector



Source: Crisil Intelligence

As capacity additions in the country are not evenly distributed geographically, few regions in the country will be in deficit and others in surplus. To cater to this, there will be need to import/export from/to regions. Several inter-regional transmission corridors have been planned, and some of these high-capacity transmission corridors are in various stages of implementation. Newly sanctioned projects under the North-Eastern System Strengthening Scheme and system strengthening schemes focused in the Ladakh region are also expected to augment investments in the transmission segment.

Distribution investments to be aided by Revamped Distribution Sector Scheme (RDSS) spending

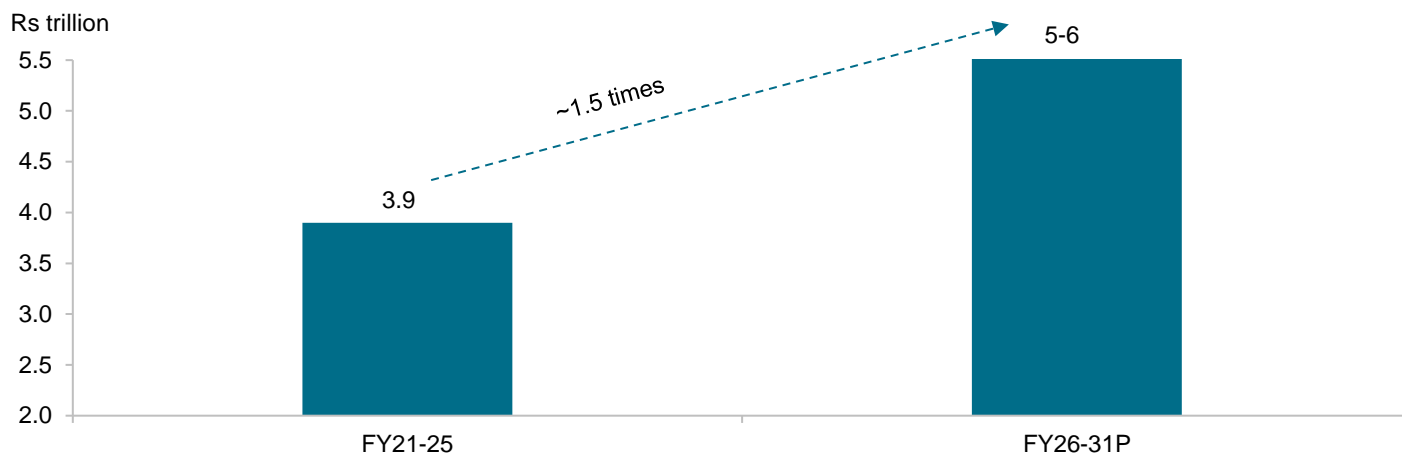
State distribution companies (discoms), the major players undertaking investment in the distribution space, have been reeling under severe financial burden for the last few years on account of collection inefficiencies and mounting receivables to power generation companies (gencos). Revenue dipped in FY21 due to fall in demand from high-paying industrial and commercial consumers on account of reduced economic activity as a fallout of the Covid-19 pandemic.

Although the government's relief package providing loans worth Rs 1.35 trillion by Power Finance Corporation (PFC) Ltd / Rural Electrification (REC) Ltd for clearing power generators' dues eased discoms' liquidity problems in the second half of the FY21 by aiding payments of dues to gencos', the impact was short-lived with dues on the rise again post March 2021. The relief package is also expected to have worsened the debt profile of discoms, forcing them to curb investments over the medium term.

Investments in the segment are likely to gradually pick up FY26 onwards with central / state government(s) expected to provide the required funding support. The distribution segment is expected to attract investments worth Rs 5-6 trillion over FY26 to 31 vis-à-vis ~Rs 3.9 trillion between FY21-25 led by the government's thrust on the Revamped Distribution Sector Scheme, improving access to electricity and providing 24x7 power to all.

Several foreign institutions such as Japan International Cooperation Agency (JICA) and Asian Development Bank (ADB) are also expected to extend credit to the distribution sector. For instance, ADB approved a USD 48 million loan to finance the expansion and upgrading of the power distribution system in Assam. In December 2020, the ADB approved a loan of USD 190 million to Bangalore Electricity Supply Company Ltd for modernization of the power distribution system in Bengaluru city in Karnataka.

Investments in distribution segment of power sector



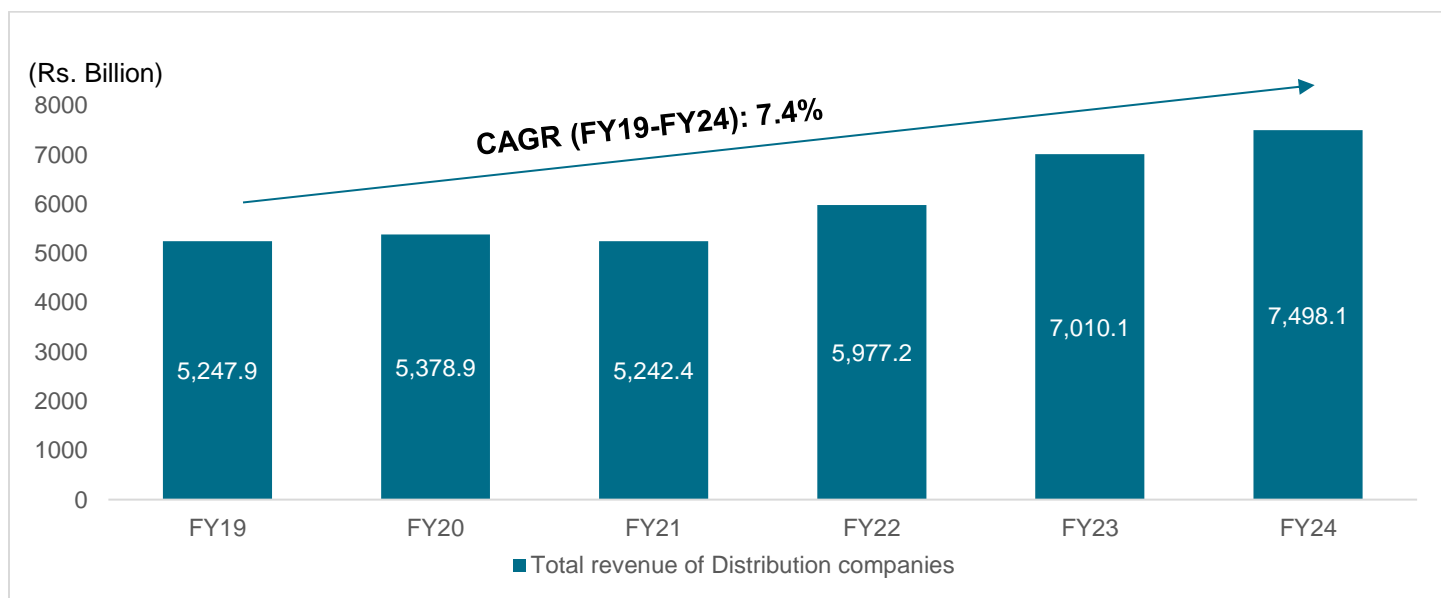
Source: Crisil Intelligence

Revenue of distribution companies has grown at a CAGR of 7.4% from FY19 to FY24

The revenue of distribution companies grew to a CAGR of 7.4% from Rs. 5,247.9 billion in FY19 to Rs. 7,498.1 billion in FY24, driven by increasing electricity demand, government initiatives to enhance power infrastructure, and a rise in industrial and commercial activities. Additionally, the growth was also fuelled by the expansion of renewable energy sources, rural electrification programs, and the implementation of smart grid technologies, leading to improved efficiency and reduced transmission losses.

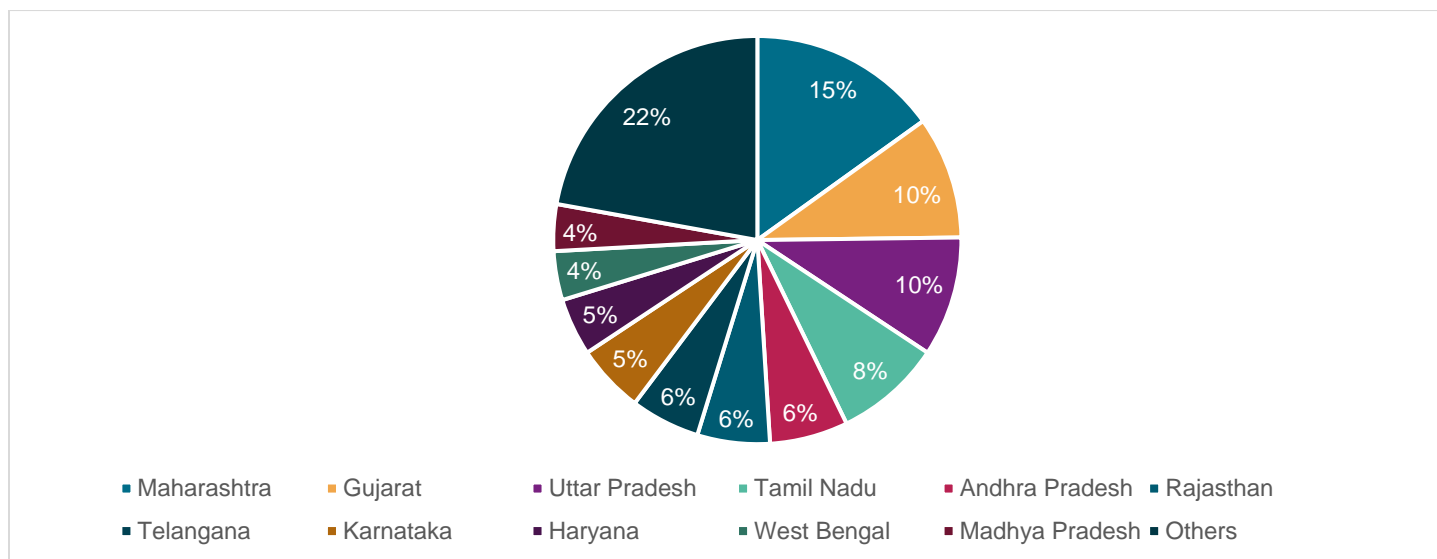
As of FY24, power distribution companies in Maharashtra topped the charts with a share of 15%, it was followed by Gujarat and Uttar Pradesh at 10% each

Revenue of distribution companies over the years (FY19-FY24) (Rs. Billion)



Note: The data pertains to the total revenue of the state-owned distribution companies and private owned distribution companies is considered
Source: PFC India, Crisil Intelligence

State-wise distribution companies' revenue (FY24) (%)



Note: The data pertains to the total revenue of the state-owned distribution companies and private owned distribution companies is considered. Others include Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Chandigarh, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Ladakh, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry, Punjab, Sikkim, Tripura and Uttarakhand.
Source: PFC India, Crisil Intelligence

Key government reforms and policies to reform power transmission and distribution sector in India

The Government of India implemented multiple initiatives aimed at ensuring uninterrupted power supply to every household since 2014. Under the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS) introduced in 2014, and the Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA), introduced in 2017, about Rs. 1,850 billion has been invested to boost distribution infrastructure across various states. Consequently, 18,374 villages have been electrified under DDUGJY, and 29 million households have gained access to electricity through SAUBHAGYA.

Revamped Distribution Sector Scheme (RDSS)

Budgetary allocation towards RDSS increased 15% to Rs 180.00 billion vis-a-vis ~Rs 156.7 billion as per the revised estimates for this fiscal. This scheme targets improving operational efficiency through infrastructural upgrades for electrical equipment and rolling out smart metering across consumer categories. However, implementation has been slow given its large scale, which has led to the sunset date being extended from March 2026 to March 2028; hence, the high allocations in fiscal 2027. As of December 2025, total central grant released under the scheme was ~Rs 370.00 billion, accounting for ~38% of the total sanctioned gross budgetary support. The RDSS is a result-linked evaluation scheme, where DISCOMs must meet the pre-qualifying criteria every year to be eligible for funds under the scheme. Upon the launch of RDSS scheme in 2021, the ongoing projects under IPDS and DDUGY have been subsumed under RDSS.

The primary objective of this scheme is to significantly enhance the quality, reliability, and affordability of power supply to consumers by fostering a financially sustainable and operationally efficient distribution sector.

The RDSS has two major components

- **Part A:** Financial support for prepaid smart metering and system metering, and upgradation of distribution infrastructure.

- **Part B:** Training and capacity building, and other enabling and supporting activities

Features under RDSS:

The RDSS allows discoms to access funds under the scheme for prepaid smart metering, system metering, and distribution infrastructure works aimed at loss reduction and modernization. Financial assistance for distribution infrastructure works is subject to pre-qualifying criteria and minimum benchmarks set for discoms, evaluated based on action plans designed to incentivize fiscally prudent behaviour.

The scheme provides for an annual appraisal of discom performance against predefined and agreed-upon performance trajectories, including AT&C losses, ACS-ARR gaps, infrastructure upgrades, consumer services, hours of supply, and corporate governance. Discoms must score at least 60% and meet minimum thresholds for key parameters to remain eligible for funding under the scheme in any given year.

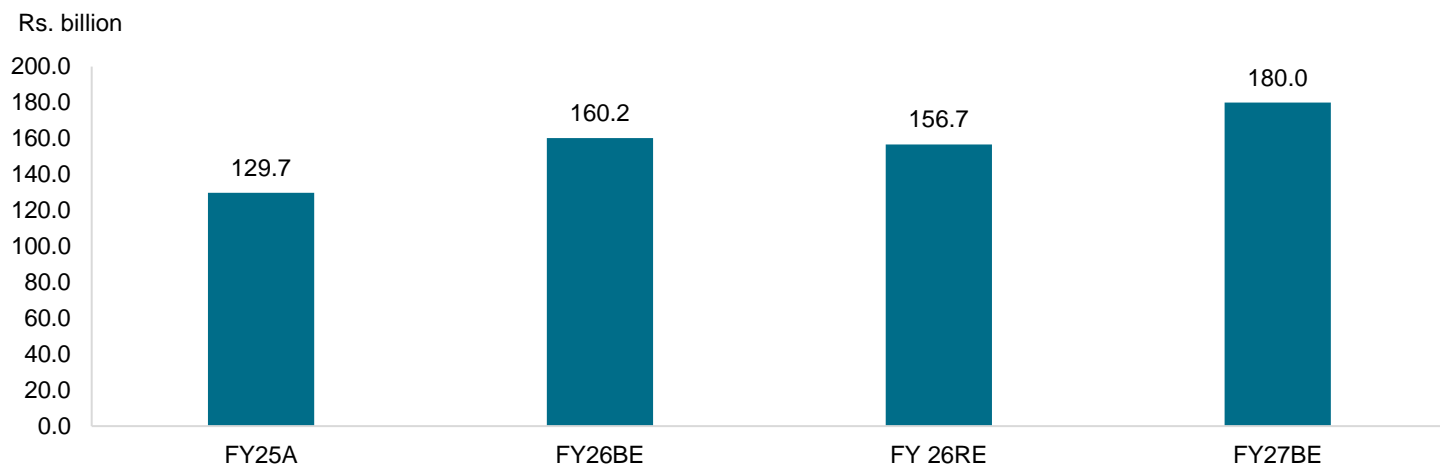
The implementation of the scheme aims to empower consumers through prepaid smart metering, which will be executed in a public-private partnership (PPP) mode, leveraging artificial intelligence to analyse data generated through IT/OT devices. The plan includes system meters and prepaid smart meters to generate system-based energy accounting reports each month, enabling discoms to make informed decisions on loss reduction, demand forecasting, time-of-day (ToD) tariffs, RE integration, and other predictive analyses

Another key focus area of the RDSS is improving electricity supply for farmers by separating agricultural feeders and ensuring daytime electricity supply through convergence with the Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM) scheme for the solarization of agricultural feeders

Achievements under RDSS scheme:

Under RDSS, smart metering works have been sanctioned for 45 distribution utilities in 28 States/ UTs. This covers smart metering of 197.9 million consumers, 5.3 million Distribution Transformers and 0.21 million feeders. As on 31st December 2025, 39.0 million smart meters have been installed under the scheme. In addition, smart meters have been installed by States under their State plans/ other schemes. Overall, 52.8 million smart meters have been installed across the country under various schemes as on 31st December 2025. As a result of collective efforts of states/UTs and various reform measures undertaken, including smart metering implementation, AT&C losses have improved from 21.91% in FY2021 to 15.04% in FY2025

Budget estimates and actuals for RDSS



Note: A: Actuals, RE: Revised Estimates, BE: Budget Estimates

Source: India Budget, Crisil Intelligence

Integrated Power Development Scheme (IPDS)

It aims to enhance the transmission and distribution networks throughout India. The scheme focuses on reducing AT&C losses, implementing IT-enabled energy accounting and auditing systems, improving billed energy based on metered consumption, and enhancing collection efficiency. The scheme primarily focuses on urban areas, including the strengthening of sub-transmission and distribution networks, provision of solar panels on government buildings, metering of feeders, distribution transformers, and consumers, as well as IT enablement of the distribution sector.

Details of works executed under IPDS till November 2024:

- Total closure Cost: Rs. 288.86 billion.
- Installation of 994 nos. of new 33/11kV substations.
- Augmentation of 1609 nos. of 33/11kV substations.
- Laying of 33,884 CKm of HT and LT lines.
- Installation of 59,993 nos. of Distribution Transformers (DTRs).
- Installation of 89,67,566 nos. of Consumer meters/smart meters/prepaid meters/DT meters/Feeder meters/Boundary meters.

Pradhan Mantri Sahaj Bijli Har Ghar Yojana – (Saubhagya)

The Saubhagya scheme, launched in October 2017, has successfully achieved its objective of providing electricity connections to all un-electrified households in rural areas and poor households in urban areas. As of the end of FY22, all states have reported 100% electrification of willing un-electrified households, identified prior to March 31, 2019. This remarkable achievement is a testament to the scheme's effectiveness, with a total of 29 million households electrified since its inception, as reported by the states.

National electricity Plan (NEP)

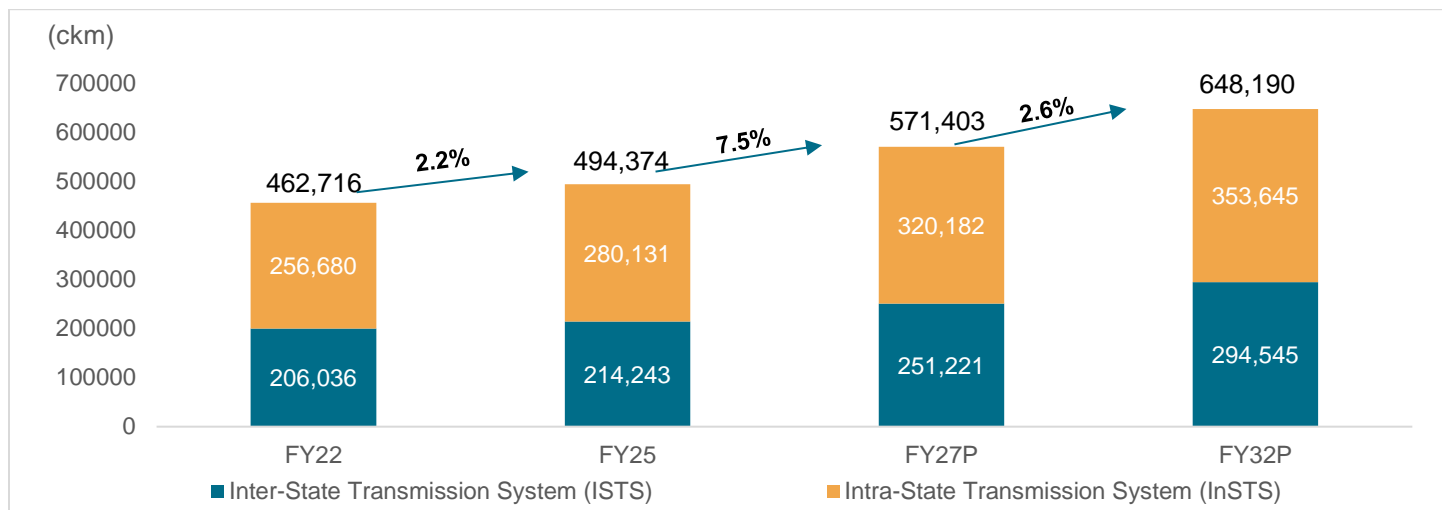
As per Section 3 of the Electricity Act 2003, the CEA must prepare a National Electricity Plan (Transmission) in accordance with the National Electricity Policy and notify it once in five years. The plan would cover transmission and related aspects.

It was estimated that the country would require about 110,281 ckm of transmission lines and about 383,690 MVA of transformation capacity in the substations at 220 kV and above voltage levels for the 13th plan period (FY17-22). Against this target, 88,865 ckm of transmission lines and 349,685 MVA of transformation capacity were added during the period.

In October 2024, the CEA released the National Electricity Plan (Volume II: Transmission) covering the review of development of the transmission system during FY17-22 and detailing the plan for FY22-27. It also provided some perspective for FY27-32.

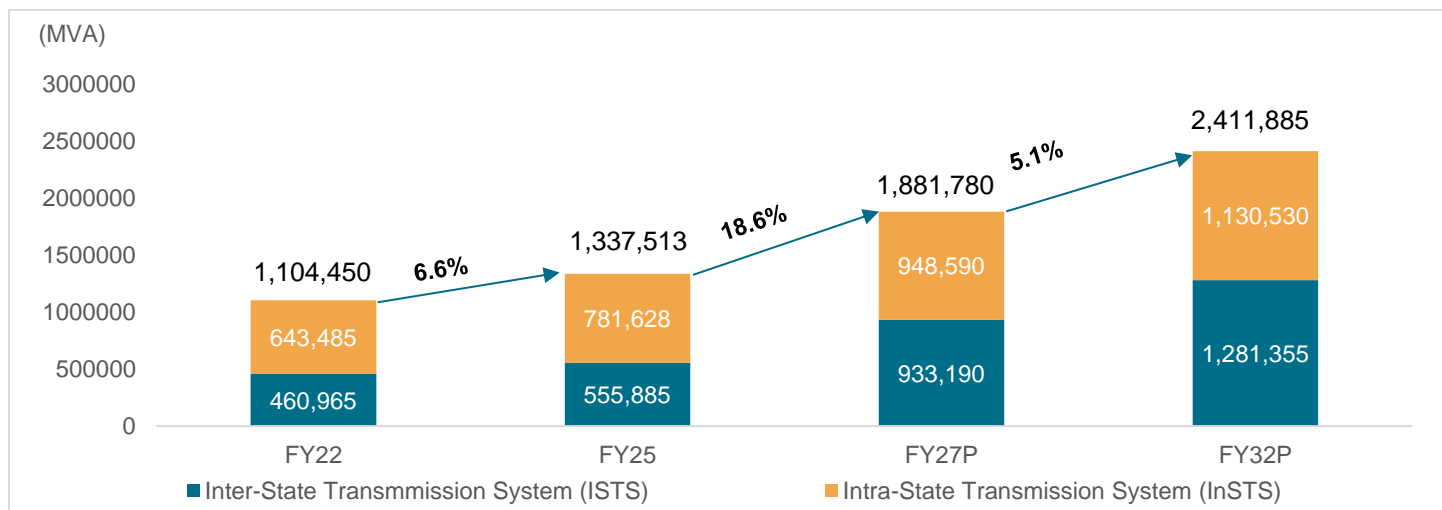
The plans for these periods have been prepared based on peak electricity demand projections and expected generation capacity addition. Based on government transmission line capacity is expected to increase 1.17x and to 571,403 ckm by FY27 from 485,544 ckm in FY24. Similarly, transmission line capacity is expected to increase to 648,190 ckm by FY32. To aid this growth, substation capacity is expected to rise to 1,881,780 MVA by FY27 and by 1.3x to 2,411,885 MVA by FY32.

Total transmission line capacity outlined as per NEP



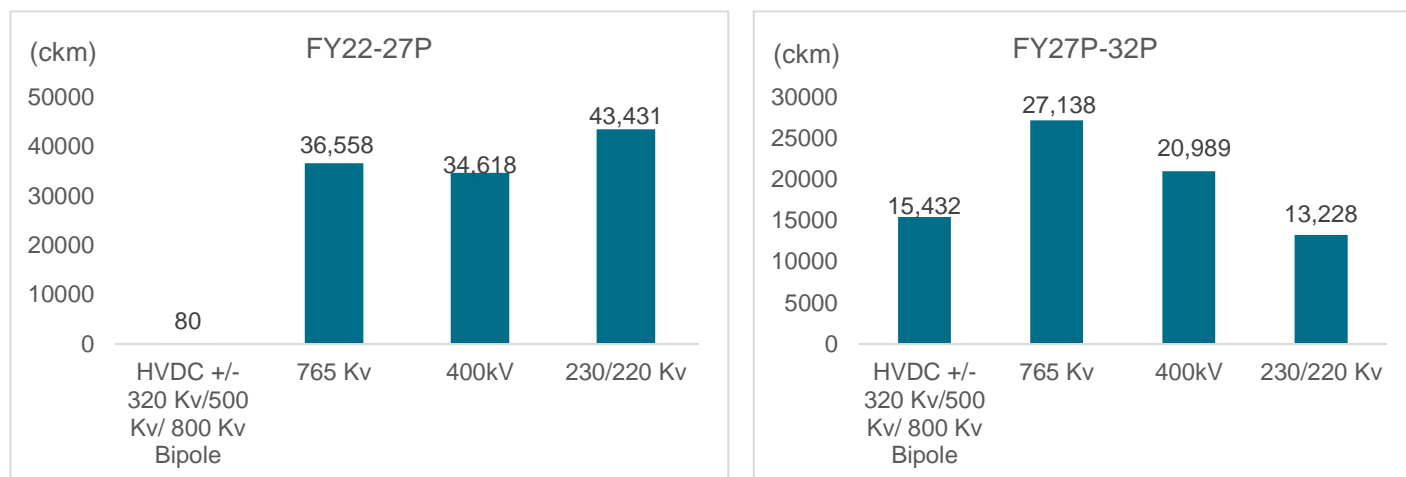
Source: CEA, Crisil Intelligence

Total transmission substation capacity (transformation capacity) outlined as per NEP



Source: CEA, Crisil Intelligence

Voltage-wise transmission line additions from (FY22-FY27P) and (FY27P-FY32P) as per NEP



Source: CEA, Crisil Intelligence

National Smart Grid Mission

The National Smart Grid Mission (NSGM) was established by the Government of India in 2015 to accelerate the deployment of smart grid technologies in the country. The mission is housed under the Ministry of Power (MoP) and has its own resources, authority, and functional and financial autonomy to plan and monitor the implementation of smart grid policies and programs.

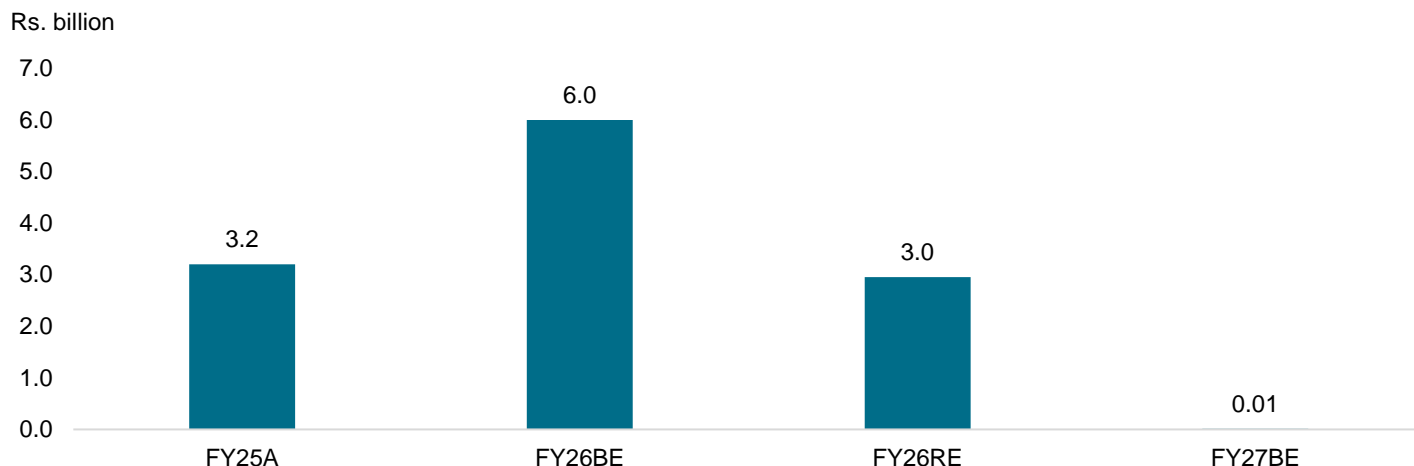
The National Smart Grid Mission spent Rs. 9,800 million (with Rs. 3,380 million budgetary support) in Phase-1, focusing on smart meters and substation renovation. In Phase-2, it spent Rs. 9,900 million (with Rs. 3,120 million budgetary support), emphasizing smart grid rollouts and green power. Phase-3 allocated Rs. 1,369.5 million (with Rs. 454.2 million budgetary support) for completing projects and training, with a focus on distribution system efficiency.

North Eastern Region Power System Improvement Project (NERPSIP)

In December 2014, the Government of India launched the NERPSIP to strengthen the intra-state transmission and distribution systems in six states: Assam, Manipur, Meghalaya, Mizoram, Tripura, and Nagaland. It was initiated to address the region's power infrastructure challenges, which had hindered economic growth and development. The project aimed to enhance the reliability, efficiency, and sustainability of the power supply in the region, ultimately improving the quality of life for its inhabitants. With an initial estimated cost of Rs 51.13 billion, the project was designed to be funded 50% by a loan from the World Bank

As of December 2024, the NERPSIP has made significant progress, 441 elements out of 446 elements and Under Comprehensive Scheme for Strengthening of Transmission and Distribution System in Arunachal Pradesh and Sikkim 182 elements out of 294 elements have been completed.

Budget estimates and actuals for NERPSIP:



Note: Budgetary allocations added for Power System Improvement in North Eastern States excluding Arunachal Pradesh and Sikkim-power component, Power System Improvement in North Eastern States excluding Arunachal Pradesh and Sikkim-EAP component

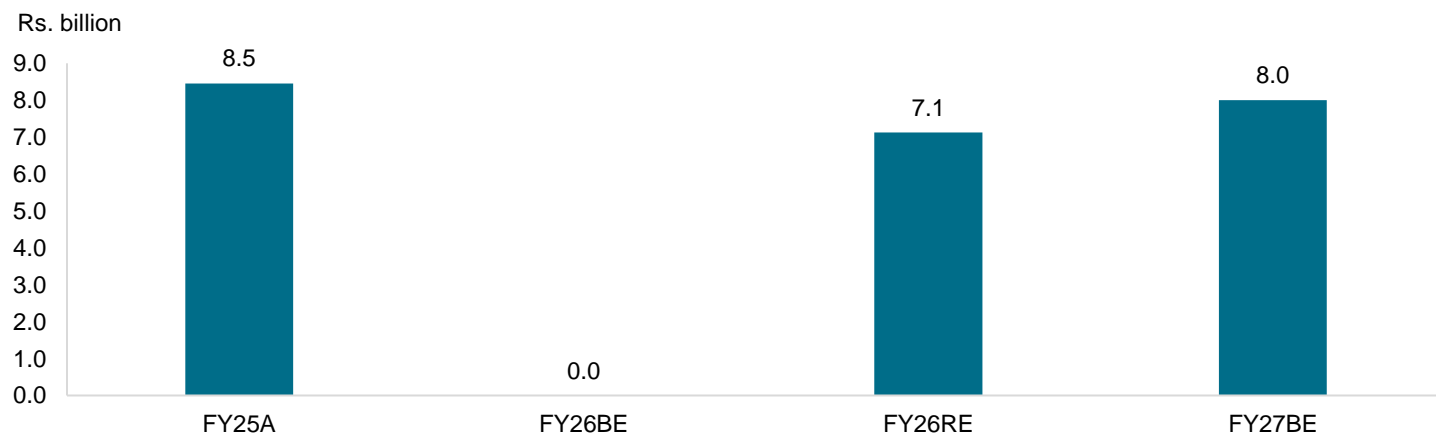
Source: Ministry of Power, Crisil Intelligence

Scheme for strengthening of Transmission & Distribution in Arunachal Pradesh and Sikkim

In October 2014, the Government of India approved a comprehensive scheme to strengthen the transmission and distribution systems in Arunachal Pradesh and Sikkim. The initial estimated cost of the project was Rs. 47.54 billion, with a completion timeline of December 2018. However, the project's cost has been revised to Rs. 91.29 billion, with a revised completion timeline for the awarded scope of work (204 elements) and additional timeline for the unawarded packages (88 elements).

Significant progress has been made, with 175 out of 292 sanctioned elements, including lines and substations, completed. Between January 2023 and June 2024, an additional 64 elements were completed, contributing to the project's progress

Budget estimates and actuals



Source: Ministry of Power, Crisil Intelligence

Odisha Renewable Energy Policy, 2022

The Odisha Renewable Energy Policy 2022 aims to promote the development of renewable energy (RE) projects in the state. The policy provides incentives to encourage the development of RE projects, including an exemption of fifty paise per unit on Electricity Duty for captive/open access consumers who consume energy from RE projects set up inside the state.

This exemption will be available for a period of fifteen years from the date of commissioning, with an additional five years if the project is commissioned before 30.3.2026.

The policy also emphasizes the importance of grid balancing and enables the State Load Despatch Centre (SLDC) to avail services of grid balancing assets. Additionally, it provides for the determination of tariffs that encourage consumers to opt for 100% consumption of green energy. Overall, the policy aims to create a conducive environment for the growth of the RE sector in the state, with a focus on sustainability

Cyclone prone states moving to underground cable power infrastructure

The frequency of occurrences and intensity of cyclonic wind have increased over the years, causing large scale damage to Transmission and Distribution (T&D) infrastructures of coastal states of India, particularly Odisha, West Bengal (WB), Andhra Pradesh (AP), and Tamil Nadu (TN), leading to long outage of power supply to affected areas. To overcome this, the Ministry of Power (MoP) has taken several initiatives to strengthen the existing infrastructure and make it more resilient to cyclones. One of the key measures being adopted by the states is the conversion of overhead power lines to underground cables. This is because underground cables are less prone to damage from strong winds and flying debris, which are common during cyclones. Some of the key type of underground cables used are XLPE cables, PVC cables, HVDC cables, armoured cables, fibre optic cables etc.

The states of Odisha, Andhra Pradesh, Tamil Nadu, and West Bengal, which are the most affected by cyclones, are actively implementing this measure. For instance, Odisha has already started converting its overhead power lines to underground cables in several areas, while Andhra Pradesh and Tamil Nadu are also planning to do the same. This move is expected to significantly reduce the damage to T&D infrastructure during cyclones and minimize the disruption of power supply to affected areas. Additionally, the use of underground cables will also reduce the risk of accidents and injuries caused by fallen power lines and poles.

Furthermore, the conversion to underground cables is also being accompanied by other measures to strengthen the T&D infrastructure, such as the use of stronger poles and towers, and the implementation of smart grid technologies. These measures will not only help to reduce the damage to T&D infrastructure during cyclones but also improve the overall efficiency and reliability of the power supply. The Ministry of Power has also constituted a Task Force to examine the types and nature of damage to electricity infrastructure due to cyclones and to recommend preventive and mitigation measures. The Task Force has recommended several measures for existing new transmission and distribution lines.

Some of the key measures recommended for existing Transmission lines are as follows:

- The replacement of failed / damaged tower (s) [designed as per old standard] with new tower (s) designed according to latest standard in case of irreparable damage to foundation (replacement can be with similar tower/ tension type tower / Steel pole) and strengthening of the towers using hip bracing below the bottom cross arm level.
- Regular Monitoring, Patrolling and Maintenance of transmission lines and use of epoxy-based paint coating for protection of steel structures etc.

Some of the key measures recommended for future / new Transmission lines are as follows:

- Use of underground cable system for connecting to important load centres
- Use of narrow base lattice towers or steel Poles
- To adopt proper measures for foundations & reinforcement of foundation including use of raised chimney in flood prone areas

Some of the key measures recommended for existing Distribution lines are as follows:

- Conversion of overhead lines to underground cable system at 33 kV and 11kV level in urban areas located within 20km of coastline and similar action to be taken in stages for areas located beyond 20km & up to 60km based on importance of connectivity with load centres
- Use of Aerial Bunched cable for 11kV & LT overhead lines
- Splitting the large network into smaller systems for fast restoration etc.

Some of the key measures recommended for future / new Distribution lines are as follows:

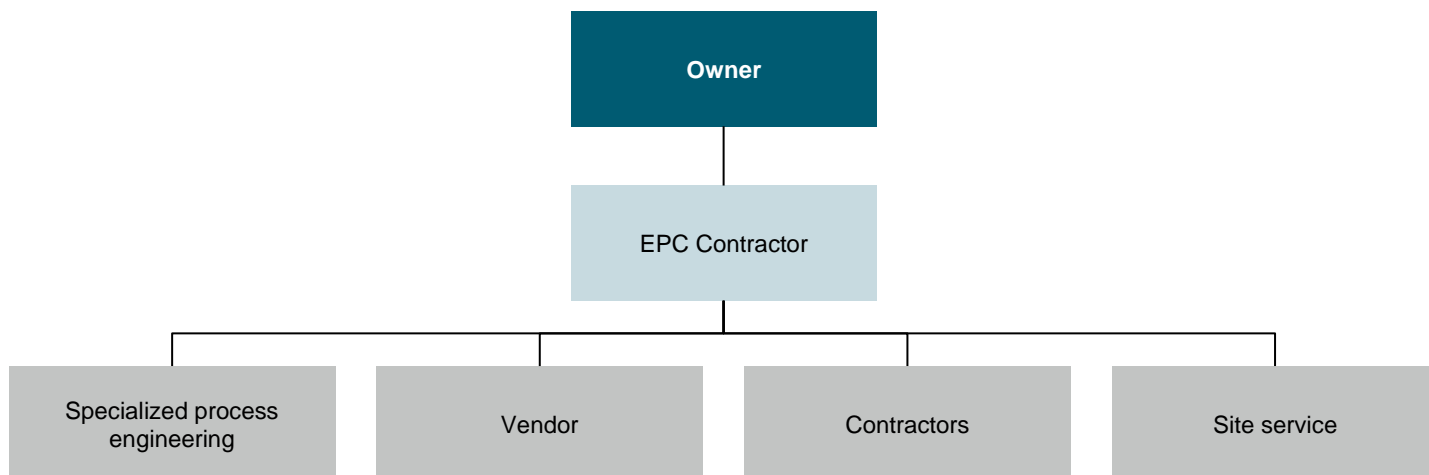
- The designing of underground cable system within 20km from coastline and similar action for areas located beyond 20km & up to 60km based on importance of the connectivity with load centres
- Use of Aerial Bunched Cable for 11kV & LT lines
- Use of HVDS system to avoid long LT line and for other benefits

6. Assessment of construction investments in power sector in India

Overview of power Engineering, Procurement, and Construction (EPC) in India

Over the years, the infrastructure business has seen various contracting methods evolve. Traditional contracting models have been replaced by new approaches as projects have grown more complex. Gradually, the responsibility for project management has moved from the owner or developer to the contractor.

This shift is evident in the move from owner-managed projects to EPC contracts. In EPC contracts, the contractor assumes the risks of time and cost overruns, along with the responsibilities for design, material procurement, and construction. These contracts also shield the owner/developer from currency and interest rate fluctuations. Unlike other contracts where procurement and design are separate processes, EPC contracts integrate them, reducing the overall project duration. Contract which requires heavy financial and technically requirement generally divided into smaller EPC projects.



A typical EPC project covers design, civil works, equipment purchase installation, and commissioning. However, the scope of an EPC work has been evolved over the years and now may also include O&M (Operation and Management) services. Most of the EPC players provide integrated and customised solutions as per the client requirements through a consultative approach. The overall project works are classified as supply (material) contracts and services contracts. In a comprehensive package, most of the EPC providers offer 3-5 years of O&M services after commissioning of the project and after expiry of the services, the developer executes a separate long-term O&M agreement with a dedicated O&M service provider.

Overview of key client types in Indian power EPC industry

In the Indian Engineering, Procurement, and Construction (EPC) industry, clients can be broadly categorized based on their sector and specific requirements. Here are some key client types:

Public Sector Institutions

These include government bodies and public sector undertakings (PSUs) involved in large-scale infrastructure projects.

- **Ministries and Government Departments:** Ministry of power, State electricity boards and ministries, Central Transmission Utility of India Ltd, National Load Despatch Center, etc.
- **Public Sector Undertakings (PSUs):** Organizations like Power Grid Corporation of India, National Thermal Power Corporation, National Hydroelectric Power Corporation, Satluj Jal Vidyut Nigam, Northeast Electric Power Company, etc.

Private Sector Clients

EPC industry also involves significant participation from private companies across different sectors. In the areas of generation, transmission, and distribution, numerous private companies subcontract specific segments to other EPC companies.

Notably, most inter-state transmission projects are awarded through a tariff-based competitive bidding model, which operates on a build-own-operate basis. As a result, companies that win these projects often subcontract certain components to other EPC companies.

Key categories of works undertaken in EPC segment

Mechanical, instrumentation, civil, electrical, operations & maintenance (O&M) and annual maintenance contracts (AMCs) are the key type of EPC works undertaken in the Indian power industry

Mechanical works / erection works is the most critical component when building a power plant due to its high complexity, necessitating involvement of highly specialised suppliers/contractors of power generation, material handling and instrumentation equipment. In terms of civil works, construction requires high design prowess and construction capability due to installation of specialized equipment. Instrumentation and electrical works are of medium complexity level, with equipment and power plant operations conforming to uniform industry standards. Environmental clearance is a must for all the projects. As per interactions with industry stakeholders, EPC contracting is the preferred route for power plants due to standardized process of power plant construction. EPC players typically subcontract different packages of civil, mechanical, instrumentation and electrical works, with specialized suppliers / vendors being awarded contracts for supply of equipment's such as boilers, turbines and generators (BTG), heaters and cooling systems.

Below is the overview of types of EPC works that are undertaken in the power sector. It majorly includes Erection, Testing and Commissioning (ETC) power plants, with complete boilers, turbines and generators (ETC-BTG) and balance of plant (BOP) works, for various sizes and scale. It also includes integrated construction services to power plants, which include responsibly sourced gas (RSG) reactors, waste heat recovery boilers (WHRB), circulating fluidized bed combustion (CFBC) boilers, steam turbine generators, steam generators including auxiliaries, electrostatic precipitators (ESPs), hydro turbines and BOP packages, including structural steel works, ash handling, coal handling, fuel oil systems, selective catalytic reduction (SCR) & flue gas desulphurization (FGD), high-pressure piping works

Overview of EPC works across generation, transmission and distribution in the power sector

Civil (15-20%)*	Mechanical/Erection works (50-55%)*	Instrumentation (10-15%)*	Electrical (10-15%)*	O&M and AMCs (8-12%)*	Miscellaneous (~5%)*
<ul style="list-style-type: none"> Includes Buildings, chimney, cooling tanks, land development, roads & boundary walls, erection and fabrication, substations, foundation for different machinery and material handling, etc. 	<ul style="list-style-type: none"> Erection, testing and commissioning including Various complex and heavy engineering equipment - Turbine-generator and boilers, heaters, cooling system, condensing system, SCR and FGD, substations etc. 	<ul style="list-style-type: none"> Instrumentation and process control requirement is high in case of power sector and various equipment involves: Distributed digital control monitoring, PLC based control, Control system of boiler, turbine & balance of plant etc. 	<ul style="list-style-type: none"> Electrical systems such as auxiliary transformers, generators, panels, electrostatic precipitators, switchgears and cabling, transmission lines, transmission towers, substations, electrification and distribution etc. 	<ul style="list-style-type: none"> Operation and maintenance of power plants Electrical network maintenance O&M contracts of exports 	<ul style="list-style-type: none"> Other components such as procuring licenses, contingencies, pre-operative expenses, other development costs, etc

Note: *Figures in brackets indicate estimated break-up of total project cost across various verticals shown above (civil, mechanical, instrumentation, electrical, O&M and miscellaneous)

Source: Crisil Intelligence

Mode of construction in the power EPC segment

Nations, majorly developing ones, have been investing heavily on large infrastructure projects through public as well as private investments. The power infrastructure sector is highly competitive, and players in this sector face competition from domestic manufacturers and EPC players. To ensure efficient and timely construction, it is imperative to have an effective model which ensures timely project execution, minimise construction delays and improve transparency. The EPC model is primarily used in construction.

Type	Description
Turnkey projects	Under turnkey project structure, the contractor holds full responsibility of design and execution of the works, including EPC. Therefore, the contractor makes the facility ready to be used at the turn of a key. The project must be delivered at a pre-determined time and pre-determined cost, and the contractor must adhere to project specifications. In case of deviations, the contractor is liable to pay monetary compensation.
Balance of plant	In case of balance of plant (BoP) structure, the entire project is broken into multiple packages with a major chunk contracted through EPC route and the rest through BoP. For coal based thermal plants, main plant equipment BTG (Boiler-Turbine-Generator) can be sourced singularly and BoP comprising of all Mechanical, Electrical, Instrumentation & Control systems and equipment as well as entire civil works along with system engineering and plant interfacing can be procured from various manufacturers.

Source: Crisil Intelligence

Key players in EPC & power segment in power industry

Company	Revenue (FY26) (Rs. Million)	Segment wise revenue (FY26) (Rs. Million)
Bharat Heavy Electricals Limited (BHEL) ¹	337,821.80	Power Segment: 254,067.10 Industry Segment: 83,754.70
Sterling and Wilson Renewables Energy Limited (SWREL) ¹	75,480.50	Solar EPC business: 72,774.40 Operation and maintenance service: 2,683.70
Torrent Power Limited (TPL) ¹	289,663.10	Generation: 75,853.60 Transmission and Distribution: 247,644.20 Renewables: 12,411.40

Company	Revenue (FY26) (Rs. Million)	Segment wise revenue (FY26) (Rs. Million)
Larsen & Toubro Ltd. (LT) ¹	2,858,743.60	Infrastructure Projects: 1,353,445.80 Energy Projects: 548,885.90 Hi-Tech Manufacturing: 144,887.90 IT & Technology Services: 539,465.30 Financial Services: 172,834.30 Development Projects: 51,185.10 Others: 79,780.10
BGR Energy Systems Ltd ¹	2,996.90	Capital Goods Segment: 333.10 Construction and EPC Contracts Segment: 2,663.00
KEC International Ltd ¹	235,055.40	EPC: 219,882.90 Others: 22,167.00
Laser Power & Infra Ltd	23,261.04	Manufacturing Goods and Others: 16,708.14 EPC & other services: 6,350.65 Other Operating Revenue: 202.25
Kalpataru Projects International Limited (KPIL) ¹	271,430.60	EPC: 266,487.40 Development Projects: 3,085.60 Others: 2,546.80
Lumino Industries Limited ¹	20,410.73	Manufacturing of cable, conductor & other allied products: 10,905.29 EPC Projects & Other Services: 9,455.19

Note: The above list is not exhaustive and only an indicative list of companies

¹ The values for overall and segment-wise revenue are on reported basis published by the company in their Q4 FY2026 and full year FY2026 investor presentations or company fillings

Source: Annual reports, Crisil Intelligence

Overview of construction spends in Indian power sector

Power construction capex to grow 13-15% in FY26 led by push from renewables and T&D

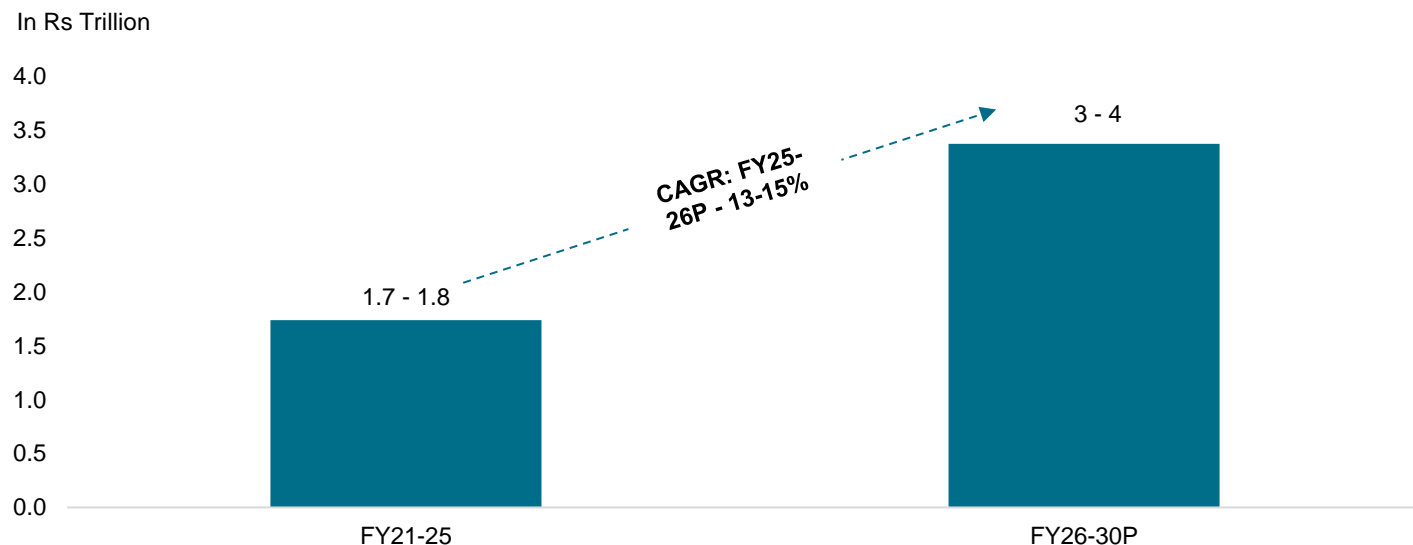
Construction spending on power have risen 13-15% a year in fiscal 2026 driven by capacity additions in the renewable energy space. Significant capacity additions are anticipated in the renewable energy sector over the next five fiscal years, with projections indicating these additions will be more than three times greater than those achieved in the previous five fiscal years. This substantial increase underscores a robust shift towards renewable energy sources, driven by both technological advancements and policy support aimed at reducing carbon emissions and promoting sustainable energy.

However, it's important to note that the construction intensity in the renewable energy sector is lower compared to that in the conventional energy sector. Renewable energy projects, such as solar and wind farms, typically require less intensive construction efforts and shorter project timelines compared to conventional energy projects, such as coal-fired power plants, which involve more complex and extensive construction processes.

In contrast, the conventional energy sector, particularly in the coal segment, has seen slower capacity additions in recent years. This trend is shifting as the government has recently focused more attention on expanding coal capacity. These new additions are expected to be primarily government-led initiatives aimed at meeting base load requirements, ensuring a stable and reliable energy supply as the country continues to develop. This renewed focus on coal capacity highlights

the balancing act between advancing renewable energy and maintaining sufficient conventional energy capacity to support the nation's energy needs

Power construction capex trend



Source: Crisil Intelligence

Investments in Indian power sector

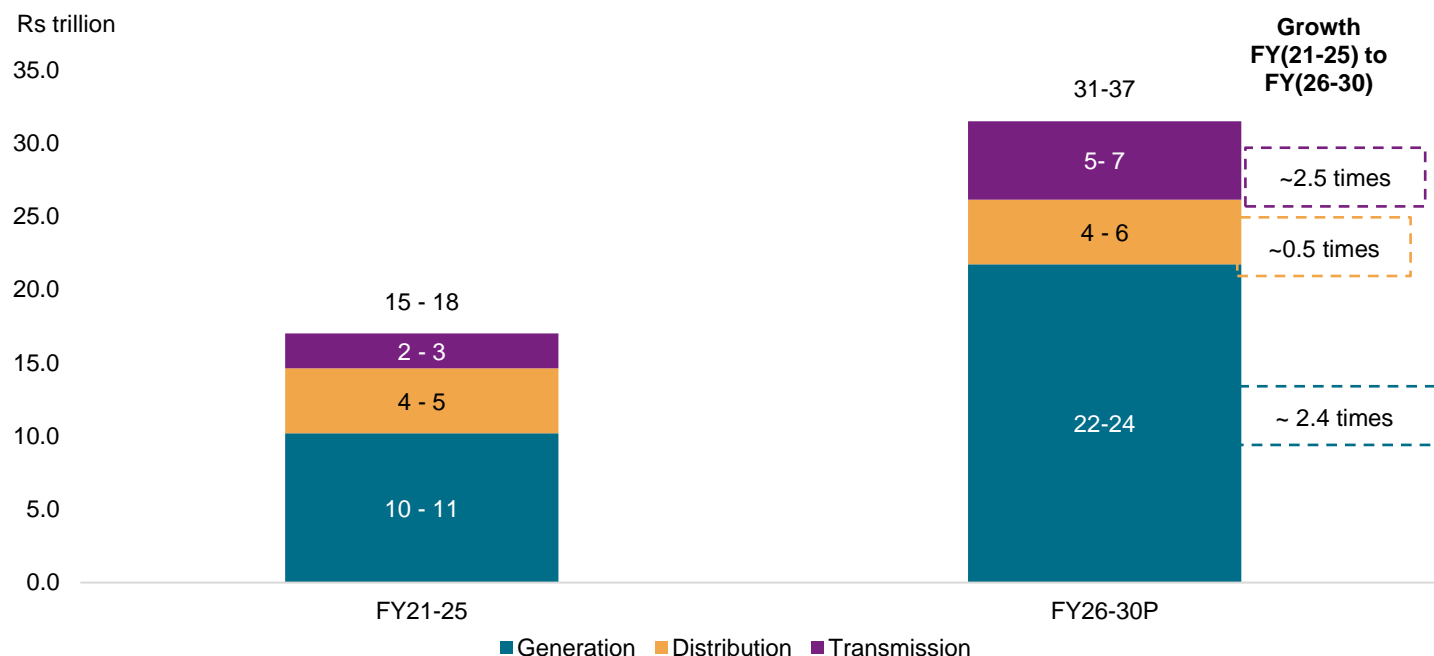
Share of green investments set to rise to ~60% between fiscal 2026-2030 from ~40% between fiscal 2021-2025

Crisil Intelligence projects investments of Rs 31-37 trillion in the power sector between fiscal 2026-2030. Investments in power generation are expected to increase ~2.4 times from Rs 10-11 trillion between fiscals 2021-2025 to Rs 22-24 trillion between fiscals 2026-2030. Investments in renewable energy (excluding hydro, pumped storage and BESS) generation capacity are expected to account for 70% of these investments over the same period as India seeks to achieve its 500 GW of non-fossil energy capacity announced in COP26.

To achieve the RE generation target, strong transmission infrastructure is needed so as to integrate large scale RE capacities into the grid. This is expected to lead to transmission investments of Rs 5-7 trillion between fiscals 2026-2030 from ~Rs – 2-3 trillion between fiscals 2021-2025 led by upcoming ISTS projects.

Additionally, we expect Rs 4-6 trillion worth of investments in the distribution segment between fiscal 2026-2030 driven by upgradation of distribution infrastructure along with installation of smart meters as India focuses on reduction of its carbon emission.

Segment-wise break-up of total power investments



Note: P: Projected, Private sector investments in the distribution are not included

Source: Crisil Intelligence

Investments in generation to be driven by renewable capacity additions between FY25-30

Over the next five years, investments in generation will be led by renewable energy (excluding hydro and storage) capacity additions, followed by investments in conventional generation and FGD installations, indicating a shift in investment flow towards enhancing clean energy supply. Capacity addition from RE sources is expected to be 190-200 GW over FY26 to FY30, and 25-30 GW from coal-based plants sources over the same period. Investments in RE capacity will constitute ~70% of overall generation investments.

With the introduction of tariff-based competitive bidding (TBCB) in 2006 and anticipated healthy return profile, large private conglomerates invested heavily in generation projects. Capacity additions in the private sector were led by players such as Tata Power, Adani Power, Sterlite Energy, KSK Mahanadi and Lanco Infratech. However, lack of adequate long-term power purchase agreements and stretched financials of private developers led to a slowdown in capacity additions and restricted private investments in the generation space. As a result, central and state sectors, which typically have higher funding accessibility and strong execution record, will lead the investments in conventional generation, accounting for over 68-70% of investments over FY26-30.

Renewable energy evacuation, ISTS network expansion and upgradation to boost investment in transmission

Investments in the transmission sector are expected to be driven by the need for a robust and reliable transmission system to support continued generation additions and the strong push to the renewable energy sector as well as rural electrification. Also, strong execution capability coupled with healthy financials of PGCIL will drive investments.

As capacity additions in the country are not evenly distributed geographically, few regions in the country will be in deficit and others in surplus. To cater to this, there will be need to import/export from/to regions. Several inter-regional transmission corridors have been planned, and some of these high-capacity transmission corridors are in various stages of implementation. Newly sanctioned projects under the North-Eastern System Strengthening Scheme and system

strengthening schemes focused in the Ladakh region are also expected to augment investments in the transmission segment.

Distribution investments to be aided by Revamped Distribution Sector Scheme (RDSS) Spending

State distribution companies (discoms) face severe financial burdens due to collection inefficiencies and mounting receivables to power generation companies (gencos). The government's relief package provided temporary liquidity relief, but the impact was short-lived and may have worsened discoms' debt profile. Foreign institutions like JICA and ADB are extending credit to the distribution sector, with loans approved for modernizing power distribution systems in Assam and Bengaluru.

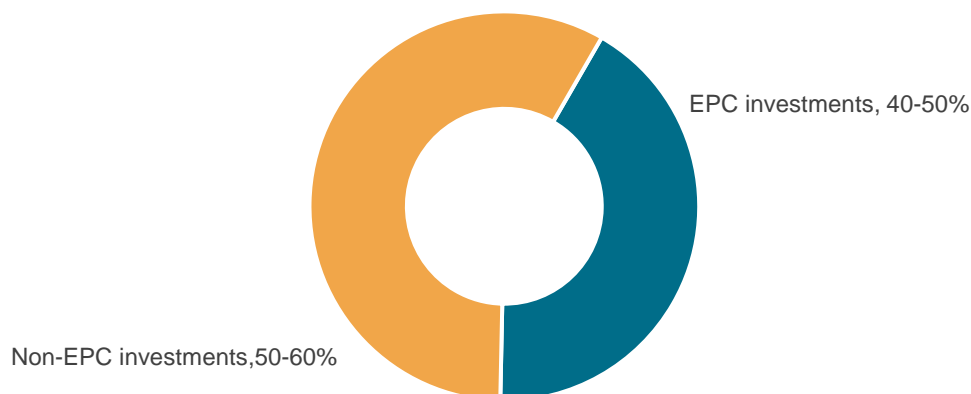
EPC projects make up 40-50% of investments in the power sector

In the power sector, EPC refers to a variety of activities which include design, construction of power plants, substations, transmission lines, procurement of equipment, machinery and materials etc. Projects in the Indian power sector is usually allotted via three primary routes namely EPC, Public Private Partnership (PPP) or the project is executed in-house by the internal teams. Largely, projects are given out via EPC and PPP route barring a few brown field projects which are taken up in-house by power companies.

Indian power EPC sector has witnessed strong growth over the last few years, driven by the increasing demand for electricity, government initiatives, and rising investments in the sector. Specifically, from the construction point of view, activities involve buildings, chimneys, cooling tanks, land development, roads & boundary walls, erection and fabrication, substations, foundation for different machinery and material handling, etc. Most of the small and mid-sized projects in the sector happen via the EPC route, while some bigger projects happen via PPP route on an itemized basis. Some brownfield expansions also happen in-house using internal teams by the companies.

Crisil Intelligence estimates that out of the total investments flowing in the power sector in the country, 40-50% are coming via EPC mode of projects.

EPC investments in the power construction sector



Source: Crisil Intelligence

Key projects under execution/planning/partially completed in the power distribution sector

Project name	Promoter	Project cost (Rs. million)	Description
Power Distribution (Jodhpur) Project - RDSS	Jodhpur Vidyut Vitran Nigam Ltd.	8,903.2	The project will aim to reduce loss by segregation of agricultural/mis feeders, feeder bifurcation, reconductoring works, AB cabling, New 33/11 KV power substation, New 33KV lines and New 11KV lines etc.
Power Distribution (Raipur) Project - RDSS	Chhattisgarh State Power Distribution Co. Ltd.	2,133.3	Chhattisgarh State Power Distribution Co. is implementing Revamped Distribution Sector Scheme (RDSS) for distribution infra works and system smart metering works in Raipur district of Chhattisgarh
Power Distribution (Kodarma, Ramgarh, Chazribagh & Chatra) Project - RDSS	Jharkhand Bijli Vitran Nigam Ltd.	4,359.2	Jharkhand Bijli Vitran Nigam is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by development of distribution infrastructure like replacement of LT conductor with AB cable feeder segregation, feeder bifurcation, HVDS works and other works at Electric Supply Area Hazaribagh in Kodarma, Ramgarh, Chazribagh and Chatra districts of Jharkhand on full turnkey basis
Power Distribution (Chittoor) Project - RDSS	Southern Power Distribution Co. of AP Ltd.	19,414.3	Southern Power Distribution Co. of AP is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by Loss Reduction by Segregation of AGL Feeders and Bifurcation of Overloaded 33 kV Feeders in Chittoor district of Andhra Pradesh on partial turnkey basis.
Power Distribution (Anantapur) Project - RDSS	Southern Power Distribution Co. of AP Ltd.	15,297.7	Southern Power Distribution Co. of AP is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by Loss Reduction by Segregation of AGL Feeders and Bifurcation of Overloaded 33 kV Feeders in Anantapur district of Andhra Pradesh on partial turnkey basis.

Project name	Promoter	Project cost (Rs. million)	Description
Power Distribution (Bhagalpur & Banka) Project - RDSS	South Bihar Power Distribution Co. Ltd.	2,918.2	South Bihar Power Distribution Co. is developing distribution infrastructure for loss reduction component works at Bhagalpur Electric Supply Circle in Bhagalpur & Banka districts of Bihar under Revamped Reformed-Based and Results-Linked Distribution Sector Scheme (RDSS).
Power Distribution (Jamui & Sheikhpura) Project - RDSS	South Bihar Power Distribution Co. Ltd.	2,487.9	South Bihar Power Distribution Co. is developing distribution infrastructure for loss reduction component works at Jamui Electric Supply Circle in Jamui & Sheikhpura districts of Bihar under Revamped Reformed-Based and Results-Linked Distribution Sector Scheme (RDSS)
Power Distribution (Ri-Bhoi) Project - RDSS	Meghalaya Power Distribution Corporation. Ltd.	1,335.9	Meghalaya Power Distribution Corpn. is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) in Ri-Bhoi district of Meghalaya on turnkey basis. The scope of work will include Reconductoring works, Cabling in natural disaster-prone areas etc.

Note: The above list of projects is an indicative list and not an exhaustive list of projects

Source: Projects Today, Crisil Intelligence

Key projects under execution/planning/partially completed in power transmission sector in India

Project name	Promoter	Project cost (Rs. million)	Description
Transmission Line (Chhattisgarh-Haryana) Project	Power Grid Corpn. of India Ltd.	115,000.0	The project involves laying of 1,365 km transmission line between Chhattisgarh and Haryana. The HVDC (high voltage direct current) link between the two states will be implemented in four phases with a total carrying capacity of 6,000 MW.
Transmission System (Arunachal Pradesh & Sikkim) Project - Strengthening	Power Grid Corpn. of India Ltd.	91,419.7	The project involves strengthening of intra-state transmission and distribution system in Arunachal Pradesh and Sikkim. The project comprises 4,240 km of 220, 132, 66, 33 kV transmission lines as well as 1,304 MV A substation transformation capacity through construction of 115 substations. In the process 134 transmission lines will be constructed to cover 15 districts in Arunachal Pradesh and 4 districts in Sikkim.
Transmission Line (Kudus-Aarey Colony) Project	Adani Electricity Mumbai Ltd.	80,000.0	The project involves laying 1,000 MW High Voltage Direct Current (HVDC) Transmission Line of length 80 km between Kudus in Palghar district and in Aarey Colony in Mumbai district of Maharashtra.
Transmission System (Ananthapuram-II REZ) Project [Phase-II]	REC Power Devp. & Consultancy Ltd.	33,390.0	The project aims to implement Transmission System for integration of Ananthapuram-II REZ - Phase-II (3 GW) in Andhra Pradesh.
HVDC System (Raigarh-Pugalur) Project - Upgradation	Government of India, Ministry of Power	32,000.0	Government of India, Ministry of Power plans upgradation of +800 kV, 6000 MW Raigarh-Pugalur HVDC system for enhancement of reverse power capacity up to 6000 MW from existing 3000 MW in Chhattisgarh and Tamil Nadu.

Project name	Promoter	Project cost (Rs. million)	Description
Transmission Scheme (Khavda RE Park) Project [Phase-III Part A]	Halvad Transmission Ltd.	30,000.0	Halvad Transmission is developing Transmission Scheme for evacuation of additional 7 GW of RE Power from Khavda RE Park (Phase-III Part A) in Kachchh district of Gujarat.
Eastern Region Expansion Scheme-XXXIV [ERES-XXXIV]	Paradeep Transmission Ltd.	25,640.0	The project consists of constructing 2 x 1500 MVA, 765/ 400 kV GIS substation at Paradeep with associated bays at Angul and Paradeep (OPTCL), 190 km of 765 kV double circuit transmission line from existing Angul substation of PGCIL to the proposed 765 kV GIS substation at Paradeep and 12 km of 400 kV line from existing OPTCL substation at Paradeep to the proposed 765 kV GIS substation at Paradeep.

Note: The above list of projects is an indicative list and not an exhaustive list of projects

Source: Projects Today, Crisil Intelligence

Key threats and challenges in the power sector

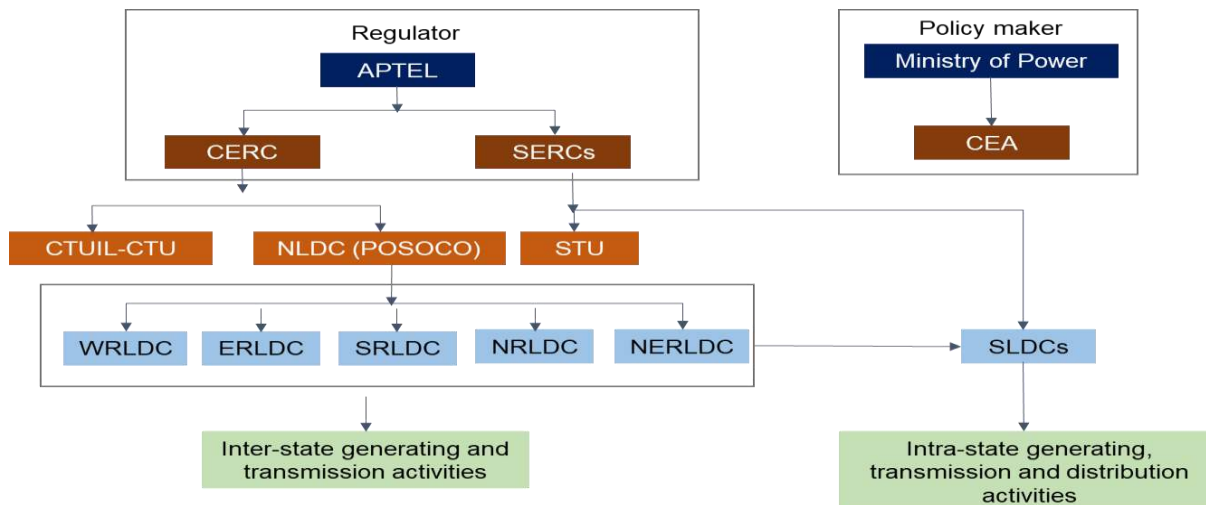
Key challenges	Description
Right of Way (RoW) Issues	<ul style="list-style-type: none"> The acquisition of land and securing RoW for transmission lines remains a significant challenge, resulting in delayed project timelines and increased costs. According to the CEA monthly progress report for February 2025, over 50% of ISTS projects awarded under the TBCB route have cited right-of-way issues as the primary reason for project delays
Additional time taken in environmental clearances	<ul style="list-style-type: none"> The process of obtaining environmental clearance for transmission lines that traverse forest areas is also causing delays in project timelines, ultimately leading to increased costs. As per the CEA monthly progress report, over 30% of the projects are facing challenges related to forest and wildlife clearance, highlighting the significance of this issue in hindering project progress
Synchronous Commissioning (SCOD) Issues	<ul style="list-style-type: none"> The synchronized commissioning of multiple projects is essential to ensure that the transmission infrastructure is ready to evacuate power from generating stations in a timely and efficient manner. Delays in one project can trigger a ripple effect, impact connected projects and leading to a cascade of delays and inefficiencies, ultimately hindering the overall progress of the transmission infrastructure development.

Source: Crisil Intelligence

Regulating authorities and agencies in Indian power sector

The sector is highly regulated, with various functions being distributed between multiple implementing agencies. The three chief regulators for the sector are: the Central Electricity Regulatory Commission (CERC), the Central Electricity Authority (CEA), and the State Electricity Regulatory Commissions (SERCs).

Institutional and structural framework







Note: APTEL - The Appellate Tribunal for Electricity; CERC- Central Electricity Regulatory Commission; CEA - Central Electricity Authority; CTUIL: Central Transmission Utility of India Limited; WRLDC - Western Regional Load Despatch Centre; ERLDC - Eastern Regional Load Despatch Centre; SRDLC - Southern Regional Load Despatch Centre; NLDC: National Load Despatch Centre, NRLDC - Northern Regional Load Despatch Centre; NERLDC - North-Eastern Regional Load Despatch Centre; POSOCO: Power System Operation Corporation, SLDC - State Load Despatch Centre; CTU - Central Transmission Utility; STU - State Transmission Utility

Source: Crisil Intelligence

The Ministry of Power (MoP) works in close coordination with the CERC and CEA. While the CERC's role is more of a regulator for approving tariffs of central utilities, approving licenses, etc., the CEA is primarily a technical advisor focused on planning, i.e., estimating power demand and generation and transmission capacity.

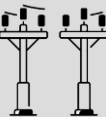



Key growth drivers in the power EPC

Key growth drivers	Description
 <p>Government push towards reducing coal imports</p>	<p>The Indian government aims to reduce its dependence on coal imports by increasing domestic coal production. To achieve this, the government plans to invest in new coal mines, and subsequently augment thermal power plant capacity. This investment is expected to drive infrastructure growth, creating new opportunities for the EPC segment, which will play a crucial role in designing, building, and delivering these projects, thereby boosting the sector's growth.</p>
 <p>Increase focus on renewable energy</p>	<p>India has set a goal of 500 GW of non-fossil fuel-based capacity by 2030. In line with this, India has made a significant shift in its energy landscape towards Renewable energy (RE) with Renewable capacity expected to surpass the 360 GW mark in FY30 on the back of strong renewable capacity additions over FY26-30. By FY30, RE capacity is expected to account for 45-50% of the installed capacity of 745-755 GW. Further additions of renewable energy infrastructure coupled with government support through schemes such as JNNSM and Ultra mega solar parks would further aid the growth in EPC industry.</p>
 <p>Development of T&D infrastructure</p>	<p>In October 2024, CEA released the National Electricity Plan (Volume II) for transmission covering the review of development of the transmission system during FY17-22 and detailing the plan for FY22-27. It also provided some perspective for FY27-32. The transmission line and capacity addition as per NEP is estimated to increase by ~1.2 times to 571,403 ckm by FY27 from 485,544 ckm in FY24. Similarly, transmission line capacity is expected to increase to 648,190 ckm by FY32</p>

	while the substation capacity is expected to rise to 1,881,780 MVA by FY27 and by ~1.3 times to 2,411,885 MVA by FY32. This will aid the growth of projects in the EPC segment of transmission and distribution.
 <p>Rising power demand</p>	Power demand is directly linked to GDP. With rising India's GDP coupled with other factors such as urbanization, rise in population, rise in industrial output the power demand is expected to see a growth of 5-7% between FY25 and FY30. In order to meet the rising demand, the power sector is expected to see a capacity addition from 475 GW in FY25 to 745-755 GW in FY30. This addition of capacities will further aid the construction under power of EPC industry.

Source: Crisil Intelligence

Key risks and challenges in the power EPC

Key challenges	Description
 <p>Distribution- Achilles heel in the Indian power sector</p>	Distribution is the final and critical link in the power sector value chain. However, the financial position of the distribution sector has significantly deteriorated over the past decade owing to irregular tariff hikes, high AT&C losses, and delays in subsidy payments by state governments. This has adversely impacted power offtake by distribution companies (discoms). Though government has implemented schemes such as RDSS, Late payment surcharge (LPS) scheme. The impact of this on the distribution sector needs to be monitored. Any further losses would hinder the infrastructure development in the sector.
 <p>Cost overruns and delays</p>	Regulatory complexities, especially for land acquisition, permissions/approvals required from multiple agencies may lead to delay in project execution and increased operational costs. Similarly, due to increase in material costs, improper estimation can result in cost overruns. Significant cost overrun may affect the project returns.
 <p>Market competition</p>	The market competition in the EPC sector is intense, characterized by a multitude of competitors competing for the same projects. This, coupled with rising input costs will make it difficult for the EPC players to further pass on the costs to their customers. Further, staying abreast of technologies in power generation and storage poses a significant challenge, necessitating ongoing investments in research and development to remain competitive in the market.
 <p>Logistical and geographical challenges</p>	Apart from technical complexity involved in power EPC projects, some of the projects are being implemented in very remote areas which are very difficult to operate, resulting in significant logistical challenges and affecting project timelines and costs. These challenges are further exacerbated by the difficulty in accessing these remote areas, leading to increased costs and delays in project completion.

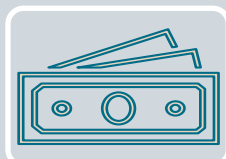
Source: Crisil Intelligence

Integrated players in the power EPC industry entails greater operational, financial and managerial benefits

An integrated approach in the power EPC sector offers several strategic advantages that drive operational efficiency, financial performance, and project management capabilities as the power infrastructure sector is highly competitive, and players in this sector face competition from domestic manufacturers and EPC players. By supplying its own products such as Transformers, cables, conductors, switchgear or power generation equipment, the company ensures a seamless alignment between its product capabilities and the specific needs of the customers. This vertical integration eliminates dependencies on third-party suppliers, reducing the risks of delays, cost overruns, or quality inconsistencies. Moreover, the

company's in-depth knowledge of its products allows for better customization, optimization, and technical support, ensuring that the equipment performs efficiently under project-specific conditions. This approach not only enhances operational efficiency and reliability but also simplifies project execution by maintaining tighter control on supply chain. Integrated Manufacturers such as Laser Power and Infra Ltd, Lumino Industries Ltd, KEC International Ltd. Etc. which manufacture power infrastructure products and components specializing in production of cables, conductors and other specialized products and components to the power transmission and distribution industry in India and also execute EPC projects in power transmission and distribution sector could have strategic advantage due to this approach. For customers, this translates into a more cohesive and cost-effective solution, improved project timelines, and superior long-term performance of power infrastructure, reinforcing trust and long-term partnerships.

Benefits of being an integrated power EPC player



Better cashflow management

Integrated power EPC firms have better control across multiple project stages like procurement, construction, etc. This minimizes dependence on external vendors

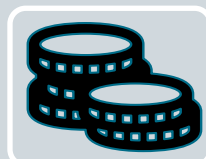
This in turns facilitates cash flow and working capital management.



Reduced turnaround time

Integrated players, possessing better authority over project can effectively mitigate delays linked to external dependencies.

This also facilitates quicker project execution and completion, thereby enhancing their capacity to adhere to client deadlines.



Enhanced cost and margin control

Integrated power EPC companies have better control over project expense due to reduced dependency on external vendors.

This minimizes the likelihood of price volatility in materials and service, which in turn provide safeguard from additional costs.



Quality assurance & risk mitigation

As integrated power EPC players are able to exercise supervision and control across multiple project phases.

This enhanced control facilitates better quality assurance and risk mitigation, which in turn helps in preventing budget overruns or schedule delays.

Policies to improve water infrastructure in India

Jal Jeevan Mission

JJM uses a multi-stakeholder approach, involving the central government, state governments and local communities. It promotes community participation in water management, with a focus on sustainable and equitable use of water resources. It also emphasizes the importance of technological innovations, such as solar-powered water supply systems, to reduce costs and improve efficiency.

The mission has made significant progress with over 74 million FHTCs provided to rural households so far. Community participation in water management is being promoted, with a focus on sustainable and equitable use of water resources. A comprehensive plan has been developed to achieve the mission's objectives, build resilient water supply systems and promote community-led initiatives. It also recognizes the importance of community education and awareness about water management to ensure long-term sustainability of water resources.

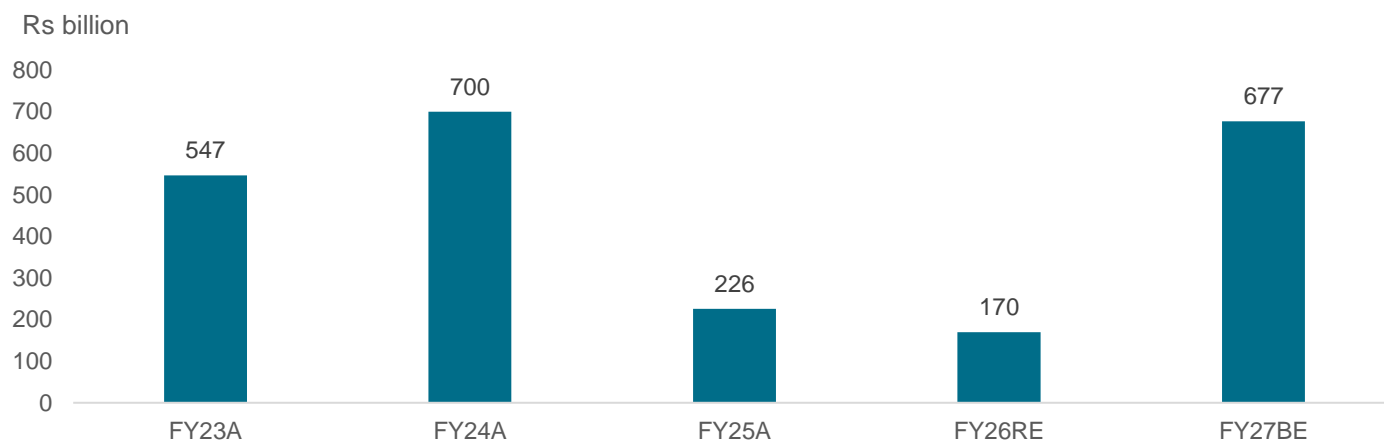
The mission is being implemented in a phased manner by developing in-village piped water supply infrastructure. Local communities are given help in capacity building and training to ensure their active participation in water management. Community-led total sanitation (CLTS) will help improve the overall quality of life in rural areas.

A comprehensive plan has been developed to achieve the mission's objectives. The mission will continue to work towards achieving its objectives, with a focus on community participation, education and technological innovations.

In short, the highlights of the mission are:

- Providing FHTCs to all rural households
- Promoting community participation in water management
- Ensuring sustainable and equitable use of water resources
- Developing a comprehensive plan to achieve the mission's objectives
- Providing community education and creating awareness about water management
- Promoting technological innovations, such as solar-powered water supply systems, to reduce cost and improve efficiency.

Budgetary allocation for JJM



Note: A: Actuals, RE: Revised Estimates, BE: Budget Estimates

Source: Ministry of finance, Crisil Intelligence

The substantial budget allocation for JJM, though with some fluctuation over the years, also reflects the government's commitment to providing adequate funding to support the mission's objectives. The funds allocated to are utilized to provide tap water supply to households and to maintain and upgrade existing water supply infrastructure. The steady increase in household connections provided under the mission suggests it is on track to achieve its targets. Overall, the data suggests that JJM is making progress towards its objectives and the government is committed to supporting the mission through adequate funding.

AMRUT 2.0

The AMRUT 2.0 scheme was launched on October 1, 2021, by the Ministry of Housing and Urban Affairs (MoHUA) with the aim of making cities self-reliant and water secure. The scheme is a continuation of the previous AMRUT scheme, which was launched in 2015. It is designed to provide basic services such as water supply, sewage and urban transport to households and build amenities in cities to improve the quality of life for all citizens, especially the poor and disadvantaged.

The main objectives of AMRUT 2.0 are:

- **Universal piped water supply:** Giving water tap connections to all households to ensure every household has access to clean and safe drinking water
- **Universal coverage of sewerage and septage management:** To provide universal coverage of sewerage and septage management in 500 AMRUT cities, ensuring that every household has access to proper sanitation facilities
- **Promoting circular economy of water:** Recycling and reusing treated sewage, reducing the burden on freshwater resources and minimizing the environmental impact of wastewater disposal
- **Rejuvenation of water bodies:** To augment water availability, enhance amenity value and develop green spaces, which will, in turn, improve the overall aesthetic and environmental quality of urban areas
- **Making cities *atmanirbhar* and water secure:** By ensuring they have necessary infrastructure and resources to manage their water needs sustainably

The total indicative outlay for AMRUT 2.0 is Rs 2,990 billion, including the total Central assistance of Rs 767.6 billion, for five years (FY22 to FY26). As on November 15, 2024, Central assistance of Rs 639.77 billion was approved to states/UTs, of which Rs 117.56 billion has been released so far. The states/UTs have reported utilization of Rs 65.40 billion of central share, and cumulatively, with state's share, the total expenditure reported by states/UTs is Rs 170.89 billion.

Tentative distribution of central fund allocation among project components of Mission planned during launch of AMRUT 2.0

Description	Central share (Rs. Billion)
Water supply projects	352.5
Rejuvenation of water bodies and developing green spaces & parks projects	39
Sewerage and septage management projects	276
Total tentative central allocation (CA) on projects	667.5

Source: AMRUT 2 guidelines (MoHUA), Crisil Intelligence

Key water distribution projects in India

Sr no	Project	State / Union territory	Total cost (Rs Mn)	Status
1	Telangana Drinking Water Supply Scheme	Telangana	4,28,530	Under Implementation
2	Ganga Drinking Water Lift Scheme (Hathidah)	Bihar	40,000	Under Implementation
3	Pipe Water Supply Scheme (Mathura)	Uttar Pradesh	33,115	Under Implementation
4	Pipe Water Supply Scheme (Narora Barrage)	Uttar Pradesh	30,703.9	Under Implementation
5	Water Supply Scheme (Manipur)	Manipur	30,545.8	Under Implementation
6	Combined Water Supply Scheme (Ramanathapuram & Dindigul) [Package-1 to 6]	Tamil Nadu	28,740	Under Implementation
7	Sultanpur Grant Water Supply Scheme	Uttar Pradesh	26,210.8	Under Implementation
8	Water Pipeline (Tappar Dam-Darasdi Dam-Jamara Dam) Project	Gujarat	20,294.5	Under Implementation
9	Rural Piped Water Supply Scheme (Ganjam) [Package-IV]	Odisha	16,776.8	Under Implementation
10	Piped Water Supply Scheme (Sundargarh)	Odisha	13,999.9	Under Implementation
11	Water Supply Scheme (Habra-Gaighata)	West Bengal	4,325.2	Under Implementation

Sr no	Project	State / Union territory	Total cost (Rs Mn)	Status
12	Water Supply Scheme (Gobindpur & Nirsa)	Jharkhand	7,170.0	Under Implementation
13	Andhra Pradesh Water Grid Project	Andhra Pradesh	4,66,750	Planning
14	Marathwada Water Grid Project	Maharashtra	2,50,000	Planning
15	Kondhane Water Supply Scheme	Maharashtra	52,430	Planning
16	Drinking Water Supply Scheme (Godavari River) - [Phase-II, III] - (Pkg-I)	Telangana	32,254.7	Planning
17	Water Supply Scheme (Gargai-Pinjal)	Maharashtra	31,050	Planning
18	Water Supply Scheme (Chambal-Alwar-Bharatpur) [Package-2] Project	Rajasthan	23,910.3	Planning
19	Integrated Drinking Water Supply Scheme (Chitradurga)	Karnataka	22,750	Planning
20	Drinking Water Supply Scheme (Kodambakkam & Adyar)	Tamil Nadu	19,582.5	Planning

Note: The above list is not exhaustive and only an indicative list of projects

Source: Projects Today, Crisil Intelligence

7. Peer benchmarking

In this section, Crisil Intelligence has analysed some select key players operating in the power cables, conductors and power EPC industry in India. Data has been obtained from publicly available sources, including annual reports and investor presentations of listed players, regulatory filings, rating rationales, and/or company websites and social media pages.

Note: The competitive landscape peers mentioned are not an exhaustive list and is an indicative list. Peers have been selected based on the product and service offerings and comparable revenue range and based on their status of being publicly listed.

Overview of select peers considered for power cables, conductors and power EPC industry in India

Company Name	Year of incorporation	Description
Laser Power & Infra Limited	1988	Laser Power & Infra Limited is into manufacturing industrial cables and conductors. The company also has an EPC division catering to power transmission and distribution. Laser Power and Infra Limited are the stranding partners of TS Conductors, USA, a manufacturer of the Aluminium Encapsulated Composite Conductor (AECC).
Listed Players		
Apar Industries Limited	1989	Apar Industries is a part of the Apar Group, which has presence in the electrical and power sector. Apar Industries Limited is into the production of conductors, transformer oils, polymers, etc. The company caters to various sectors including power transmission, telecommunication, and the automotive industry, etc.
Dynamic Cables Limited	2007	Set up in 1986 as a partnership firm, Dynamic Engineers, by the Mangal family, the entity got reconstituted into a private-limited company in 2007 and was converted into a public-limited entity with the current name in 2017. The company manufactures conductors and cables such as low-voltage, medium-voltage and high-voltage power cables, aerial bunches cables, aluminium conductors (steel-reinforced and aluminium alloy conductors) and railway signalling cables. It has three manufacturing facilities in Jaipur in Rajasthan.
KEI Industries Limited	1992	KEI Industries is into manufacturing electrical cables, including high voltage, extra-high voltage, instrumentation, and house wiring cables, etc. The company has presence in multiple industries such as construction, utilities, and infrastructure, etc.
Polycab India Limited	1996	Polycab India is into manufacturing FMEG products such as fans, LEDs, Heaters, Wires and Cables, Switch gears, etc. The company caters to cables, Renewables and EPC industries.
Universal Cables Limited	1945	Universal Cables Limited provides range of products within cables as well as capacitors segment. Its cables and capacitors are known by the brand name "UNISTAR".

Note: Year of incorporation as per MCA website

Source: Company websites, Crisil Intelligence

Operational parameters

Segmental revenue

Company Name	Details of key business activities/ products and services sold by company (accounting for 90% of the turnover)	Revenue contribution** FY26
Laser Power & Infra Limited	Sale of product	72%
	Erection & Other services	27%
	Others@@	1%
Listed Players		
Apar Industries Limited	Manufacturing of AAC/ AAAC/ ACSR Conductors	52%
	Manufacturing of Transformer & Specialty Oils	22%
	Manufacturing Power/ Telecom Cable	25%
	Manufacturing of Polymer	1%
Dynamic Cables Limited	Manufacturing of HT, LT and Railway Signalling Cables	76%
	Manufacturing of Conductors	6%
	Manufacturing of renewables	18%
KEI Industries Limited	Manufacturing and selling of Wires and Cables	95%
	Manufacturing and selling Stainless-Steel Wires	2%
	Turnkey Projects / Engineering, Procurement and Construction (EPC)* Projects Segment	3%
Polycab India Limited	Manufacturing of wires and cables	87%
	Manufacturing fans, lighting and luminaries, switchgear, switches, and small domestic appliances.	7%
	Engineering Procurement & Construction segment	6%
Universal Cables Limited	Manufacturing of power (Electrical) and other Cables, Wires and related turnkey projects	96%
	Others@@	4%

Note:

**Revenue contribution is considered as disclosed in the respective company's annual report and have not been reclassified by CRISIL

@@The company has not provided 100% revenue breakup of key business activities/ products and services sold by company. Therefore, the remaining revenue, has been classified as "Others"

* Excluding Cables

The percentages may not add up to 100% due to rounding off

Source: Company annual reports, filings, CRISIL Intelligence

Key cables and conductors players product portfolio and their manufacturing location

Company Name	Manufacturing location	Cables and Conductors product portfolio
Laser Power & Infra Limited	Dhulagarh (Units I & II), West Bengal Kharagpur (Unit III), West Bengal	Cables and conductors
Listed Players		
Apar Industries Limited	Conductors - Jharsuguda (Odisha) Conductors - Lapanga Sambhalpur (Odisha) Oils & Lubricants - Sharjah (UAE) Cables & Telecom - Khatalwada (Gujarat) Cables & Telecom - Umbergaon (Gujarat) Conductors - Silvassa (Dadra & Nagar Haveli) Conductors - Athola (Dadra & Nagar Haveli) Oils & Lubricants - Silvassa (Dadra & Nagar Haveli) Polymers - Umbergaon (Gujarat) Oils & Lubricants - Navi Mumbai (Maharashtra)	Cables: Elastomer and E-beam cables, light duty cables and wires, fibre optic cables Conductors: AL59 conductors, HTLS conductors, dull finish conductors, CTC/PICC conductors, railway overhead conductors, optical ground wires (OPGW), T&D overhead conductors
Dynamic Cables Limited	Jaipur & Sikar (Rajasthan)	Conductors: Bare conductors such as All Aluminium Alloy (AAA) conductors, Aluminium Conductor Steel Reinforced, AA conductors etc., Insulated Conductors Cables: 66 KV HV Power cable, MV Aerial Bunched cables, UL Certified cables, Galvanized Stay Wire/ Earth Wire, Railway Signalling cables, LV Aerial bunched cables etc.
KEI Industries Limited	Cables, House wires, Stainless steel wires - Bhiwadi (Rajasthan) Cables, House wires - Rakholi, Silvassa (Dadra & Nagar Haveli) Cables - Chopanki (Rajasthan) Cables - Pathredi (Rajasthan) Cables, House wires, Communication Cables - Chinchpada, Silvassa (Dadra & Nagar Haveli) PVC Compound plant - Harchandpur (Rajasthan) PVC Compound plant - Dapada (Dadra & Nagar Haveli)	Cables: Instrumentation cables, marine & offshore cables, solar cables, rubber cables, flat cables, EV cables, Single core/ multi core flexible cables, fire survival/ resistant cables, ESP cables, communication cables, thermocouple cables, MVCC cables, winding wires, house wires, stainless steel wires Conductors: Medium voltage covered conductors
Polycab India Limited	W&C, Fans, Switches, Pipes & Conduits, Metal Box – Halol (Gujarat) and Daman Fans – Roorkee (Uttarakhand) Switchgears – Nashik (Maharashtra) Pipes & Conduits – Chennai (Tamil Nadu) Metal Box – Bengaluru (Karnataka)	Cables: Flexible wires, building wires, LV and MV power cables, optical-fibre cables, communication and data cables, rubber cables, control cables, instrumentation cables, solar cables, other cables, EHV cables, special cables, flame retardant wire, single /twin core solid aluminium cable, multicore round cable
Universal Cables Limited	Satna (MP) South Goa (Goa)	Cables: XLPE cables, PVC cables, Elastomeric cables

Please note, the manufacturing locations mentioned above may not match with the total manufacturing facilities mentioned in the subsequent table as some of location have multiple facilities.

The cables and conductors product portfolio is only an indicative list and not exhaustive

Source: Annual reports, company websites, Crisil Intelligence

Manufacturing facilities and capacity

Company Name	Manufacturing Facilities	Manufacturing capacity ⁴
Laser Power & Infra Limited	3	Cables & Conductors: 85,448 MT
Listed Players		
Apar Industries Limited	Cables & Telecom: 2 Conductors: 6 Polymers: 1 Oil & Lubricants: 4 Total: 13 ¹	Cables: 8,80,176 KM Conductors: 4,44,607 MT Specialty oils (including lubricants): 8,61,600 KL
Dynamic Cables Limited	4 ⁵	Cables ⁵ : 7,930 Kms per month Conductors ⁵ : 10,600 Kms per month
KEI Industries Limited	4 ²	Cables: 194,900 km House Wires/Winding wires: 2,375,000 km Communication cable: 28,800 kms Stainless steel wire: 9,000 MT
Polycab India Limited	27	Wires & Cables: 6,000,000 km Fans: 9,000,000 Switches: 10,000,000 Pipes & Conduits: 28,800 MTPA Metal box: 5,100,000 Switchgears: 24,000,000
Universal Cables Limited	2 ³	XLPE Insulated Medium Voltage Power cables of all types and voltage grades: ~6000 KMs/ annum ⁶

Note:

N.A.: Not Available

The manufacturing facilities mentioned in the above table may not be exclusively allocated to the manufacturing of the specific product and may be used for the production/ manufacturing of other products as well.

¹As per Apar Industries Ltd, company website, company has four manufacturing facilities related to conductors and two related to cables and telecom. In total, the company has 13 manufacturing facilities. Installed capacity for cables, conductors and speciality oils are as per ratings rationale dated August 5, 2025.

²As per KEI Industries Ltd ratings rationale dated February 5, 2026, the company has 4 manufacturing plants

³As per Universal Cables Limited website accessed in June 2026

⁴Manufacturing capacity details may not be exhaustive as capacity details are not entirely reported by all the peers

⁵As per Dynamic Cables Limited website accessed in June 2026

⁶As per disclosure dated March 2024

Source: Company websites, Annual reports, Crisil Intelligence

Export revenue (FY26)

Company Name	Export revenue share (%)	Domestic revenue share (%)
Laser Power & Infra Limited	2.21%	97.79%
Listed Players		
Apar Industries Limited ¹	29.90%	70.10%

Company Name	Export revenue share (%)	Domestic revenue share (%)
Dynamic Cables Limited¹	6.40%	93.60%
KEI Industries Limited¹	15.00%	85.00%
Polycab India Limited¹	5.40%	94.60%
Universal Cables Limited²	8.68%	91.32%

Note:

N.A.: Not Available

¹ For Apar industries Ltd., KEI Industries Ltd., Polycab India Ltd. And Dynamics Cables Limited, contribution of exports as a percentage of the total turnover of the entity is considered as export revenue share which is as reported by the company

² For Universal Cables Limited, contribution of exports as a percentage of the total turnover of the entity is considered as of FY25

Source: Annual reports, Company documents, Crisil Intelligence

Financial parameters

Apar Industries Limited

Parameters	Units	FY24	FY25	FY26	CAGR (FY24-FY26)
Revenue from Operations [^]	Rs. million	161,529.80	185,812.10	229,021.20	19.07%
Revenue – manufacturing ^{^1}	Rs. million	160,303.90	184,370.50	227,060.50 ⁴	-
Revenue – EPC [^]	Rs. million	NA	NA	NA	-
EBITDA ^{^2}	Rs. million	16,320.00	16,810.00	20,670.00	-
EBITDA Margin	%	10.10	9.00	9.00	-
PAT [^]	Rs. million	8,251.10	8,213.00	9,769.30	-
PAT Margin [^]	%	5.10	4.40	4.30	-
Return on Equity (RoE) [^]	%	27.00	19.60	19.80	-
Return on Capital Employed (RoCE) [^]	%	26.38	22.86	NA	-
Net Debt [^]	Rs. million	-1,784.60	-2,162.80	NA	-
Net Debt / Equity ^{^3}	Times	-0.05	-0.05	NA	-
Net Debt / EBITDA [*]	Times	-0.11	-0.13	NA	-
Net Working Capital [^]	Days	NA	NA	NA	-

Note: NA: Not Available

All values have been considered on a consolidated basis

[^]The numbers reported are not comparable across peer set. The numbers mentioned are not based on Crisil's standard formulae and are not calculated by Crisil. Numbers mentioned are reported numbers by the company in their fillings documents such as annual report, corporate or investor presentation, quarterly financial report etc.

¹ refers to Revenue from Conductor, Transformers & Specialties Oil and Power/Telcom Cables

² EBITDA post open period forex excluding interest income

³ Adjusted net (cash)/debt to adjusted equity ratio

⁴ Revenue from Conductor, Transformers & Specialties Oil and Power/Telcom Cables

* The numbers are calculated by Crisil using the formula Net Debt / EBITDA

Source: Annual reports, Company documents, Crisil Intelligence

Dynamic Cables Limited

Parameters	Units	FY24	FY25	FY26	CAGR (FY24-FY26)
Revenue from Operations [^]	Rs. million	7,680.04	10,253.73	11,978.17	24.89%
Revenue - manufacturing ^{1^}	Rs. million	7,678.16	10,212.17	NA	-
Revenue – EPC ³	Rs. million	-	38.25	NA	-
EBITDA ⁴	Rs. million	772.80	1,053.60	1,296.00	-
EBITDA Margin ⁵	%	10.06	10.28	10.80	-
PAT [^]	Rs. million	377.71	645.42	844.37	-
PAT Margin ^{2^}	%	4.92	6.32	7.05	-
Return on Equity (RoE) [^]	%	19.30	22.05	20.00	-
Return on Capital Employed (RoCE) [^]	%	29.56	26.39	26.80	-
Net Debt [^]	Rs. Million	1,193.89	581.05	NA	-
Net Debt / Equity [^]	Ratio	0.56	0.16	NA	-
Net Debt / EBITDA [*]	Ratio	1.54	0.55	NA	-
Net Working Capital [^]	Days	NA	NA	NA	-

Note: NA: Not Available

All values have been considered on a Standalone basis

[^] The numbers reported are not comparable across peer set. The numbers mentioned are not based on Crisil's standard formulae and are not calculated by Crisil. Numbers mentioned are reported numbers by the company in their filings documents such as annual report, corporate or investor presentation, quarterly financial report etc.

1 Revenue from Sale of Products

2 Net Profit margin

3 Revenue from EPC contract

4 Refers to Operating EBITDA

5 Refers to Operating EBITDA Margin

6 Company terms it as Operating profit

7 Company terms it as Operating Margin

8 Calculated value: PAT/ Total Income

* The numbers is calculated by Crisil using the formula Net Debt / EBITDA

Source: Annual reports, Company documents, Crisil Intelligence

KEI Industries Limited

Parameters	Units	FY24	FY25	FY26	CAGR (FY24-FY26)
Revenue from Operations [^]	Rs. million	81,207.28	97,358.77	117,477.65	20.28%
Revenue - manufacturing ^{1^}	Rs. million	71,714.47	93,928.94	114,370.73	-
Revenue – EPC ^{2^}	Rs. million	9,326.33	6,562.39	3,111.00	-
EBITDA [^]	Rs. million	8,865.50	10,627.60	13,876.00	-
EBITDA Margin [^]	%	10.92	10.92	11.81	-
PAT [^]	Rs. million	5,807.33	6,964.14	9,184.33	-
PAT Margin [^]	%	7.16	7.15	7.82	-

Return on Equity (RoE) [^]	%	20.00	16.00	15.00	-
Return on Capital Employed (RoCE) [^]	%	27.00	25.00	24.00	-
Net Debt [^]	Rs. million	7,341.68	2,324.90	NA	-
Net Debt / Equity [^]	Times	0.00	0.00	0	-
Net Debt / EBITDA [^]	Times	0.20	0.20	0.10	-
Net Working Capital [^]	Days	NA	NA	NA	-

Note: NA: Not Available

All values have been considered on a Consolidated basis

[^] The numbers reported are not comparable across peer set. The numbers mentioned are not based on Crisil's standard formulae and are not calculated by Crisil. Numbers mentioned are reported numbers by the company in their fillings documents such as annual report, corporate or investor presentation, quarterly financial report etc.

1 Revenue from Cables & Wires + Revenue from Stainless Steel Wire

2 Revenue from EPC Projects which is adjusted for inter segment elimination

Source: Annual reports, Company documents, Crisil Intelligence

Polycab India Limited

Parameters	Units	FY24	FY25	FY26	CAGR (FY24-FY26)
Revenue from Operations [^]	Rs. million	180,394.44	224,083.13	288,837.92	26.54%
Revenue - manufacturing ^{1^}	Rs. million	171,732.64	204,107.94	271,553.80	-
Revenue – EPC ^{2^}	Rs. million	7,810.86	19,052.48	16,502.62	-
EBITDA [^]	Rs. million	24,918.00	29,602.00	40,057.00	-
EBITDA Margin [^]	%	13.80	13.20	13.90	-
PAT [^]	Rs. million	18,029.17	20,455.37	27,084.27	-
PAT Margin [^]	%	10.00	9.10	9.40	-
Return on Equity (RoE) [^]	%	24.17	22.54	24.60%	-
Return on Capital Employed (RoCE) [^]	%	29.60	28.70	31.30%	-
Net Debt [^]	Rs. million	-16,725.05	-14,546.67	(32,680.22)	-
Net Debt / Equity [*]	Times	-0.20	-0.15	(0.27)	-
Net Debt / EBITDA [*]	Times	-0.67	-0.49	(0.82)	-
Net Working Capital [^]	Days	44.00	44.00	25.00	-

Note: NA: Not Available

All values have been considered on a Consolidated basis

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1 Revenue from Wires & Cables + Revenue from Fast Moving Electrical Goods

2 Revenue from Construction Contracts

^{*} The numbers are calculated by Crisil Using the below formula:

- $Net\ Debt / Equity = Net\ Debt / Total\ Equity$
- $Net\ Debt / EBITDA = Net\ Debt / EBITDA$

Source: Annual reports, Company documents, Crisil Intelligence

Universal Cables Limited

Parameters	Units	FY24	FY25	FY26 ³	CAGR (FY24-FY26)
Revenue from Operations ¹	Rs. million	20,206.68	24,083.86	30,226.73	22.31%
Revenue - manufacturing ^{1^}	Rs. million	13,810.52	18,736.56	NA	-
Revenue – EPC ^{2^}	Rs. million	6,206.05	5,061.85	NA	-
EBITDA [^]	Rs. million	2,593.53	2,486.21	NA	-
EBITDA Margin [*]	%	12.69	10.23	NA	-
PAT [^]	Rs. million	1,082.25	893.85	1,631.09	-
PAT Margin [*]	%	5.29	3.68	5.35%	-
Return on Equity (RoE) [^]	%	6.91	6.70	NA	-
Return on Capital Employed (RoCE) [^]	%	9.13	9.76	NA	-
Net Debt [^]	Rs. million	7,655.36	8,396.86	NA	-
Net Debt / Equity [^]	Times	0.89	0.99	NA	-
Net Debt / EBITDA [*]	Times	2.95	3.38	NA	-
Net Working Capital [^]	Days	NA	NA	NA	-

Note: NA: Not Available

All values have been considered on a Consolidated basis

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1 Revenue from Sale of manufacturing products (Predominantly Electrical Cables and Capacitors)

2 Revenue from Engineering, Procurement and Construction Contracts/ Works Contracts

3 Calculated value: PAT/ Total Income

* The numbers are calculated by Crisil using the following formula:

- $EBITDA\ Margin = EBITDA / Total\ Income$, as the company includes other income in its EBITDA calculation, Crisil has considered total income in the denominator
- $PAT\ Margin = PAT / Total\ Income$
- $Net\ Debt / EBITDA = Net\ Debt / EBITDA$

Source: Annual reports, Company documents, Crisil Intelligence

Laser Power and Infra Limited

Parameters	Units	FY24	FY25	FY26	CAGR (FY24-FY26)
Revenue from Operations [^]	Rs. million	17,475.78	25,703.97	23,261.04	15.37%
Revenue - manufacturing ^{1^}	Rs. million	15,076.02	18,319.84	16,708.14	-
Revenue – EPC ^{2^}	Rs. million	2,197.50	7,133.49	6,350.65	-
EBITDA ³	Rs. million	1,561.04	2,503.87	3,014.42	-
EBITDA Margin ⁴	%	8.93%	9.74%	12.96%	-
PAT [^]	Rs. million	404.09	1,067.54	1,515.91	-
PAT Margin [^]	%	2.29%	4.12%	6.46%	-

Return on Equity (RoE)^	%	10.41%	19.76%	23.32%	-
Return on Capital Employed (RoCE)^	%	12.49%	17.58%	17.83%	-
Net Debt^	Rs. million	3,931.84	4,984.96	8,013.59	-
Net Debt / Equity^	Times	0.61	0.81	1.10	-
Net Debt / EBITDA^	Times	2.52	1.99	2.66	-
Net Working Capital^	Days	101	88	138	-

Note: NA: Not Available

All values have been considered on a Consolidated basis

^ The numbers reported are not comparable across peer set. The numbers mentioned are not based on Crisil's standard formulae and are not calculated by Crisil. Numbers mentioned are reported numbers by the company in their filings documents such as annual report, corporate or investor presentation, quarterly financial report etc.

1 Revenue- Manufacturing goods and others

2 Revenue from sale of services (Installation and commissioning charges)

3 Refers to Operating EBITDA

4 Refers to Operating EBITDA Margin

The following formulas have been used by the company for the calculation of the parameters:

- EBITDA is calculated as aggregate of profit before exceptional item (if any) and tax, depreciation and amortization expenses and finance costs, less other income
- EBITDA Margin is calculated as EBITDA divided by revenue from operations expressed as a percentage
- ROE (Return on Equity) is calculated as profit attributable to owners of the company for the year divided by average of equity attributable to owners of the company as at the end and beginning of the fiscal year expressed as a percentage
- ROCE (Return on Capital Employed) is calculated as earnings before interest and tax divided by Total Capital Employed as at the end of the fiscal year expressed as a percentage. Earnings before interest and tax are calculated as the aggregate of profit before exceptional item (if any) and tax, and finance costs, less other income. Total Capital Employed is calculated as the aggregate of Total Equity, Total Borrowings has less cash and cash equivalents and deferred tax liabilities (net) as at the end of the fiscal year. Total equity is as appearing in Restated Consolidated Financial Information. Total Borrowings is calculated as non-current borrowings plus current borrowings
- Net Debt is calculated as Total Borrowings less cash and cash equivalents as at the end of the fiscal year
- Net Debt/Equity is calculated as Net Debt divided by Total Equity at the end of the fiscal year
- Net Debt/EBITDA is calculated as Net Debt divided by EBITDA
- Net Working Capital days is calculated as Average of Net Working Capital at the end and beginning of the fiscal year divided by Revenue from operations and multiplied by 365. Net Working Capital is Inventories + Trade Receivables – Trade Payables – Contract Liabilities as at the end of the fiscal year.

5 RoE, RoCE, Net debt/EBITDA are not annualised

Source: Annual reports, Company documents, Crisil Intelligence

Glossary

Acronym	Expansion	Acronym	Expansion
AAAC	All Aluminium Alloy Conductor	JICA	Japan International Cooperation Agency
AAC	All Aluminium Conductor	JJM	Jal Jeevan Mission
ACAR	Aluminium Conductor Alloy Reinforced	km	Kilometre
ACS	Average Cost of Supply	kV	Kilovolt
ACSR	Aluminium Conductor Steel Reinforced	Kwoh	Kilowatt-hour
ADB	Asian Development Bank	LME	London Metal Exchange
AI	Artificial Intelligence	LOA	Letter of Award
AMC	Annual Maintenance Contracts	LOI	Letter of Intent
AMRUT	Atal Mission for Rejuvenation and Urban Transformation	LPS	Late Payment Surcharge
APS	Announced Pledged Scenario	LT	Low Tension
ARR	Average Revenue Realized	LV	Low Voltage
AT&C	Aggregate Technical and Commercial	LV-PVC	Low Voltage Polyvinyl Chloride
BESS	Battery Energy Storage Systems	MAHSR	Mumbai-Ahmedabad High Speed Rail
BMS	Battery Management System	MEP	Mechanical, Electrical and Plumbing
BoP	Balance of Plant	MNRE	Ministry of New and Renewable Energy
BQC	Bidder Qualification Criteria	MoHUA	Ministry of Housing and Urban affairs
BTG	Boiler-Turbine-Generator	MoP	Ministry of Power
BU	Billion Units	MoSPI	Ministry of Statistics and Programme Implementation
CAGR	Compound Annual Growth Rate	MT	Metric Tonnes
CBTC	Communication-Based Train Control	MV	Medium Voltage
CCV	Continuous Catenary Vulcanization	MVA	Megavolt-Ampere
CEA	Central Electricity Authority	MW	Megawatt
CERC	Central Electricity Regulatory Commission	NA	Not Available
CFA	Central Financial Assistance	NEP	National Electricity Plan
CFBC	Circulating Fluidized Bed Combustion	NERPSIP	North-Eastern Region Power System Improvement Project
ckm	Circuit Kilometres	NICDP	National Industrial Corridor Development Programme
CPC	Central Pay Commission	NIP	National Infrastructure Pipeline
CY	Calendar Year	NMP	National Monetization Pipeline
DAS	Distributed Acoustic Sensing	NNI	Net National Income
DDUGJY	Deen Dayal Upadhyaya Gram Jyoti Yojana	NRP	National Rail Plan
discoms	State distribution companies	NSGM	National Smart Grid Mission
DPR	Detailed Project Report	NZE	Net Zero Emissions
DTRs	Distribution Transformers	O&M	Operation and Management
DTS	Distributed Temperature Sensing	OPGW	Optical Ground Wire
EHV	Extra High Voltage	PBC	Performance Bank Guarantee
EMI	Electromagnetic Interference	PE	Provisional Estimates
EPC	Engineering, Procurement and Construction	PFCE	Private Final Consumption Expenditure
EPR	Ethylene Propylene Rubber	PLI	Production Linked Incentive
ESPs	Electrostatic Precipitators	PPP	Public-Private Partnership
ETC	Erection, Testing and Commissioning	PQ	Pre-Qualification

Acronym	Expansion	Acronym	Expansion
ETCS	European Train Control System	PSU	Public Sector Undertaking
EV	Electric Vehicle	PVC	Polyvinyl Chloride
EVPCS	Electric Vehicle Public Charging Stations	QC	Quality Control
FE	Final Estimates	RBI	Reserve Bank of India
FGD	Flue Gas Desulphurization	RDSS	Revamped Distribution Sector Scheme
FHTC	Functional Household Tap Connection	RE	Renewable Energy
FMCG	Fast-Moving Consumer Goods	REC	Rural Electrification
FRE	First Revised Estimates	Rkms	Route Kilometres
FY	Fiscal Year	RLDS	Reform Linked Distribution Scheme
GDP	Gross Domestic Product	RoW	Right of Way
GEC	Green Energy Corridor	RSG	Responsibly Sourced Gas
gencos	Power generation companies	SAE	Second Advance Estimates
GVA	Gross Value Added	SAUBHAGYA	Pradhan Mantri Sahaj Bijli Har Ghar Yojana
GW	Giga Watt	SCOD	Synchronous Commissioning
HPC	High Performance Conductor	SCR	Selective Catalytic Reduction
HSR	High-Speed Rail	SOC	States-of-Charge
HT	High Tension	SERC	State Electricity Regulatory Commission
HTLS	High Temperature Low Sag	SLDC	State Load Dispatch Centre
HV	High Voltage	STEPS	Stated Policies Scenario
HVDC	High Voltage Direct Current	STU	State Transmission Utilities
IBRD	International Bank for Reconstruction and Development	T&D	Transmission and Distribution
IDA	International Development Association	TBCB	Tariff-Based Competitive Bidding
IIP	Index of Industrial Production	TWh	Terawatt-hour
IMF	International Monetary Fund	USD	United States Dollar
ISTS	Interstate Transmission System	UV	Ultraviolet
InSTS	Intra-State Transmission System	VCV	Vertical Continuous Vulcanization
IOT	Internet of Things	WHRB	Waste Heat Recovery Boilers
IPDS	Integrated Power Development Scheme	XLPE	Cross-Linked Polyethylene
IEA	International Energy Agency		
IEEMA	Indian Electrical and Electronics Manufacturers' Association		

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