

Please refer our detailed report dated June 2016



Energy Efficiency Services Limited (EESL)

An opportunity and a threat for light electricals companies

EESL drives higher acceptance of energy efficient products via lower prices.

EESL aims to be an aggregator and ensure wide scale acceptance of energy efficient products via lower prices. This is achieved via bulk procurement through the e-tendering route. It started off with LED lamps in January, 2014 - as against the INR310/unit in Jan, '14, it recently procured 50m LED lamps for INR38/unit. EESL targets to procure 770m LED lamps, 44m fans, 35m streetlights, 21m agricultural pumps and 1.8m air conditioners over three years ending FY19. EESL works under the deemed savings model where the savings are shared with the power distribution company and municipal body.

EESL forays into bulk procurement of consumer electricals and agricultural pumps

Over the past few quarters, Energy Efficiency Services Limited (EESL) has started bulk procurement of energy-efficient fans, air conditioners and pumps. Five-star-rated fans have been procured at prices in the range of INR780-955/unit (to be distributed at INR1, 100-1,200/unit vs. INR1, 500-1,600/unit of retail price) and air conditioners at INR42,877 (INR45, 000-48,000/unit of retail price). With the pace of procurement likely to rise in FY17, the street is worried about a similar decline in prices of these durables, as was seen in the case of LED lamps/tubes and streetlights.

Fans, air conditioners and pumps pricing unlikely to go the LED way

We believe that while EESL bulk tendering would lead to lower prices for categories such as fans, air conditioners and pumps (on higher volumes procured and savings on channel margins, typically at 20-30% of sales), the price decline is unlikely to be of the same magnitude as LEDs. This is because: a) technology in these product categories is mature and cost of production is unlikely to decline significantly hereon unlike LEDs, and b) the warranty (4-5 years) and servicing requirements (8-10 years of life) will ensure participation from only serious players and weed out non-serious competition. EESL has already implemented minimum service center requirements in recent tenders to ensure competition is restricted to serious players.

EESL – an opportunity and a threat for electricals companies

Initiatives undertaken by EESL to replace inefficient products would fuel market growth as EESL facilitates an additional channel to reach end consumers—it would supplement the traditional channel. More importantly, EESL is tapping replacement demand rather than catering to new demand for these products, thereby accelerating growth in these segments. However, it cannot be denied that it would have a negative impact on retail prices. To combat this, participating companies have indicated to us that they would provide their no-frills model in the EESL tenders while keeping premium/full-feature models to be sold through traditional distributor/retailer networks. This would a) avoid cannibalization of their existing

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Motilal Oswal research is available on www.motilaloswal.com/Institutional-Equities, Bloomberg, Thomson Reuters, Factset and S&P Capital.

models by those being offered to EESL, and b) would ensure that EESL-procured products are directed primarily toward the rural strata of the society.

Focus shifts to tube lights, streetlights and fans post LED lamps; air conditioners only from FY18

Our recent interactions with EESL indicate that post LED lamps (150m target in FY17 vs. 90m procured in FY16), the focus is now shifting to LED tube lights (50m procurement target), streetlights, fans (2mn target in FY17, 4% of the annual volumes) and agricultural pumps (1.2m over two years). Air conditioners are to be procured in a meaningful manner starting FY18 and the target is government buildings and ATM's.

Fans could be most negatively impacted; pumps to follow

In the case of fans, where EESL targets to distribute 44m units over three years, annual procurement by EESL would equal ~30% of the annual market size of fans in India and would cause a fall in retail prices of 5 star rated fans. In case of pumps too, aesthetics and features would not be a differentiator and thus also impact pricing. However, air conditioners would be the least affected as even if EESL meets its target of distributing 1.8m air conditioners over three years, this would be ~10-12% of the annual market and may not cause a major disruption in the market.

EESL orders at INR22.5b in FY16; lighting the biggest segment

LED lamps were the largest category accounting for 37% of total orders, while LED streetlights formed 27%. In FY16, EESL had just begun procurement of fans and air conditioners, and these formed a miniscule proportion of overall order awards. However, we note that fans have grown to 15% of total awards (INR0.76b in Q1FY17 vs. INR96m in FY16) and share of air conditioners has risen to INR87m in Q1FY17.

EESL will be margin dilutive for light electrical companies

Within our coverage, namely Havells, Voltas and Crompton Greaves Consumer Electricals (CGCEL) the exposure to EESL is limited to ~0-7% of overall sales. However, this number would rise as EESL increases procurement of fans, tube lights air conditioners and agricultural pumps. Our interactions with management indicate that players would be judicious in bidding for EESL tenders and balance volumes with profitability. However, as EESL procurement volumes rise, these companies would be tempted to increase their share, which would negatively impact margins over the medium term. Havells India is likely to be the least impacted (16% of sales from fans and 14% from lighting) as it would like to focus on sales via its traditional channel (distributors/retailers) and use Promptec to participate in streetlight tender from EESL. CGCEL could be the most affected as EESL is now shifting focus to fans, pumps and tube lights in FY17/18; these categories account for 94% of sales for CGCEL. However, we do note that CGCEL is a small player in the agricultural pump market. Impact on Voltas is likely starting FY18/19 as EESL procurement in this category pick up.

Valuation and view

We retain our target price on Havells at INR435 but cut to **Neutral** given the limited upside from current price. Retain **Neutral** rating on Voltas (**TP: INR360**) and our **Buy** rating on Crompton Greaves Consumer Electricals (**TP: INR190**).

Energy Efficiency Services Limited

An opportunity and a threat for light electricals industry

- EESL is a government-owned company (jointly controlled by NTPC, PGCIL, PFC and REC), which has taken the lead to reduce energy consumption by introducing demand-side management (DSM) measures. This is primarily done via replacement of inefficient appliances with star-rated energy-efficient ones. Its initiatives span across:
 - a. LED lamps, streetlights, tube lights
 - b. BEE 5 star-rated fans
 - c. BEE 5 star-rated air conditioners
 - d. Energy-efficient agricultural pumps

- DSM measures are part of the National Mission for Energy Efficiency Enhancement (NMEEE) launched by the Ministry of Power with an aim to save ~INR585b, primarily via efficient electricity consumption by end-consumers. We highlight below the targets set for replacement of lights, fans, air conditioners and pumps by 2019/20.

Exhibit 1: Demand-side management benefits till FY19

Description	Benefit (INR b)
770m LED bulbs and 35m streetlights	450
20m agricultural pumps	120
**160m fans and 1.8m air conditioners	15
Total	585

Source: MOP, MOSL, Company, **EESL targets 44m fans

- To put this into perspective, annual market volumes for lamps (ICL plus CFL) stand at 1,261m, while the government intends to replace all ICLs (770m annual sales) with LEDs. According to EESL, it has already distributed ~150m LEDs and aims to complete distribution of 770m LEDs over the next three years. Of its target to distribute 35m streetlights, 1.14m is already distributed. It has recently started tendering for LED tube lights, fans and air conditioners.

Exhibit 2: EESL targeted volumes vs. achievement till Aug-16

Description	Target (m)	Met (m)
LED lamps	770	149
LED streetlights	35	1.1
Pumps	21	NA
Fans	160	NA
Air conditioners	1.8	NA

Exhibit 3: Annual volumes of key product categories in India

Description	Volumes (m)
Lamps – ICL, CFL, (ex LED)	1,261
Tube lights	245
Fans	50
Agricultural pumps**	21
Air Conditioners	4

Source: MOSL, Industry, ** for pumps this is the installed base of electrical agri pumps

- **Fans could be most impacted; pumps to follow, in our view.** We believe the impact on air conditioners would be the least, as even if EESL meets its target of distributing 1.8m air conditioners over three years, this would be ~10-12% of the annual market and may not cause a major disruption in the market. However, in the case of fans where the target is to distribute 44m units, annual procurement by EESL would equal to 15m units or ~30% of the annual market size of fans in India and could cause a fall in the retail prices. For pumps, primarily the existing inefficient pumps are targeted, which could drive replacement demand. However, since aesthetics and features would not be a differentiator, this would also negatively impact pumps pricing.
- EESL has started procurement of LED lamps from Jan-14, when procurement price stood at INR310/unit and retail price at INR599/unit. In its latest tender in Aug-2016, procurement price had dropped to INR38, while retail price had dropped to INR200-350. Similarly, in case of LED streetlights, the price has dropped from INR137/W to INR85/W.

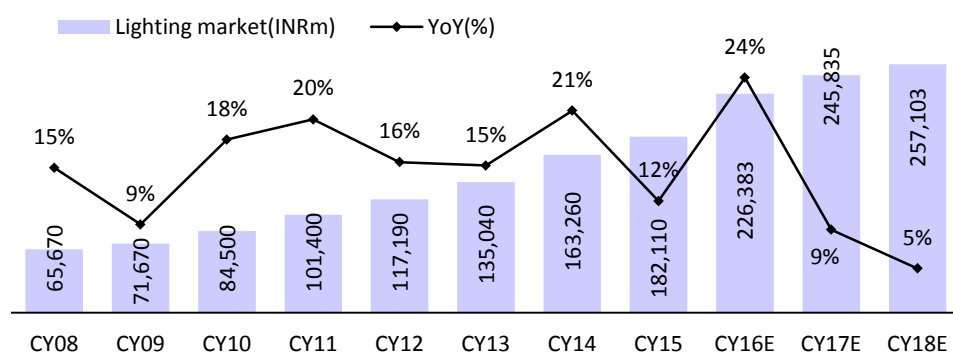
Exhibit 4: LED lamps price movement over past two years in EESL and retail market

Period	LED bulbs offer in tender (m)	EESL price per bulb	Retail prices
Jan-14	0.8	310	599
Sep-14	2	204	
Nov-14	3	149	400
Feb-15	8	104	
Mar-15	8	82	
Jun-15	50	77	300
Mar-16	-	55	215
Aug-16	50	38	

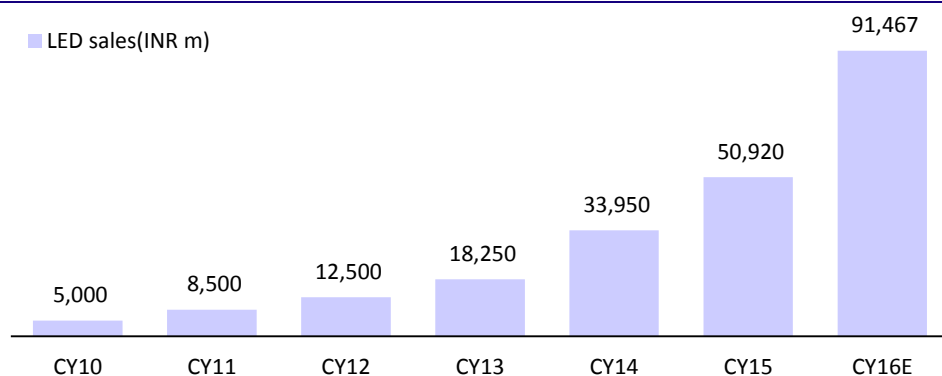
Source: EESL, MOSL Research

EESL – an opportunity as it accelerates replacement demand and provides new distribution channel to light electricals players

- Initiatives taken by EESL to replace inefficient products (lamps, streetlights, fans, air conditioners and pumps) would lead to higher market growth as EESL facilitates an additional channel to reach end consumers. More importantly, **it is tapping replacement demand rather than catering to new demand for these products, thus accelerating growth in these segments.** The government's drive to replace ICLs with LEDs has led to explosive growth in LEDs, with sales growing from INR8.5b in CY11 to INR51b in CY15. On the flip side, since LED lamps last longer (6-7 years) than traditional ICLs (~1 year), the replacement cycle would get prolonged.

Exhibit 5: Growth in lighting segment in CY14-16 driven by LEDs

Source: ELCOMMA, MOSL

Exhibit 6: Sharp jump in LED sales, driven by government initiatives under EESL

Source:ELCOMMA, MOSL

- It helps companies fill in spare capacity and achieve economies of scale in production. This helps recover fixed costs over a larger number of units and reduce costs which are passed on to EESL. More importantly, our discussion with companies indicates that participating companies would provide their no-frills model in EESL tenders while keeping premium models and features to be sold through the traditional distributor/retailer network.

EESL – threat of lower retail prices due to increased procurement

- The street is worried about the impact of lower prices on margins as EESL starts bulk procurement of fans, air conditioners and tube lights. There are fears that a similar price fall may be seen for these product categories, as has been witnessed in the case of LED lamps and streetlights. We present below our views:
 - LED lamps:** The price fall in case of LED lamps has been steep, with prices down to INR38/unit in August, '16 from INR300/unit as of Jan-14. However, this has come as a result of a) higher procurement volumes, with EESL procuring ~90m lamps in FY16 itself and planning to procure another 150m in FY17; and b) a significant fall in prices of LEDs globally. We highlight that Bajaj in its recent analyst concall mentioned that it was becoming very selective in bids with EESL – pricing had come off substantially and it was not profitable for them to take orders any longer. This is in contrast to FY16, when ~60-70% of lighting sales were from EESL orders. In our view, LED

- prices seem to have bottomed out and will likely remain at same levels or increase as players realize that it is not profitable to supply at current prices.
- b. **BEE 5 star-rated fans:** As per the EESL website, it has been able to procure fans at a price of INR780-955/unit from Usha International, which would come to ~INR1,100-1,200/unit at the retail level for end consumers (inclusive of taxes and duties). This compares to ~INR1,500-1,700/unit price at which these fans are currently available at major online websites. However, in case of EESL tenders, manufacturers are able to: a) save on distributor and retailer margins (~15-20% of sales) and b) provide in bulk and thus enjoy economies of scale in manufacturing. Since Q1FY17, EESL has stepped up its procurement of fans, with a target to distribute 44m 5 star-rated fans till FY19. Assuming EESL is successful in this, it would need to distribute ~15m fans each year, which would equal to 30% of the market. Moreover, as volumes increase, so would the likely downward pressure on prices. In our view, given the aggressive targets for fans, this category could be the most impacted by EESL's procurement.
 - c. **BEE 5 star-rated air conditioners:** We believe the impact on air conditioners would be the least, as even if EESL meets its target of distributing 1.8m air conditioners over three years (FY17-19), this would be ~10-12% of the annual market and thus may not cause a major disruption in the market. More importantly, air conditioners need regular servicing since they have an average life of 8-10 years. This, in turn, would help weed out non-serious players in the bidding process. Our discussion with companies indicates that they would offer no-frills model to EESL, which would be different from the ones sold via regular trade and thus help avoid cannibalization of sales. **EESL has already put in place minimum service center requirements to weed out non serious players from the fray.**
 - d. **BEE 5 star-rated pumps:** There are 21m electrified pumps in India, which are used for agriculture and consume 92BUs of energy every year (~18-20% of electricity consumption of India). EESL targets to replace these inefficient pumps with 5 star-rated pumps, which are 30% more efficient. EESL provides a robust distribution channel for light electricals companies to distribute products across villages. In case of pumps, replacement demand could see a boost as the targeted market is primarily existing inefficient pumps. However, since aesthetics and features would not be a differentiator, this would negatively impact pumps pricing.

EESL order award analysis

Large volumes on offer drive down prices

- EESL awarded orders worth INR22.5b in FY16 spanning across LED streetlights, LED lamps, fans, air conditioners, and miscellaneous equipment and services. LED lamps was the largest category accounting for 37% of total orders, while streetlights formed 27%. In FY16, EESL had just begun procurement of fans and air conditioners, which formed a miniscule proportion of overall order awards. However, **we note that fans have grown to 15% of total awards (INR0.76b in Q1FY17 vs. INR96m in FY16) and the share of air conditioners has risen to INR87m in Q1FY17.**

Exhibit 7: Market share by product category in EESL tenders in FY16 (INR23.5b)

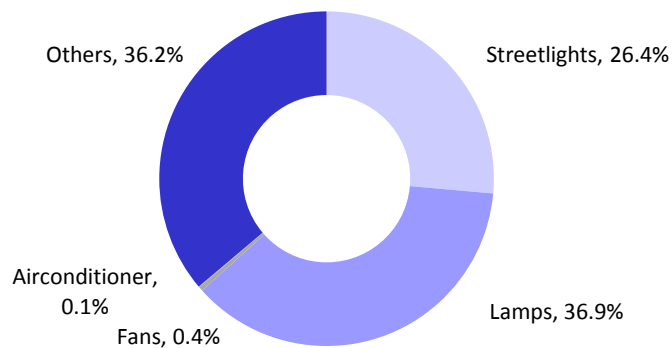
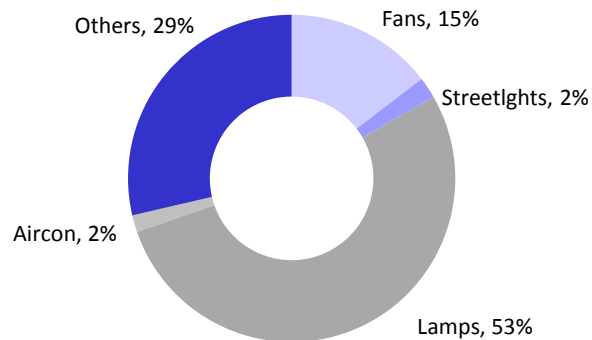
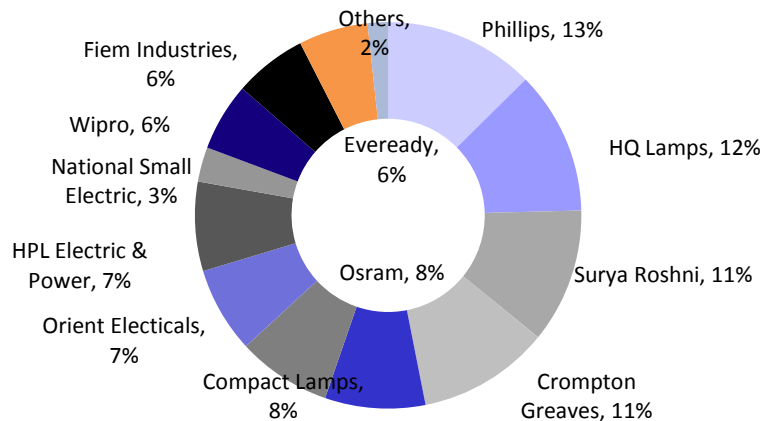


Exhibit 8: Market share by product category in EESL tenders in Q1FY17 (INR5.2b)



Lighting – LED lamps, streetlights and tube lights

- The largest category in FY16 was LED lamps (9W), which was at INR8.3b. Phillips was the market leader with a 13% share, followed closely by HQ Lamps (12%), Surya Roshni (11%), Crompton Greaves (11%) and Osram (8%). The high level of competitive intensity is evident from the fact that **the top five players account for only 55% of the market.**

Exhibit 9: LED lamps market share in EESL (INR8.3b)

- As per media reports, we understand that EESL procured and distributed ~90m LED lamps in FY16, which implies that average procurement price in that year was **INR90/unit**, down from the initial INR300/unit. As we highlight below, procurement price for EESL tenders in Aug-16 had come down to INR38/piece by Phillips (retail price at INR350). EESL expects this to come down further to INR44/unit as it intends to procure 150m LED lamps/bulbs in FY17.

Exhibit 10: LED price movement over past two years in EESL and retail market

Period	LED bulbs offer in tender (m)	EESL price per bulb	Retail prices
Jan-14	0.8	310	599
Sep-14	2	204	
Nov-14	3	149	400
Feb-15	8	104	
Mar-15	8	82	
Jun-15	50	77	300
Mar-16	-	55	215
FY17e	200	44	

Source: EESL, MOSL Research

- We do highlight that competitive intensity has reduced from earlier years since there is a domestic manufacturing/assembly clause introduced by EESL – this is to ensure that complete imports from China are not supplied by manufacturers and that these lamps are able to be replaced/serviced during the three-year warranty that comes along with the supply of bulbs.
- Our interactions with the management indicate that EESLs' aim is to converge retail price of LED (9W) with CFL (18/20W). Retail price of LED is INR200-250/unit while a CFL retails at INR80-120/unit – this implies that there is still some time to go before retail prices converge and EESL is likely to remain in the market till such time.

Exhibit 11: Retail prices of 9W LED bulbs continue to be more than double of EESL prices

Name of company	Price/unit (INR)
Wipro	200
Syska	214
Phillip	218
Moser Baer	200
Crompton Greaves	202

Source: Flipkart, MOSL

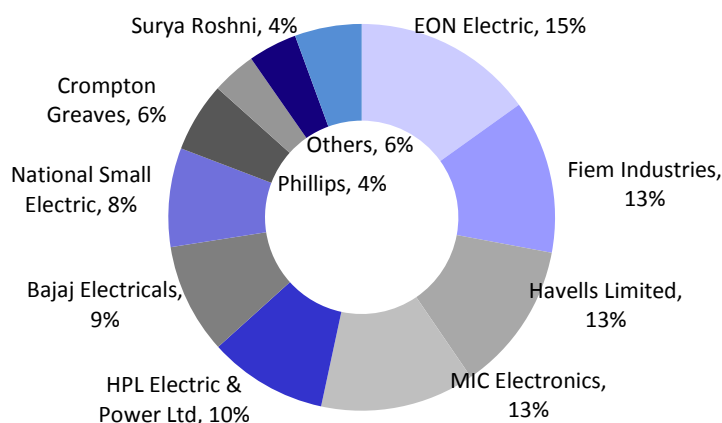
Exhibit 12: Retail price of 20W LED tube lights higher than INR140 procured by EESL

Name of company	Price/unit (INR)
eco Element	665
Syska	650
Noble Spira	535
Crompton Greaves	510
Murphy	525

Source: Flipkart, MOSL

Streetlights – competitive intensity lower than lamps

- As seen in the case of LED lamps, LED streetlight prices have dropped from INR137/W in Jan-14 to INR85/W currently. However, this price fall is lower than that in case of LEDs and is reflective of lower competitive intensity in this segment – the top 5 players accounted for ~65% of the market in FY16.
- Most lighting industry players have participated in the bids for streetlights. We highlight that Havells had a 13% share in streetlights orders in FY16 (did not participate in lamp tenders) – this was primarily via Promptec (acquired last year), which operates primarily in the LED streetlights category.

Exhibit 13: Market share in streetlights with EESL (INR6b)

Source: MOSL, EESL

Exhibit 14: EESL accounting for 28% of LED market in India in CY15/FY16

Description	INR m
LED lamps procured by EESL	8,320
Streetlights procured by EESL	5,947
Total	14,267
LED market size in India	50,920
% of total LED market	28%

Source: MOSL, EESL, ELCOMMA

Fans – 5 star-rated fans lead the way

- EESL has recently started the procurement of fans in Q4FY16, which has further picked up pace since Q1FY17. As per the EESL website, it has been able to procure fans at a price of INR700-955/unit from Usha International, which would come to ~INR1,100-1,200/unit at the retail level for end consumers. This compares very favorably to ~INR1,500-1,700/unit price at which these fans are currently available at major online websites.

Exhibit 15: Market share in EESL fan procurement in Q1FY17 (INR760m)

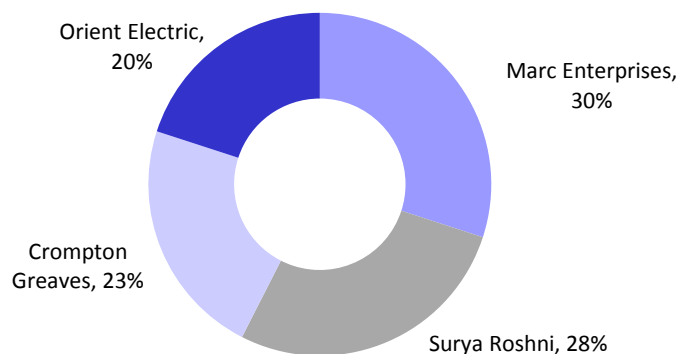
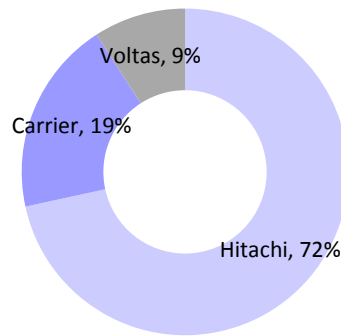


Exhibit 16: Retail price of 5 star-rated fans vs. EESL procurement price of INR1,000-1,100

Name of company	Price/unit(INR)
Orient Smart Saver 50	1,659
Crompton HS Plus 48	2,009
Havells ES 50	1,915
Bajaj Electricals 50 Isi	1,599
Activa Aspira 5 star	1,029
Usha 5 star Technix	1,837
Crompton BEE 5 star	2,356

Air conditioners – 5 star-rated air conditioners the preferred mode

- EESL has on a pilot basis also initiated procurement of air conditioners in FY16, with orders being won by Voltas, Hitachi and Carrier. Hitachi with one order worth INR9.2m had a 72% market share in FY16.

Exhibit 17: Air conditioner market share in FY16 (INR12.8m)

Source: EESL, MOSL

- In terms of pricing, Carrier has supplied 1.5-ton 5 star-rated air conditioners for INR42,877 vs. INR45,000/unit of retail price, which is not materially different. However, this was for the supply of only five units – as volumes of procurement go up, prices would trend downward.

Pumps – aim to replace 21m inefficient agricultural pumps

- EESL has recently started procurement of pumps with the first tender for pumps being awarded to M/S Aquasab Engineering for a contract value of INR1.38m. EESL aims to replace 200m electric pumps with energy efficient 5 star rated pumps.
- There are 21m electrified pumps in India, which are used for agriculture and consuming 92.33BUs energy every year (~18-20% of total electricity consumption of India). At present, farmers are getting electricity either free or at very low cost (free or INR1-1.5/unit) and thus they are not interested in improving efficiency of pumps.
- Average efficiency level of inefficient non-star rated pump sets is in the range of 25%-30%, while the efficiency level of star-rated energy-efficient pump sets(5HP) is 40%-45%. The savings potential by mere replacement of inefficient pumps with star-rated pumps is estimated at 20-25%.

Takeaways from meeting with Energy Efficiency Services Limited

We recently met with the senior management team at Energy Efficiency Services Limited to understand the distribution plans over next three years. Key highlights from our meeting:

Ambitious targets across lamps, fans, pumps and streetlights

- EESL has a target to distribute **770m LED lamps, 35m streetlights, 44m fans, 1.8m air conditioners and 21m pumps** over the next 3 years ending FY19. EESL works under the deemed savings model where the savings is shared with the discoms and Urban Local Bodies
- Focus is on a)**Retail** - LED lamps, Tube lights, Fans, Super-efficient A/C's, b)**Institutional** - Pumps, Streetlights, Building Efficiency
- Procure **the products via e procurement** and have distribution agencies set up kiosks for selling to customer. The distribution agency is paid on the basis of each unit sold. An awareness agency is also appointed to create awareness of the campaign
- **Building in minimum service center requirement for vendors in case of tenders for fans, AC's to ensure product gets serviced post warranty; will reduce competition**

Exhibit 18: EESL investment plans over next 5 years

Description	INR b
FY17	36
FY18	63
FY19	90
FY20	119
FY21	157
Total	465

Source: EESL, MOSL

Exhibit 19: EESL investment plans by product category

Capex/investment by product category	
Residential - Lamps, Tube lights Fans, Air conditioners	170
Streetlights	100
Pumps	220
Total	465

Source: EESL, MOSL

LED lamps – aim to bring parity between CFL (18W) and LED (9W) pricing

- 150m bulbs distributed till date with 90m in FY16 and target is to do 150m in FY17. Another 100m lamps to be sold via the traditional channel
- Aim is to converge retail price of LED (9W) with CFL(18W). Retail price of LED is INR200-350/unit while a CFL retails at INR100-120/unit. Will step out of the market once prices converge
- Have a domestic assembly clause so imports from China cannot be given by vendors - Syska which completely imports has never participated in the EESL tender

- The LED lamp programme is on in 17 states and prices are down by 85% to INR55/unit. 87% of bulbs are bought on upfront payment while balance is bought on EMI basis where EESL appoints collection agents
- 2-10 lamps are given per household, EESL works on a cost plus model where it e-procures the bulbs, adds taxes, awareness costs, distribution costs and ROE, 2.5 year warranty is provided on the bulbs
- Recent tender for 500m lamps has seen the lowest price of INR38/unit by Phillips as L1 in this bid.

Tube lights – increased focus from Q117 onwards

- Focusing on LED tube lights post LED lamps; procured tube lights for INR180/unit. Will sell to **consumer for INR230/unit vs. the INR600/unit in the retail market**
- Target is to sell 50m tube lights in FY17 – we highlight that the CY15 sales of FTL's in India stood at 245m

Streetlights – slow off take initially but now gathering pace

- Under UJALA, target to replace 35m streetlight and 9b units of annual power consumption can be saved. Already done 1.2m across 153ULB's across the country
- No upfront cost for the ULB; EESL takes care of installation, commissioning and maintenance. It has a back to back contract with the manufacturer for the same for 7 years
- ** Savings is calculated upfront for the no. of lights being replaced; smart app to monitor street lights usage and also to switch them on/off from the mobile

Pumps – targeted savings of INR200b annually with replacement of 21m pumps

- BEE 5 star rated pumps are given free to the farmer and the savings for the discoms(30% more efficient) is shared with EESL
- Target is to procure and distribute 1.26m pumps over 2 years for INR57b(annual market for pumps is 3m) and eventually replace 21m electrified pumps in the country which are inefficient
- Replacement of 21m electrified pumps would save 173b unit of power and INR200b of state subsidy which is given to farmers (30% of INR640b subsidy given each year)
- Implementation is difficult but EESL doing 3 things: a)Tie up local electrician to promote 5 star rated pumps, b) Free maintenance for 5 years vs. current INR2000-3000/year so the farmer saves INR15000, c)Smart app to control the pump and EESL can also monitor usage

Fans – EESL to step up procurement in FY17; procurement price down to INR780/unit and retail at INR1000/unit

- Recently procured 1m 5 star rated fans for INR780/unit which would retail at INR1,000/unit vs. INR1800/unit in the channel
- Target is to procure 2m fans in FY17 and eventually procure 44m fans till FY19

- Engage with the industry to procure 5 star rated fans which are not sold much currently; eventually once acceptance from the consumers, have mandatory BEE star rating for fans as currently rating is voluntary.
- Not looking at BLDC fans - were able to procure these for INR1800/unit and final price to consumer would be INR2300/unit vs. 5 star rated fan which is at INR1000/unit; given only a 15W differential, going with 5 star rated fans

Air Conditioners – EESL to start procurement from FY18 onwards

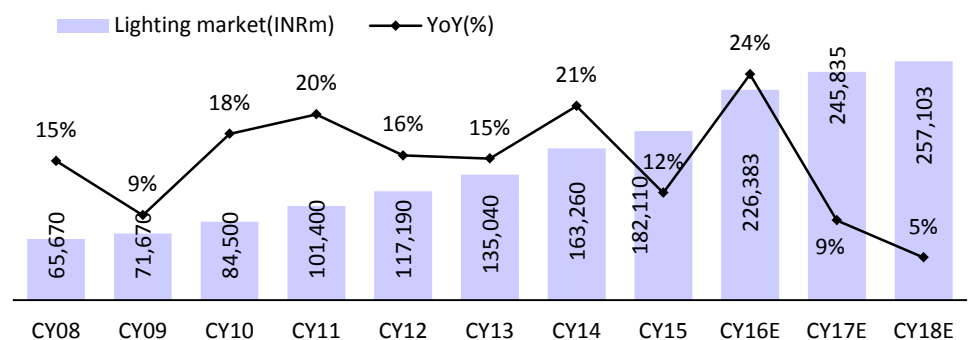
- Pickup in **A/C procurement only from FY18 onwards** - would not want to invest their own money but tie up with banks, credit card to offer EMI scheme to customers, risk is higher since value per unit is much higher
- Initial focus is on the institutional market - Central Public Works Department, State PWD's, Bank ATM's
- Looking to procure super-efficient inverter A/C with rating of 4.5 vs. the current 3.5; implies 30% more savings
- Consumers not to be given an option **of which brand to buy** - will get only one option at the kiosk set up for sales

EESL – instrumental in lowering prices of LEDs via bulk procurement

Mr. Piyush Goyal aims to replace 770m ICLs and 35m street lights with LEDs by FY19 under the government's demand-side management initiatives.

- India's Prime Minister Mr. Narendra Modi launched the 'National Program for LED-based Home and Street Lighting' with the aim to replace ICLs with LEDs for residential and street lighting. The original aim was to install LED lamps for household and street lighting in 100 cities by March 2016.
- The aim is to replace 770m ICLs and 35m street lights with LEDs by FY19 under the government's demand-side management initiatives, which are being implemented by EESL.
- This program has recently been named as '**UJALA**' or '**Unnat Jyoti by Affordable LEDs for All**'. UJALA is successfully running across 12 states – Rajasthan, Maharashtra, Karnataka, Kerala, Uttar Pradesh, Himachal Pradesh, Delhi, Andhra Pradesh, Puducherry, Jharkhand, Bihar and Uttarakhand.
- The LED market, which stood at INR5b in CY10, is expected to jump to INR115b by CY17, driven by the government's initiatives, and would form 45-50% of the overall lighting market v/s 6% in CY10 and 15-20% currently.
- The Indian lighting market has grown at a 17% CAGR over CY10-14, and is set to grow at a 13% CAGR over CY15-18, driven by a strong jump in LED sales.

Exhibit 20: India's lighting industry growth (CY08-18E)



Source: Industry, MOSLe

- The "UJALA" program aims to replace ICLs with LEDs for residential and street lighting. According to ELCOMA, 855m ICLs were sold in CY15 (904m in CY14). Replacement of these ICLs with LEDs would help save substantial amount of power for consumers.
- Prices for LEDs when they were first procured by EESL stood at INR310 and have now come down to INR38/unit, driven by higher volumes of procurement and a general fall in LED bulbs as the technology matured with wider acceptance. EESL expects prices to decline further in FY17 as procurement volumes increase.
- EESL procured and distributed ~90m bulbs in FY16, while the industry directly sold another 60m bulbs, implying industry size of 150m lamps in FY16. EESL targets to distribute 150m bulbs in FY17.

Exhibit 21: LED price movement over past two years in EESL and retail market

Period	LED bulbs offer in tender (m)	EESL Price per bulb	Retail Prices
Jan-14	0.8	310	599
Sep-14	2	204	
Nov-14	3	149	400
Feb-15	8	104	
Mar-15	8	82	
Jun-15	50	77	300
Mar-16	-	55	215
Aug-16	500	38	

Source: EESL, MOSL Research

- After the success of the LED bulb scheme, EESL is now planning to distribute LED tube lights. EESL had procured around 50,000 such tube lights at about INR300/unit on a pilot basis. The 18-20 watt LED tube lights come as an easy substitute for the conventional 42-watt ones.
- EESL received the lowest bid of INR140 for a 20W tube light in response to a tender for 10m LED tube lights, implying a sharp fall from the earlier discovered price of INR300 (companies participating included CG, Havells, Surya Roshni, Phillips and Osram India). Taking in taxes/duties, tube lights will cost INR210-230. LED tube lights come in ready-to-use sets, do not require supporting fixtures and consume half the power of traditional tube lights. LED tube lights are likely to result in annual savings of INR350 and the cost is recovered within 7-8 months.

EESL takes lead by distributing BEE 5 star-rated fans; focus stays on energy efficiency

- EESL is implementing the government's "National Energy Efficient Fan" program. It is procuring BEE 5-star-rated fans (50W) with replacement warranty of 2.5 years, and intends to **replace 44m fans till FY19**.
- EESL is able to distribute 5 star-rated fans at INR1,150-1200/unit (procured at INR680-950/unit), though the usual market price of similar fans is INR1,500-1,600/unit. The government has put a cap of two fans per household under this program.
- Usage of 50W BEE 5 star-rated ceiling fans distributed under the program would reduce consumers' average electricity bills by INR700-730/year. The cost of fans would be recovered in less than two years. These fans are 30% more energy efficient than the usual 75-80W conventional fans.
- EESL has launched a scheme in Andhra Pradesh where it is providing two energy-efficient fans to each consumer at an equated monthly installment (EMI) of INR60. The EMI would be added to consumers' electricity bills for two years. Consumers can also purchase fans by paying INR1,250 upfront. Fans are provided to consumers through the state distribution company or EESL outlets. Consumers can participate in the program by providing copies of their latest electricity bill and residence proof at the designated distribution center. The scheme is set to be rolled out to five more states – **Delhi, Haryana, Maharashtra, Rajasthan and Madhya Pradesh – in the next 2-3 months**, with

EESL is able to procure 5 star-rated fans at INR1,100-1,200/unit, though the usual market price of similar fans is INR1,800-1,900/unit.

fans expected to be delivered starting Aug-2016. EESL has floated a tender for procuring 1m energy-efficient fans.

- EESL is procuring fans via bulk tendering from leading manufacturers like Crompton, Orient, Usha and Bajaj Electricals.

Exhibit 22: Comparison – normal ceiling fan v/s BEE 5-star-rated fan v/s BLDC motor fan

	Regular Fan	BEE 5 Star Rated Fan	Super Efficient Fan
	↓	↓	↓
Price	Rs 1500	Rs 1940	Rs 2600
Regulator Cost	Rs 200	Rs 200	Rs 0
Wattage	75 Watts	50 Watts	35 Watts
Air Delivery	230 cum/min	210-220 cum/min	230 cum/min
Units Consumed Per Year	180 Units	120 Units	84 Units
Electricity Cost Per Year	Rs 900	Rs 600	Rs 420
Electricity Cost For 10 Years	Rs 10800	Rs 7200	Rs 5000

Assumptions: 1) Usage of 12 hours per day for 200 days. 2) Electricity Cost of Rs 5 per unit. 3) Electricity cost to increase by 4% every year for 10 years. 4) Prices as available on Internet on Aug 2013. 5) Calculations are for 1 Fan. 6) Electricity consumption is at top speed.

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Source: MOSL, Bijlee Bachao

Note: Super-efficient fans have BLDC motors

Government's plan to replace inefficient pumps via EESL – big demand driver for the industry

EESL intends to replace 20m grid connected pump sets with BEE star-rated energy efficient agricultural pumps.

- Under the **National Energy-Efficient Agriculture Pumps Program**, EESL intends to replace 21m grid connected pumps with BEE star-rated energy-efficient agricultural pumps. These pumps will come enabled with smart control panels and SIM cards, giving farmers the flexibility to remotely control them from their mobile phones.
- This will result in energy savings for DISCOMs as farmers get electricity either free or at a subsidized rate. EESL purchases these star-rated energy-efficient pumps via the competitive bidding route. Currently, agriculture accounts for 18% of India's overall electricity consumption at 140b unit/year, and savings of 20-25% can be achieved by using energy-efficient pumps.
- EESL replaces old pumps with new energy-efficient ones free of cost and also undertakes their repair/maintenance during the project duration. DISCOMs save some energy, which is then multiplied with the prevailing power rates to monetize the same. This is then shared between DISCOMs and EESL.

EESL targets to replace ~7m grid-connected pumps in Maharashtra, Andhra Pradesh, Karnataka and Rajasthan in the next two years.

- EESL targets to replace ~7m grid-connected pumps in Maharashtra, Andhra Pradesh, Karnataka and Rajasthan in the next two years. Total energy saved, assuming most of the pumps replaced are 5HP pumps, is ~25%. Total energy consumed in these four states through pumps is 60b units, and thus 15b units will be saved. At average power rate of INR4.5/unit, it implies annual savings of INR60b. Cost of procurement of 7m pumps at INR30k/unit works out to INR200b-230b, which EESL can recover in 2-3 years.
- The eventual aim is to replace 10m diesel power pumps with solar power pumps. However, cost of one solar pump is INR300k, which makes this currently unfeasible for EESL.

Exhibit 23: Star rated models in pumps by manufacturer

Name of company	Star rated models (nos.)
Varuna	328
Pluga	239
Waterman	229
U Neel	227
Crompton Greaves	191
AMRUT	181
CRI Pumps	170
Texmo	167
MBH Pumps	148
Shakti	146
Falcon	138
Oswal	135
Chetan	124
Silver	121
Unnati	107
Angel	100

Source: MOSL, EESL, IPMA

Exhibit 24: PEER Comparison on the P/L matrix

Name of Company	Revenue Growth (%)				EBITDA margin (%)				EPS Growth (%)			
	FY16	FY17E	FY18E	FY16-18 CAGR	FY16E	FY17E	FY18E	FY16-18 average	FY16	FY17E	FY18E	FY16-18 CAGR
Havells	4.1%	14.5%	17.8%	16.0%	13.6%	14.7%	15.7%	14.7%	6.3%	30.4%	21.6%	26.0%
CROMPTON Consumer	11%	14.7%	14.8%	14.8%	11.6%	12.0%	13.0%	12.2%	8.4%	10.5%	32.1%	21.3%
V Guard	6.7%	17.1%	16%	17.0%	9.6%	10.3%	10.5%	10.1%	57.3%	24.3%	20.7%	34.0%
Bajaj Electricals	12.0%	11.0%	11.0%	11.0%	5.5%	6.0%	6.3%	5.9%	NA	40.0%	23.0%	31.5%
Industry average	8.4%	14.3%	14.9%	14.7%	10.1%	10.7%	11.4%	10.7%	24.0%	26.3%	24.3%	25.3%

Exhibit 25: PEER Comparison on the valuations matrix

Name of Company	P/E			EV/EBIDTA			P/BV			P/Sales		
	FY16	FY17E	FY18E	FY16	FY17E	FY18E	FY16	FY17E	FY18E	FY16	FY17E	FY18E
Havells	55.6	40.8	32.9	31.7	27.3	21.3	10.5	9.5	8.3	3.5	4.2	3.6
Crompton	92.1	38.6	29.2	55.0	23.1	18.2	48.0	32.0	22.3	6.0	2.6	2.3
V Guard	49.8	37.3	31.9	31.0	24.5	20.7	11.8	9.5	7.7	2.2	1.9	1.6
Bajaj Electricals	28.5	19.6	16.1	13.6	11.5	9.97	3.6	3.2	2.8	0.6	0.5	0.5
Average	56.5	34.1	27.5	32.8	21.6	17.5	18.5	13.5	10.3	3.1	2.3	2.0

Exhibit 26: PEER Comparison on the return ratio profile

Name of Company	RoE			ROCE		
	FY16	FY17E	FY18E	FY16	FY17E	FY18E
Havells	17%	20%	23%	23%	28%	32%
Crompton Consumer	52%	100%	90%	29%	35%	39%
V Guard	26%	28%	27%	25%	28%	27%
Bajaj Electricals	13%	17%	18%	15%	18%	19%

Source: Company, MOSL, Bloomberg

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