



ENERGY EFFICIENCY SERVICES LIMITED
A JV of PSUs under the Ministry of Power

Promoting EE Technologies, Finance and Business Models for Developing Countries

Deep Dive Workshop

5th June 2018

ACEF 2018

Energy Efficiency Services Limited

Joint venture of four National Public Sector Undertakings under Government of India



Mandate to unlock the potential of Indian energy efficiency landscape through innovative market-based interventions

20%



Interventions create access to innovative and future-ready technologies for domestic consumers, including households, commercial establishments, industries & public facilities

US\$ 12 billion
Annual market for energy efficiency in India



Growth-oriented organization founded in 2010, has become a leader in transforming markets for energy efficiency in India and abroad

US\$ 1.5 billion

Proven business model has saved over 41bn kWh energy

- Oriented to **savings** & **outcomes**
- Innovative, effective **technology**
- Flexible & scalable to drive **access**
- Self-sustaining without public funds
- Attractive by being **affordable**
- **Timebound, transparent, standardised** implementation
- Turnkey offering that provides **value-for-money**

FEATURES



UJALA

Unnat Jyoti by Affordable LEDs for All

- 300 mn LEDs
- 85% price reduction
- Annual energy savings: 39 bn kWh



SLNP

Street Light National Program

- 6 mn streetlights
- 83,000 km of road
- Annual savings: 1.6 bn kWh



BEEP

Building Energy Efficiency Program

- 3,723 buildings retrofitted
- Annual savings: 65 mn kWh



AgDSM

Agricultural Demand Side Management

- 18,000 pumps replaced
- Energy & monetary savings to farmers



eMobility

National eMobility Program

- 10,000 cars to be delivered by 2019
- Market competitive price of \$16,923



SMNP

Smart Meter National Program

- 5 million meters procured
- 40-50% cost reduction

SUCCESSSES

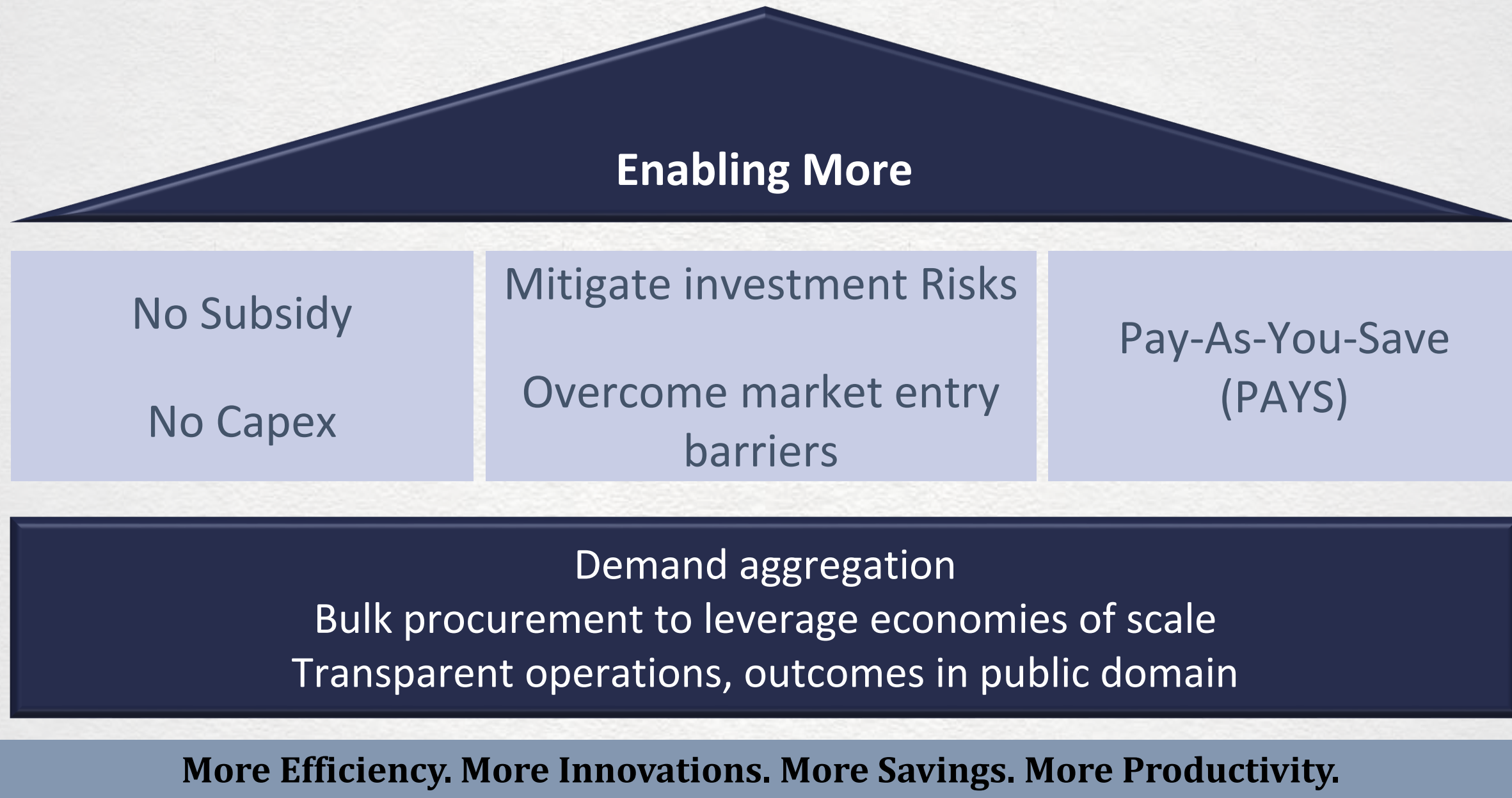
- **50x profit growth** in 4 years
- Well positioned to be **listed on stock exchange** in 2019
- **Global expansion** with programs operational in UK, Malaysia, Thailand, Saudi Arabia, Ireland, Canada, Vietnam and Myanmar

GROWTH

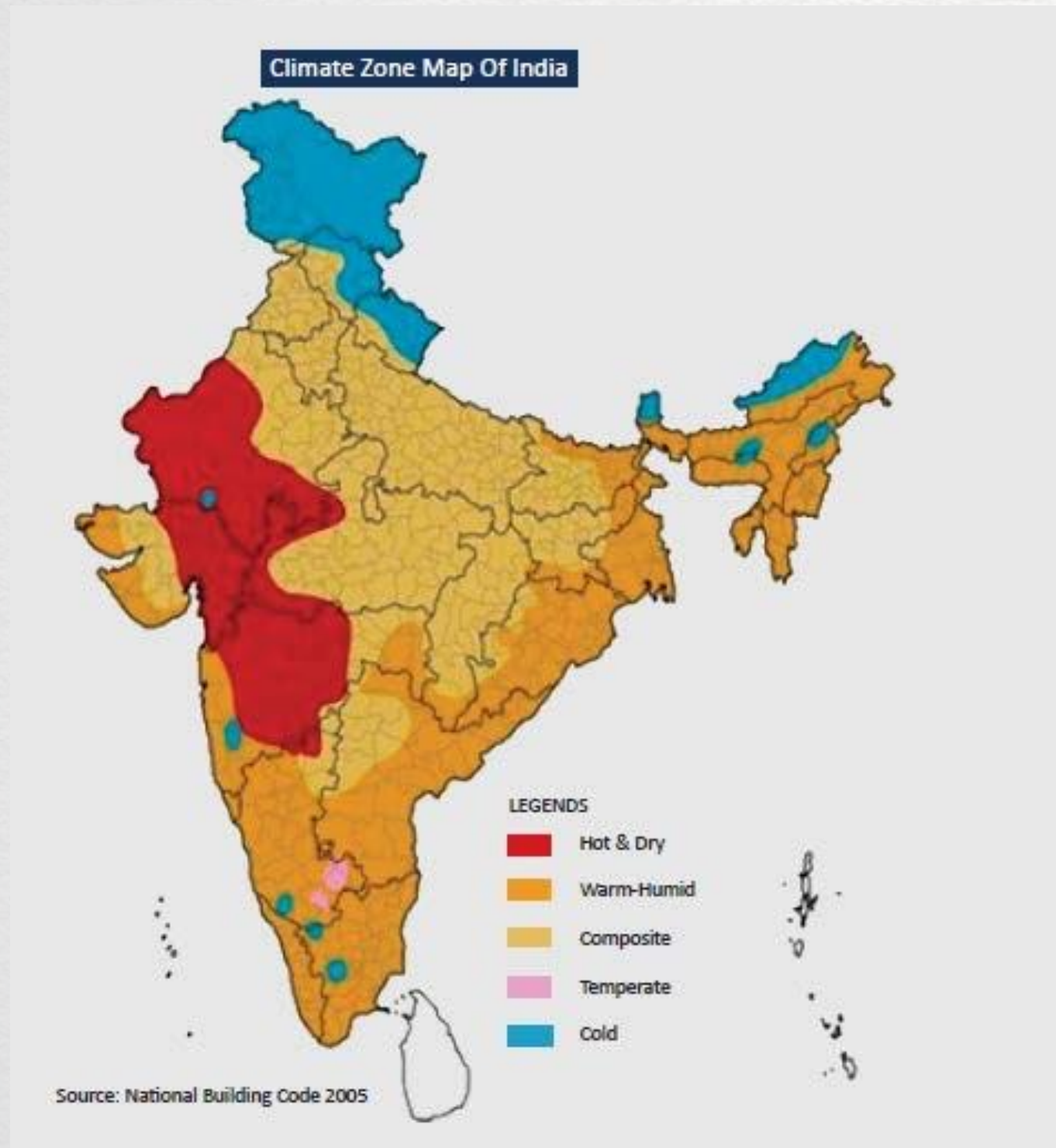
Business Model in Emerging World

- **Business Models** in the emerging world need to be **innovative, scalable, embrace technology, learn to survive without public funds, incentivise all stakeholders and deliver outcomes** in a **time bound** manner
- The **Business case** has to be **simple** and **easy to comprehend** by all
- **Transaction cost of joining is low** – easy to aggregate demand
- **Compelling rationality** and transparency – enable fast adoption – **effective communication**
- **Value for money** for all stakeholders is essential
- **Standardization** of technology, services and
- **Turnkey implementation** - to seamlessly integrate all the elements

Value proposition driven by philosophy of Enabling More



Need for Air conditioning in India



Climate type	Summer temperatures (°C)	Winter temperatures (°C)	RH (%)
Hot & Dry	20 to 45	0 to 25	55
Warm-humid	25 to 35	20 to 30	70-90
Composite	27 to 43	4 to 25	20- 95
Temperate	17 to 34	16 to 33	<75
Cold	17 to 30	-3 to 8	70-80

(Source: National Building Code, 2005)

- About 1,000 BU electricity consumption annually by Acs. Expected increase @7% per annum
- 30% consumption in Building Sector – 60% contributed by ACs
- About 5 million new AC enter into market every year – Existing penetration is over 20 million

EESL's Super Efficient AC Program – For Buildings



Completed Procurement of 100,000 Super-Efficient ACs

Super Efficiency (ISEER 5.2, 1.5 ton)

- Split configuration Inverter technology
 - 33% efficient from 5 Star
- Low GWP

Assurance

- Comprehensive warranty – 3 year; Compressor (5 years)
- Tested to work in conditions like 52°C
- Financing options

Convenience

- Installation and 3 year annual service by brand
- Buyback option
- Financing options

Building Energy Efficiency Programme

- GoI mandate to implement this programme in all central Government buildings
- Agreement signed for implementation of Energy efficiency measures in over 5000 buildings belonging to Central / State Governments as well as private sectors
- As on 25th May 18, EESL has completed **3723 buildings**, which has led to cost savings of about **USD 13 Million** with reduction of over 69,000 tonnes CO₂ and avoided peak demand of over **19.2 MW**
- EESL has target of 5,000 buildings in FY 2018 – 19 on implementation of Energy efficiency measures
- EESL has launched “National Building Dashboard” <http://www.eeslbeep.com>, which provides information of real time/deemed energy savings after EESL intervention of energy efficiency measures in all buildings on pan India basis

Cost-Benefit Scenario

	3 Star Inverter AC	5 Star Inverter AC	EESL Super Efficient Inverter AC
ISEER	3.2	4.2	5.2
Electricity Wattage	1650	1250	1015
Market price (US \$)	615	692	838
<u>5 year AMC (US \$)</u>	<u>308</u>	<u>308</u>	<u>46</u>
Annual operating days	225	225	225
Operating Hours per day	10	10	10
Annual Electricity Consumption Units	3000	2275	1850
Annual Electricity Charges (at \$0.12)	369	280	228
Electricity Charges for 5 years	1,846	1,400	1,139
Total Cost for 5 years	2,769	2,400	2,023

Tri-Generation : Importance in India

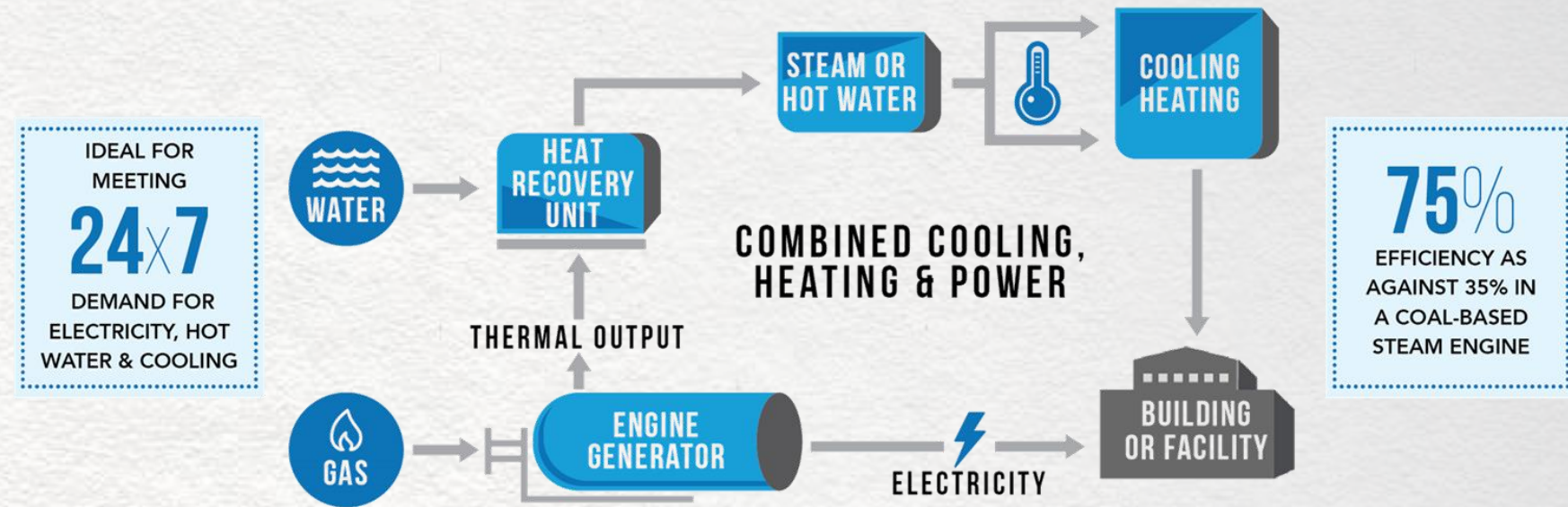
- Growth in Commercial Buildings & facilities (> 15,000 million sq. ft by 2020) requiring substantial use of Electricity, Heat and Cooling - almost 90% of the energy bill
- High Energy Consumption in Industrial Sector – Energy Cost is about 30 to 50 % of manufacturing cost
- High (and increasing) Energy Price ; Non-Availability of Reliable Energy
- Availability of Natural Gas in most part of India ; Almost Stabilized Gas Price
- Regulatory Compulsions for Industrial and Commercial Establishments to reduce Specific Energy Consumption
- Proven Technology – Viability to be worked out
- Availability of national level agency who could take financial and technical risks – Upfront Investment by ESCO
- Availability of Integrators – May be suitably developed
- Increase in System Efficiency from 30 % to 60 % to 80 %

**200 mn \$
Investment by
2020**

EESL's intervention in Tri-generation

Investment of £55 million in acquisition of Combined Heat & Power (CHP) asset – Edina Power, leading CHP integrator in UK and Ireland

- Revenue: £100m; 200+ Staff; 8 offices; 500+ installations
- £208m of potential in CHP based ESCO market in UK
- 11.5GW of potential in Tri-generation in India
- Feasibility study ongoing at few locations



TRIGENERATION INVOLVES THE SIMULTANEOUS PRODUCTION OF ELECTRICITY, HEATING AND COOLING





Thank You

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