



# Telecom Energy Management

An Independent Service  
provider's perspective

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Strategy and New Technologies



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# Agenda

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- ❖ Setting the Context - What Energy Challenges are we dealing with
- ❖ The impact on Business
- ❖ Technology Options - A sneak preview
- ❖ Key Imperatives for Adoption
- ❖ What if we don't
- ❖ Shape of things to come - The evolving Ecosystem in EM
- ❖ Business Models - Compelling case
- ❖ What have we done so far - Initiatives in the pipeline
- ❖ Tomorrow will be too late - the clock is ticking



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# What energy challenges are we dealing with

High energy related OPEX due to long DG running hours (8-10 hrs in rural)

Higher Fuel Costs also due to increasing fuel transportation costs, pilferage, theft

Indoor BTS require cooling that consumes 50% of power at tower

While operator goes rural, the grid power availability remains very poor

Difficulties in measuring actual power consumption

Most of direct/indirect sources of power are carbon emitting

Considerable CAPEX required to invest in alternate energy solutions

Total CO<sub>2</sub> emissions from towers annually in India equals **5.3 million tons**

# The Impact on business

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## **Challenge**

## **Impact**

Unreliability / poor quality of grid power

Requirement of large battery banks and expensive DG sets. Equipment damage

Continuously rising fossil fuel costs

Profitability gets hit as OPEX increase and ARPU go lower

Manpower for refilling, maintenance, reconciliation, back office

Additional burden on operating expenses

Less control on remote and local human dependencies

KPI defaults, low maintenance, network outages

Long running hours of DG requiring diesel in large quantities

Air and sound pollution, high fuel costs, pilferage and theft

Climate change & increased social pressures to go green

Capital investments in green power

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# Technology Options – A sneak preview

Sleep mode BTS

Sleep mode power supplies

Use of Renewable Energy solutions

 Solar PV

 Wind Turbines

DC air conditioners with built in ambient cooling

Fuel cells

Passive cooling (Convection Cooling)

Remote Monitoring & Controlling

Tubular gel batteries



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# Technology Options – Solar PV / Wind Turbines

## *Benefits*

- 📶 Diesel consumption can be reduced to bare minimum
  - Drastically reduce operational costs
  - Reduce emissions and noise pollution
- 📶 Dependence on grid can be completely eliminated
- 📶 Allow penetration of cellular networks in rural
- 📶 Maintenance required is reduced
- 📶 Attractive pay back period
  - 2 years for cell towers 24 hrs powered by DG
- 📶 Saves 40,000 tonnes/year of carbon emission caused by DG of 100,000 cell towers
- 📶 Attractive government subsidy
  - Present Government Subsidy @ Rs 100 / watt

# Government Initiatives – National Solar Mission

## Off-grid opportunities

- 📶 **Soft loans up to 5% annual interest rate**
- 📶 **30% subsidy for select applications incl. telecom sites**
- 📶 **200 MW capacity solar applications in the first phase**
- 📶 **Focus on**
  - Rural power supply
  - Replacement of diesel
  - **Telecom towers**

## Grid connected Solar Power

- 📶 **1,000 MW solar power (connected to 33 KV or more grid) to be purchased by NTPC Vidyut Vyapar Nigam (NVVN)**
- 📶 **CERC has announced tariff for 2009-10:- PV Rs. 18.44 per unit**
- 📶 **PPA duration 25 years**

# Key imperatives for adoption

No carbon emission, environment friendly

Significantly reduced manpower

Zero fuel cost tremendously reducing Opex

Insulation from tariff fluctuations

Assured supply with limited local dependencies

Government subsidies / Financing – Less Capex burden

Carbon Credits, Green Balance Sheets, CSR

Low Hanging Fruit!



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# What if we don't

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Margins are nose diving due to tariff wars, denting profitability of the mightiest

Pilferage and thefts continue to go unchecked month on month

Thousands of DG sets running 24 hours a day in rural areas

Additional manpower required on field with increasing tower footprint

Government subsidies on renewable energy may not be there tomorrow

Unsustainable cost structures as fossil fuel costs bound to go up

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# Shape of things to come – the evolving ecosystem in EM

Energy – a critical cost determinant – is not the core competence of the operator

Priorities – should operator focus on customer or grapple with managing energy?

Huge variations in energy costs month-on-month without a handle on control

Energy saving technology still evolving – some require huge investments

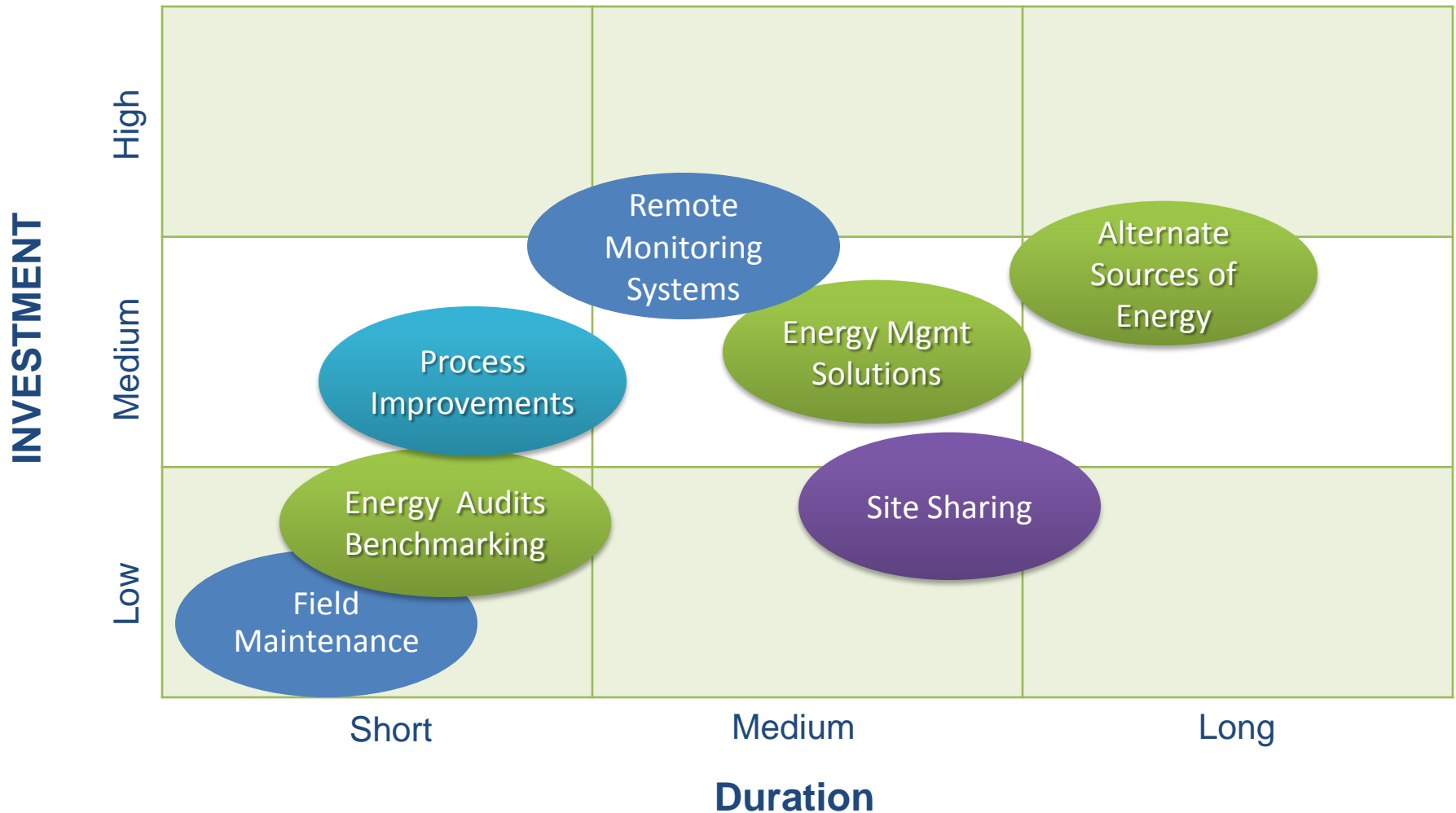
Need of fixing energy costs while maintaining the same levels of SLA/KPI

De-risk operator from period, process rejigs, technology evolution, obsolescence

Independent third parties having expertise in energy management

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# Business Models – a compelling case

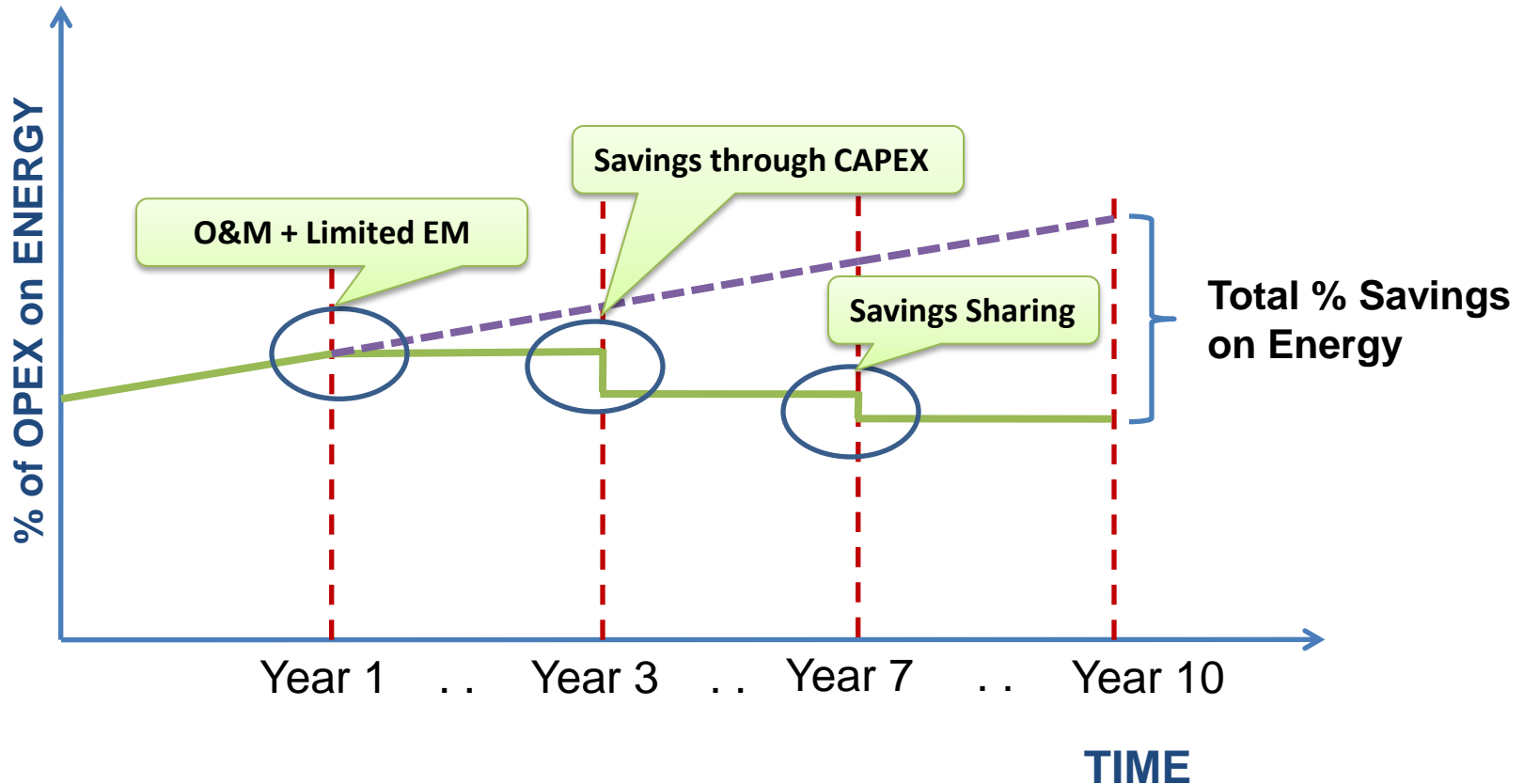


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# Business Model – a compelling case

Long term: O&M + full scale EM – process innovation + CAPEX + Savings Sharing



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# What have we done so far – Initiatives in the pipeline

Aimed at bringing in green revolution in telecom by reducing CO<sub>2</sub> emissions

Reduction in energy consumption by 20-30% by

-  Sharing of telecom towers
-  Energy Management
-  Alternative fuel and technologies

Use Renewable Energy wherever possible

*The Energy Management Solutions form part of Global Group's Sustainability initiatives*





# What We have tried

## FUEL OPTIMISER

- 🔊 Microprocessor controlled
- 🔊 Stand alone solution
- 🔊 Significant savings if combined with free cooling



## FREE COOLING

- 🔊 Stand Alone free cooler
- 🔊 Microprocessor controlled
- 🔊 Substantial savings in air conditioning costs
- 🔊 Rugged design
- 🔊 Works on 48/24 VDC



## WIND TURBINE

- 🔊 1<sup>st</sup> in India wind turbine on telecom tower
- 🔊 Suitable for Outdoor sites in Hybrid with Solar
- 🔊 Costly solution with low ROI
- 🔊 No plan for mass deployment



*Tomorrow will be too late!*



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