

*Working Paper on*

# **Approach for Rate of Return for Distribution and Retail Supply of Electricity in India**

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## INTRODUCTION

The retail supply of electricity is a licensed business under the Electricity Act, 2003 (“the Act”) and any company can undertake distribution and supply of electricity by obtaining distribution license from the State Electricity Regulatory Commission (“the State Commission”). The price<sup>2</sup> of electricity supplied by distribution licensee is regulated by the State Commission. While regulating tariff of electricity, the State Commission guarantees the fixed rate of return on investments besides recovering all other costs incurred. The rate of return on investment is estimated based on the risk involved in the business and prevalent cost of capital.

1.2 Clause (d) of *Section 61* of the Electricity Act, 2003 and clause (a) of Para 5.11 of Tariff Policy, 2016<sup>3</sup> provides guiding principle for determination of rate of return. It further mandates for maintaining a balance between the interests of consumers and the need for investment. The rate of return should be determined based on the assessment of overall risk and prevalent cost of capital. The Tariff Policy, 2016 further provides for allowing reasonable surplus and to attract investment for the growth of power sector. In order to ensure adequate return to the investors, rate of return should be commensurate with the risk and at par with returns available from alternate investment opportunities<sup>4</sup>. The Central Electricity Regulatory Commission (“the Central Commission”), from time to time, notifies the rate of return on equity for generation and transmission projects keeping in view the assessment of overall risk and the prevalent cost of capital. The rate of return notified by Central Commission for inter-state transmission of electricity is generally

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<sup>2</sup> Price of electricity is named as tariff of electricity under the Electricity Act, 2003.

<sup>3</sup> Relevant portion of Clause (a) of Para 5.11 of Tariff Policy, 2016, “..... Return on Investment Balance needs to be maintained between the interests of consumers and the need for investments while laying down rate of return. Return should attract investments at par with, if not in preference to, other sectors so that the electricity sector is able to create adequate capacity. The rate of return should be such that it allows generation of reasonable surplus for growth of the sector.

The Central Commission would notify, from time to time, the rate of return on equity for generation and transmission projects keeping in view the assessment of overall risk and the prevalent cost of capital which shall be followed by the SERCs also. The rate of return notified by CERC for transmission may be adopted by the SERCs for distribution with appropriate modification taking into view the risks involved. For uniform approach in this matter, it would be desirable to arrive at a consensus through the Forum of Regulators.....”

<sup>4</sup> For considering alternative investment opportunities, risk of similar sector needs to be compare. For example, power projects are infrastructure projects, so return in other infrastructure segment to be considered for comparison purpose.

adopted by the State Commission for distribution of electricity. The adoption of rate of return of inter-state transmission system for distribution system may be justified on the premise that the technical characteristics of distribution and transmission of electricity are similar as both these activities involved electrical network operation.

1.3 The distribution licensee owns and operates network infrastructure that brings energy to homes, businesses and industrial facilities. It is a network services and comparable with transmission of electricity. Apart from network services, the distribution licensee also provides end user services such as measuring usage of electricity (reading meter), billing and payment service on a monthly basis, handles emergency situations such as power outages or interruptions of supply caused by severe weather, loss of power at your homes or neighboring areas etc. Effectively, distribution licensees in the country are performing dual business functions: **First**, it performs distribution network operation which carries power from transmission or distribution network and delivers at the doorstep of the consumer. **Second**, it performs retail supply of electricity which provides value added services to the consumer in addition to meeting demand on a just in time basis. It is like a distributor directly supplies product to the retail consumers without involvement of retail suppliers. Network operations carried out by transmission licensee and distribution licensee is of the nature of business to business (*'b2b'*) whereas retail service is of the nature of business to customer (*'b2c'*) business. Apart from nature of business, risk involved in both these activities i.e. between network service and retail service, are different and hence, expected return may also be different.

1.4 The statutory framework of the Act and Tariff Policy, 2016 framed thereunder provides that the return should be provided adequately to ensure growth. In entire electricity value chain, except power distribution, transmission and generation of electricity have witnessed substantial growth, investment and innovation in the last two decades. The sustainability of the distribution business has been further challenged in the present economic scenario<sup>5</sup>. It is important that, for ensuring growth and sustainability, the business should offer

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<sup>5</sup> At present, the recovery and financial position of distribution companies plagues due to effect of pandemic.

adequate return and internal accruals so that further expansion, innovations and improvisation can be taken up. The distribution licensee in India deals with a large consumer base in comparison with developed countries and therefore, the risk and scale of operations involved in retail supply of electricity is relatively higher in India. This requires specific attention towards the distribution and supply business.

1.5 Most of the State Commission are adopting the rate of return for distribution and supply business based on rate of return specified by the Central Commission for inter-state transmission system on the premises that the risk associated in distribution and supply is comparable with transmission business. The risk and rate of return on capital towards distribution and retail supply may be different from transmission system due to several counts such as the distinct nature of retail supply of electricity in comparison to distribution of electricity, variation in risk in retail supply of electricity in comparison to other activity of entire value chain of electricity, the additional efforts required to maintain consumer base in competitive market and ensuring consumer satisfaction by providing quality service. The assumption that rate of return for transmission system would also represent the risk associated with retail supply of electricity needs to be examined in view of differentiation exists between transmission of electricity and retail supply of electricity. In this paper, attempt has been made to examine some of the factors which distinguished the retail supply of electricity from network<sup>6</sup> business and have bearing on risk involved in distribution and retail supply of electricity. The estimation of expected rate of return of distribution and supply of electricity requires quantification of risk of various factors.

## **2. RETAIL SUPPLY OF ELECTRICITY**

2.1 Generally, value chain of any commodity includes various intermediaries when product moves from supplier to consumer - (i) Producer supplies commodity to distributor; (ii) Distributor gets the commodity from suppliers for retailing; (ii) Transporter facilitates conveyance from supplier to distributor; (iii) Wholesaler gets the commodity product from

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<sup>6</sup> Network represents distribution system and transmission system both.

distributor; (iv) Wholesaler can also accept bulk order directly from consumer; (v) Retailers gets the product from wholesaler; and (vi) Retailer sell the product to customers in outlet or online stores. Retailer is also named as a supplier to the consumer. Manufacturer through intermediaries are supplying product to distributor. These intermediaries are part of a market and bringing value additions, innovations to the product.

2.2 It may be observed that value chain of general commodity recognizes supplier, transporter, distributor, wholesaler, bulk consumer, retailer and consumer. On the similar line, sub-clause (a) of subsection (1) of *Section 86*<sup>7</sup> of the Act also recognizes the entire value chain of electricity i.e. generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail. Since electricity is also commodity, the legislative intent reflects under the statute is to provide treatment of electricity in line with value chain of another commodity. While the Act recognizes retailer, wholesaler but it recognizes distribution of electricity inclusive of distribution of electricity and retail supply of electricity. Retailer and wholesaler are not recognized as a separate entity from distribution licensee under *Section 14* of the Act. This could be probable reason why concept of retail supply of electricity has not evolved in the Electricity Supply Industry in India.

### **Retail Electricity Service Provider**

2.2 Retail Electricity Service providers are companies that purchases wholesale electricity from electricity generators, distributor or wholesaler and sell it at a retail level to the consumers. Internationally, the Retail Electricity Service Provider are already existing with different names such as Retail Electric Providers (REPs), Competitive Retail Electric Service providers (CRES), or licensed electric suppliers.<sup>8</sup> Distribution of electricity is carried out by distributing companies in the area of supply as per their license. Since the

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<sup>7</sup> Clause 86(1)(a) provides as “... (a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:.....” (*Emphasis supplied*)

<sup>8</sup> These electricity service providers to be licensed or certified by the state in order to sell electricity similar to the sale of general commodity is permitted by the Municipal authority. This is possible with partial deregulation of retail electricity service. State’s public utility commission exists at international level keeps an up to date list of these electricity providers so that consumer can be certain that you are purchasing electricity from an authorized electricity provider. Since retail electricity service provider is covered under the distribution licensee under the Act, retail service business is fully regulated by the State Commission in India.

distribution licensee is responsible for distribution of electricity, the distribution licensee, as retail service provider or wholesaler<sup>9</sup>, supplies electricity to retail consumer. Internationally, distribution of electricity is recognized separate from retail sale of electricity. In Indian context, clause (a) of subsection (1) of *Section 86* of the Act, already recognizes the retailer, wholesaler and supply separately in line with international practice. However, for the purpose of license under *Section 14* of the Act, supply and distribution both are recognized under common activity of ‘*distribute*’ covered under clause (b) of *Section 12* of the Act and permitted through a distribution license issued under *Section 14* of the Act.

### **Wholesaler or Bulk Supplier**

2.3 Retail service providers are generally small companies that provide the goods and service to the consumer and buy small quantity of product. Whereas wholesaler buys large quantity directly from the distributor. Wholesaler do not have direct contact with consumer but they simply provide goods and services to the retail service provider. As per existing statutory framework under *Section 14* of the Act, the concept of retail service provider does not exist. Consequently, the relationship of retailer and wholesaler has not evolved in Electricity Supply Industry (‘*ESI*’). However, under the Act, there is no embargo to introduce wholesaler as clause (a) of subsection (1) of *Section 86* already recognizes wholesaler and bulk supplier.

### **Distribution of Electricity**

2.4 The distribution licensee having agreement with supplier or manufacturer can act as a distributor or as wholesaler intending to supply electricity to retail electricity service provider. As per existing statutory framework of the Act, the role of a distribution licensee

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<sup>9</sup> For example: One distribution company purchasing electricity from local distribution company for supply of electricity in the service area of Ahmedabad. In such case, distribution companies will act as distributor or wholesaler and Torrent power ltd act as retailer although both are recognized as distribution licensee under the Act. This kind of business model were already existing in India. There may be more than one retail electricity service provider. Distributor and retail relationship were exist such as Karnataka Power Transmission corporation was purchasing electricity and sell them to their respective Electricity supply companies. Madhyapradesh Power Management Co Ltd. Purchasing electricity and supplying to respective distribution co in the state. Gujarat Urja Vikas Nigam Ltd purchasing electricity in bulk and supplying to distribution companies within the state.

is a combination of a service provider as well as distributor of electricity. It also undertakes the role of a retailer and distributor when it supplies electricity to consumer as retail service providers. But when the distribution licensee supplies electricity to another distribution licensee, the position of former distribution licensee can be considered as a distributor or wholesaler.

2.5 It can be observed that the Act recognizes the distributor, wholesaler, bulk supplier and retailer, similar to other goods and services. However, the Act does not recognize separate license for these intermediaries and has pooled all activities under the ambit of distribution business as a fully regulated business. The electricity trader defined under subsection 26 of *Section 2* of the Act can act as intermediaries such as wholesaler, bulk supplier. But the role of electricity trader has not evolved in electricity supply industry, buying electricity from many generators and supplying to many distribution companies. It is limited to back to back transactions between generating companies and distribution licensee. Hence, it can be inferred that, at present, the distribution licensees are undertaking business role of wholesaler, bulk supplier and retail service provider together. Since distribution licensee has taken a position of retailer also as a part of distribution of electricity, the effect of the risk of retail on expected rate of return needs to be factored while regulating tariff by the State Commission.

### **3. COMPARISON OF RETAIL SUPPLY OF ELECTRICITY**

3.1 A retail supply of electricity business ('retailer') is considered as part of distribution of electricity to consumers (in line with network business) while allowing similar or same risk premium despite of significant difference. Difference between network business and retail supply of electricity in terms of development, operation and business models etc. have been discussed as under: -

#### **Business Model**

3.2 A retail supply of electricity is operated on business to customer ('b2c') framework whereas the distribution network and transmission network are operated on business to



business ('b2b') framework. However, in the present system, owner of transmission network does not have a proprietary right over electricity and is acting as a transporter only. So, risk associated with transmission business is limited to transmission service only. Whereas in case of distribution of electricity, the distribution companies purchasing electricity at interconnection point and from where, ownership rights over electricity gets transferred to distribution companies. That means the risk of distribution business involves the risk of distribution service and management of electricity purchased from generation companies or suppliers.

### **Measurement of output**

3.3 The function of transmission or distribution system is conveyance of bulk electricity from one point to other point of grid. The output of these systems is measurable in terms of quantity of electricity transfer and availability. Whereas in case of retail supply of electricity, there are additional criteria such as restoration of power, consumer level consultancy, training, dealing with consumer, understanding demands of the consumer or providing service just in time etc. adds value to customer satisfaction. The consumer selects suppliers due to several other reasons apart from pricing considerations. The reasons such as quality of service, response to consumer complaint, consumer friendly dealing etc. are relevant for selecting supplier. Thus, performance of retail supply of electricity cannot be measured in absolute value<sup>10</sup>.

### **Management of Reserve Capacity**

3.4 Generally, the generating companies are not mandated to keep reserve capacity to meet demand of the consumer on a just-in-time basis. Similarly, transmission companies are not obligated to keep reserve capacity<sup>11</sup>. They are basically operated based on

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<sup>10</sup> State Electricity Regulatory Commission has specified performance parameters such as System Average Interruption Duration Index' (SAIDI) and System Average Interruption Frequency Index' (SAIFI)

<sup>11</sup> In case of congestion due to failure of transmission system, the distribution companies have to resort load shedding. In case of shutdown of generating station, the distribution companies have to make alternate arrangement and in failure to do so, it will have adverse effect on meeting demand of consumer.

contractual arrangement with procurer. This contractual arrangement generally guarantees availability of 85% of contracted capacity on annual basis. Whereas the retail service provider of electricity has to keep reserve capacity tied up in advance to meet demand of consumer on just in time basis. The retail service provider has to take into consideration the liability of cost for maintaining and management of reserve capacity for meeting demand of the consumer subject to admissibility by the Appropriate Commission.

### **Customization of Service**

3.5 A retail service provider has to deliver a service tailored to customers' needs, such as peak supply, off peak supply, temporary supply, standby supply, billing and settlement, response to complaint, response to fault clearance, coordination with customer etc. in the most efficient manner. The retail service provider has to take due care to meet customer need for protecting their consumer base which requires additional cost and resource deployment. The transmission licensee or network owner are not required to customize their transmission service based on need of retail customer. The transmission licensee provides transmission service based on contractual arrangement with distribution companies.

### **Human Resource Deployment**

3.6 A retail electricity service provider requires large number of manpower with specific knowledge and skills in the service disciplines as it is manpower intensive and cannot be easily automated except a few services. Further, the retail service providers have to face an additional issue of unauthorized use of electricity by the consumers at various places. This new dimension also requires deployment of additional manpower. Whereas the network business and generation business are capital intensive and can reduce manpower requirement by using technology or automation of their production process and transmission operation. Hence, in case of retail supply of electricity, allowing return based on only equity contribution in capex requirement needs to be expanded. Additional

considerations to give supply margin may be evolved, so that distribution licensee can get some flexibility.

### **Operations at Scattered Locations**

3.7 In case of generating station and substation in transmission, the operation and control are to be exercised from specific location. It may be considered as a site-specific project. However, for retail supply of electricity, operation sites are scattered in area of supply unlike to generating station and substation. A retail electricity service provider has to undertake their business operations from various locations with the proper communication network with consumer and availability of distribution network which requires additional infrastructure and setup at various sites.

### **Deferment of Operational Service**

3.8 When there is a high demand for services, service operations should engage additional human resources and modify operational activities to manage the supply-demand equation. Being a distribution licensee, it is a part of obligations of distribution license. The distribution licensee has to meet expectation of consumer to provide electricity services on time and to avoid adverse societal and economic implication. The distribution licensee cannot defer electricity supply services. Whereas in case of transmission of electricity and generation, these activities are less sensitive to consumer demand variations. The contractual arrangement of generation and transmission with distribution licensee provides obligations of performance of supply on annual basis which provides the flexibility to supply of electricity considering operational constraints.

### **Payment Risk**

3.9 Risk relating to payment recovery in case of generation and transmission or network business is less in comparison to retail service provider. The transmission and generation business have to deal with distribution companies only. The payment risk and recovery mechanism at consumer level is different from generation and transmission. In order to ensure full recovery in *b2c* business model with such a large consumer base would require

deployment of additional human and technological resources, innovative solutions and extra effort. The payment uncertainty in *b2c* business model is higher. This risk needs to be considered in business model of retail supply of electricity. Apart from above, the distribution companies receiving payment from consumers and passed on to the generation and transmission as power purchase cost. The distribution companies are bound to pay to generation and transmission companies irrespective of whether the payment is received from consumer or not. In this situation, the distribution company borrows short term loan from lenders to discharge payment obligations. In present tariff framework, recovery of any margin over the power purchase cost towards the risk of payment and recovery of power purchase cost from retail consumer is not recognized.

### **Exposure to Adverse Local Situation**

3.10 A distribution licensee is affected due to local situations such as political and administrative situations, riots, bandh, lockdown, weather changes, cyclone etc. It has large impact on retail services impacting their cash flow. Further, the assets of distribution companies are scattered at various locations. Therefore, adverse local situations or adverse weather changes causes large scale damages to assets of distribution companies. Whereas the generation and transmission are protected to deal with such adverse conditions to some extent. This risk needs to be considered in retail supply of electricity;

### **Construction and Development Risk**

3.11 Even if we compare the construction and development risk, it can be observed that construction of electric lines of distribution system in residential area is difficult in comparison to the transmission system. Receiving point in distribution is fixed by consumer which compels the distribution company to establish a distribution network upto installation of consumer. However, in case of transmission system, receiving point (substation) is decided by the transmission companies which provides flexibility. A requirement of underground cable and overhead cable, level of operational faults etc. are higher compared to transmission system. Thus, development and construction risk in distribution business is different compared to transmission system.

## **Market Demand Fluctuation**

3.12 The cash flow in retail supply of electricity depends on energy sold out units. The energy sold out units depends on market demand. The market demand is fluctuating due to various factors such as environment, weather, economic development, competitive forces etc. The recovery of fixed cost in retail tariff is included in variable charge. Thus, return in retail supply of electricity can vary depending on the demand of electricity. In case of generation and transmission of electricity, the return is fixed irrespective of demand variations. The reduction of demand would affect the cash flow of the distribution companies. In case of substantial reduction of demand, the distribution companies may face difficulty to honor the fixed charge obligations of the generation and transmission companies. Thus, risk of market demand needs to be factored in while pricing the retail sale of electricity.

## **4. APPROACH FOR RETURN FOR RETAIL SUPPLY OF ELECTRICITY**

4.1 There are several factors which suggests that the risk of distribution and retail supply of electricity is not comparable with the risk of transmission or network business. It is important that rate of return be set at an appropriate level which reflects a commercial return commensurate with the risks involved. If the rate of return is unable to recover the risk for infusing funds from the financial market, it would be difficult to attract investment in the distribution sector. This might create pressure for the distribution companies to reduce maintenance and new capital expenditure below optimum level, thus less motivation for improvisation and degradation in quality of service to consumer.

4.2 In a regulated regime, a rate of return is allowed with the assumption that all other risk is pass through to the consumer. Since entire risk is pass through *via* regulated tariff, the distribution companies should be able to raise sufficient low-cost capital to improve their infrastructure and provide reliable services to all customers. When the investor perceives lower risk for infusing funds, the distribution companies would be able to secure a lower cost of capital. On the contrary, the distribution companies in our country have not been able to raise capital requirements. This leads to the contemplation that either the rate of

return set may not be able to cover entire risk or operating margin may be less. Main aspect is that the distribution companies may be allowed to charge the rate of return commensurate with their risk as legally entitled for. So that, the risk estimated by the Regulatory Commission for arriving return aligned with estimated risk by financial institutions.

4.3 Without entering into the reason for poor credit rating of distribution companies, our limited focus is to review the approach for assessing the return on equity in respect of covering risk undertaken by the distribution companies in India. At present, the capital asset pricing model ('CAPM') is the most widely accepted procedure for estimating the cost of capital adopted by the Central Commission since last two tariff control periods. CAPM is assessed based on risk factors. **First** is systematic risk which depends on market performance, inflation, tax rises etc. **Second** is specific risk which depends on an individual firm's performance. Cost of equity comprises risk free return and risk premium. This model can be applied for estimating risk of retail business and distribution separately.

4.4 Since the distribution network business and retail supply of electricity are integrated in India; the distribution business has to absorb the risk of retail supply. The comparison of risk of retail supply with other activities of entire value chain is discussed as under:-

- a) The risk premium of distribution network business can be comparable with transmission system business *albeit* the fault level and development risk in residential area is higher than transmission system. Thus, the return on distribution network business may be different<sup>12</sup> from transmission system;
- b) The risk premium in retail supply of electricity may also be different from distribution network business. Thus, it needs to be assessed separately by factoring all risks pertaining to retail service business. Further, the retail electricity service business is less capital intensive compared to transmission network, hence the capital structure of fund may also be reviewed suitably.

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<sup>12</sup> May be read as higher side.

4.5 The approach for assessing the cost of equity of distribution business may be considered by assessing risk premium separately for distribution and retail supply of electricity. The approach for rate of return for distribution and retail supply may be evolved by considering following options:-

4.5.1 The cost of equity of transmission system may be considered as reference and cost of equity of distribution business may be assessed separately in two-step as discussed below: -

- a) In first step, asset base of regulated assets of distribution network may be separated suitably and a cost of equity may be assessed by using Capital Asset Pricing Method or any other suitable method considering the risk involved in development, operation and maintenance of the distribution network. The risk premium may be arrived by assessing risk and as allowed by the Central Electricity Regulatory Commission for inter-state transmission of electricity;
- b) In second step, the asset base of retail service business may be separated suitably and a cost of equity may be assessed by using Capital Asset Pricing Method or any other suitable method considering risk involved in operation of retail electricity service business. The risk premium may be arrived assessing risk in retail supply of electricity and as per other retail business;
- c) This approach would require to determine the rate of return separately for distribution and retail supply assessing risk premium separately. The equity base in retail business would be less, the gearing ratio of investment also needs to be changed suitably.

4.5.2 The cost of equity of transmission system may be adopted but to cover the risk of retail business, the additional markup may be allowed to recover separately as discussed below: -

- a) The rate of return may be considered in line with transmission system. However, to cover up additional risk of retail business, the mark up price may be allowed

- on the annual revenue requirement. The principle of mark up price may be arrived by considering the various risk factors. The mark up price may be assessed over the purchase cost as well as cost of retail supply both;
- b) The mark up price over purchase cost can be assessed by considering direct sale and through intermediaries. It is similar to mark-up price charged by distributor or wholesaler over ex-factory price. If a generating company undertakes supply of electricity directly to retail customer, the estimated risk would be higher in comparison to the supply of electricity to retail customer through distribution companies. Similarly, for the transmission service also. The difference of estimated risk between direct supply or direct transmission service and through distribution companies, would represent the mark up price. Therefore, the return of generation and transmission may be kept at lower side and the additional mark-up price may be allowed to distribution companies over and above power purchase cost;
  - c) Alternatively, the mark-up price may be determined by considering analogy with trading business. The distribution licensees are recognized as deemed trader under *Section 14* of the Act. Let us assume that the distribution licensee is undertaking only distributor business and supplies electricity to retail supplier company, if any exist, without owning electricity purchase and with back to back arrangement. In this case, the distribution licensee is acting as intermediary or trading agency as it purchases electricity for resale. By considering analogy with trading licensee, can we consider trading margin as the mark-up price over purchase cost of electricity (excluding transmission cost) needs to be examined from legal and commercial angle.

## **5. DIFFERENTIAL RETURN IN RETAIL SUPPLY OF ELECTRICITY**

5.1 In the Indian context itself, within the ambit of the Act, some of the State Regulatory Commission do recognize that the risk associated with the retail supply of electricity of the



distribution licensee bears a higher risk than the wheeling or network business and also provided higher rate of return for the same. Few examples are as under: -

A: Maharashtra Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2019 differentiates the return on equity for network and retail supply business as under: -

*“29.1 Return on Equity for the Generating Company, Transmission Licensee, **Distribution Wires Business and MSLDC** shall be allowed on the equity capital determined in accordance with Regulation 27 for the assets put to use, **at the rate of up to 15.5 per cent per annum** in Indian Rupee terms, and **for the Retail Supply Business, Return on Equity** shall be allowed on the amount of equity capital determined in accordance with Regulation 27 **at the rate of up to 17.5 per cent per annum** in Indian Rupee terms:*

*Provided that Return on Equity shall be allowed in two parts, viz., Base Return on Equity, and Additional Return on Equity linked to actual performance:*

*Provided further that Additional Return on Equity shall be allowed at time of truing up for respective year based on actual performance, after prudence check of the Commission.”  
(Emphasis supplied)*

B: Gujarat Electricity Regulatory Commission (Multi Year Tariff) Regulations, 2016 differentiates the return on equity distribution licensee from Generation, Transmission and System Operation activity as under: -

*“37. Return on Equity*

*37.1. Return on equity shall be computed on the paid up equity capital determined in accordance with Regulation 36 on the assets put to use, for the Generating Company, Transmission Licensee, SLDC and Distribution Licensee as the case may be and shall be allowed subjected to a ceiling of 14% for Generating Companies, including hydro generation stations above 25 MW, Transmission Licensee, SLDC and Distribution Licensee:*

*.....*

*37.3. Base Return on Equity for the Generating Company, Transmission Licensee and SLDC as the case may be, shall be allowed on the equity capital determined in accordance with Regulation 36 for the assets put to use, at the rate of 13 per cent per annum in Indian Rupee terms, and for Distribution Licensee, the base Return on Equity shall be allowed on the amount of equity capital determined in accordance with Regulation 36 for the assets put to use at the rate of 13.5 per cent per annum in Indian Rupee terms :*

*.....”*

5.2 The distribution licensee undertaking distribution and supply of electricity provides a long-term commitment to meet with their mandatory supply obligations, investors require adequate and stable returns over the long-term to provide financing for continuous and quality service to the consumer. It may be observed that the differential rate of return for retail supply of electricity is recognized by some of the State Commission. However, the question still remains whether the risks and return perceived are commensurate to the risks and return perceived by the market or investors for the retail supply of electricity in view of risk factors discussed in this paper. In Indian context, there is no precedence on the issue of adequacy of regulatory return. A few precedence at international level have been examined. The Supreme Court of United States of America ('USA') established a precedent in case of *Federal Power Commission v. Hope Natural Gas*<sup>13</sup> and *Bluefield*<sup>14</sup> that the Commission is required to set a return on shareholder investment at a level that is “commensurate with returns on investments in other enterprises having corresponding risks,” and that is “sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise capital necessary for the proper discharge of its public duties.”

## 6. CONCLUSION

6.1 The Electricity Act, 2003 recognizes the retail supply of electricity service separately for the purpose of determination of tariff under clause (a) of subsection (1) of *Section 86*, but it is covered as part of distribution under *Section 14* of the Act. The risks involved in distribution and retail supply of electricity is different from, transmission and generation of electricity. Further, equity base in case of retail supply of electricity may not be an adequate parameter to consider the return, as it is less capital-intensive business with higher

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<sup>13</sup> *Federal Power Commission v. Hope Natural Gas*, 320 U.S. 591, 603 (1944) (“Hope”).

<sup>14</sup> *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, 693 (1923) (“Bluefield”); see also *FPC v. Hope*, 320 U.S. 591, 603 (1944). (“Commensurate with returns on investments in other enterprises having corresponding risks . . . [and] sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.”)

risk. The internal rate of return of the distribution companies has been abysmal during the last decade and there is a need to give due attention to it for ensuring growth. Clause (d) of *Section 61* of the Electricity Act, 2003 and clause (a) of Para 5.11 of Tariff Policy, 2016 have laid down broad guiding principles, which provides that the rate of return should be determined based on the assessment of overall risk and prevalent cost of capital. Further, in view of long-term commitment to meet with their mandatory supply obligations of distribution licensee, adequate surplus needs to be allowed to attract investment. The distribution and retail supply of electricity is not comparable with transmission system due to several distinguishing factors. The transmission activity involves conveyance of electricity without ownership right of electricity whereas distribution activity is responsible for electricity once it is purchased from generating companies or suppliers. Therefore, for distribution companies, existing approach for allowing rate of return based on inter-state transmission system needs to be reviewed. One option is to adopt a separate assessment of risk in distribution and retail supply of electricity or to consider mark-up price to cover additional risk, so that all the players in entire value chain can be placed at a level playing field. Otherwise, some of the external risk of the distribution companies may affect to all stakeholders in entire value chain.



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