IFC International Finance Corporation World Bank Group

GSMA Green Power for Mobile

In partnership with Netherlands

telenor

کرومُمکن

Green Power for Mobile

Afghanistan & Pakistan specific Working group

20th – 21st August 2013

Agenda

Opening session, GSMA market analysis highlight and Moderate discussion

0930 – 1100
- **Welcome speech from IFC, by Nadeem A Siddiqui of IFC**
- **Welcome note from Telenor, by Gyorgy Koller of Telenor**
- **Welcome speech from Government Minister of IT, by Anusha Rahman Ahmad Khan of Minister of IT**
- **GSMA market analysis highlight, by Ali Imron of GSMA**
- **Moderated discussion**

Operator experience sharing and Technology development

1115 – 1255
- **Telenor's roadmap to green network, by Mudasar Hussain Mian of Telenor**
- **Cooling system, by Warwick Dawes of Coolsure**
- **Storage, by Yamen Saleh of NorthStar**

Technology development and Business innovation

1355 – 1505
- **Power Management, by Michael Kutschenreuter of Heliocentris**
- **Fuel cell technology and showcase, by Muhammad Haroon of Interactive Group**

MECS update and Closing for Day 1

1520 – 1700
- **Mobile Enabled Community Services, by Rahul Shah of GSMA**
- **Discussion and Closing**

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Agenda

Operator experience sharing and Business innovation

0930 – 1100
- **Operator experience sharing, by S. Shaheryar Ali of Warid Telecom**
- **Business innovation, by M. Masud Malik of SSPL**
- **Business innovation , by Salman Khalili of LCC**

Break-out session

1115 – 1230
- **Break out session**
  With topic CAPEX or OPEX?
- **Wrap up the Working Group**

Technical training

1330 – 1455
- **HOMER software introduction**
- **Renewable energy design by HOMER software**

Site modelling and Closing

1500 – 1700
- **Site modelling and business case**
- **Discussion and Closing**

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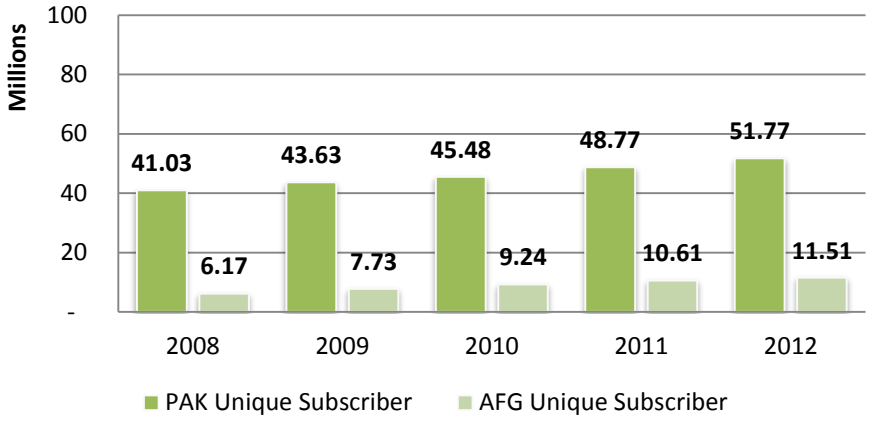
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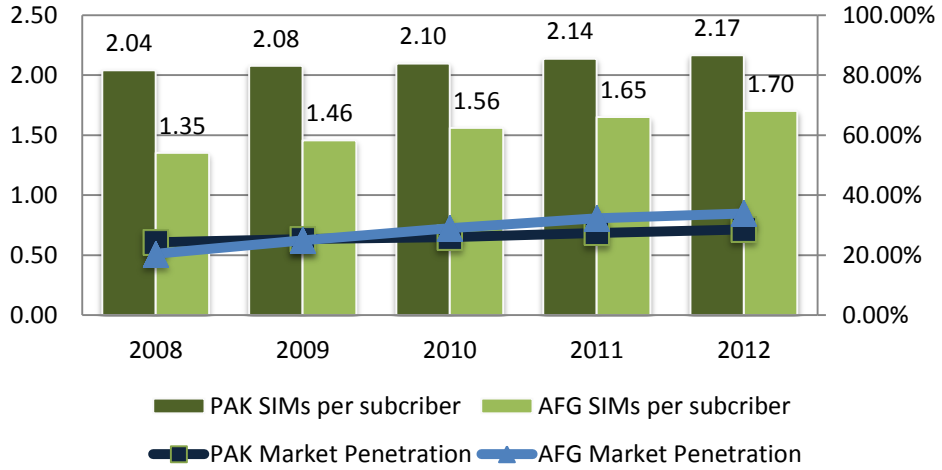
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AFGHANISTAN & PAKISTAN TELECOM MARKET

Unique Subscriber Growth



Market Penetration



- In 2012, the unique subscriber for Pakistan reached more **than 51 million unique subscribers** and Afghanistan was more than **11 million unique subscribers**.
- And will reached **54 million and 12 million** respectively **by end of 2013**.
- Pakistan's market penetration has reached almost **29% by 2012** with ratio a **SIMs per subscriber is 2.17**.
- Afghanistan's market penetration reached for more than **33% by 2012** with ration a **SIMs per subscriber is 1.70**.

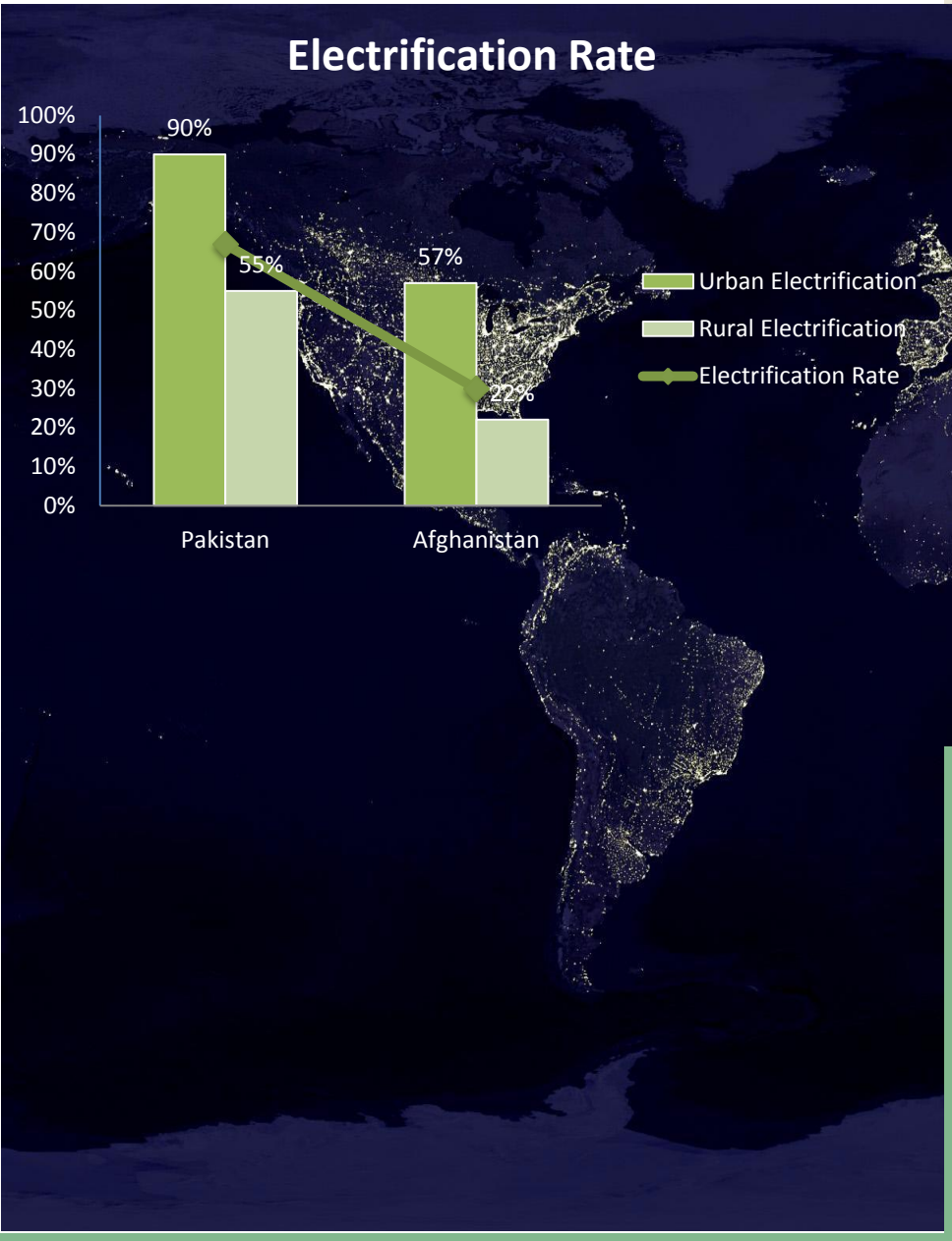
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POWER SITUATION IN AFGHANISTAN & PAKISTAN



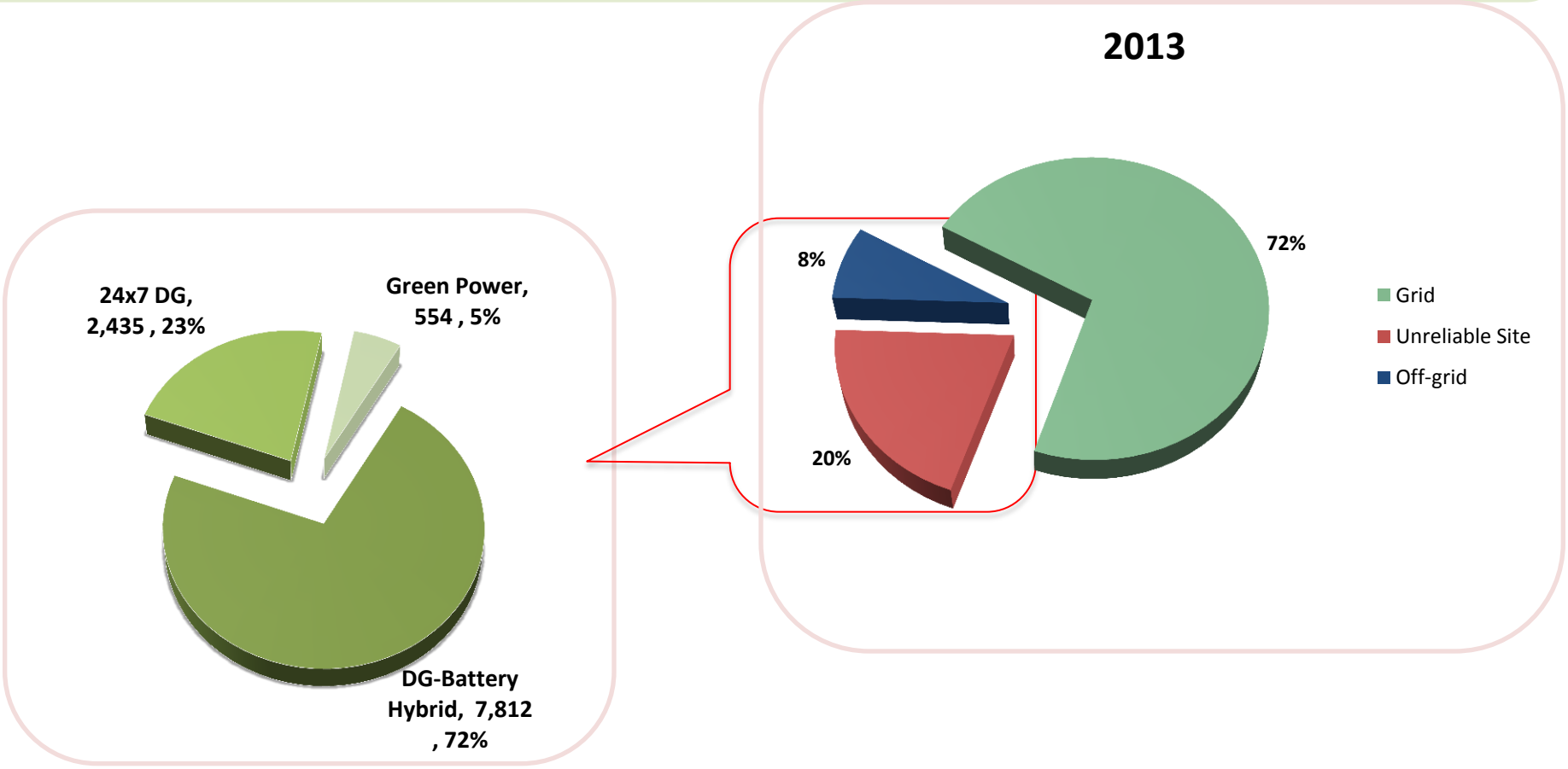
Presently the electrification rate in Pakistan is better with 67% and followed by Afghanistan with 30%.

And the deficit of electricity is around 36%(Pak) and 17%(Afg)

(source: Ministry of Water and Power Pakistan and DABS od Afghanistan)

POWER SITUATION IN TELECOM

"Currently in both of countries have a total of 38,452 tower sites with more than 28% of them lacking access to the grid" - GPM Market Research

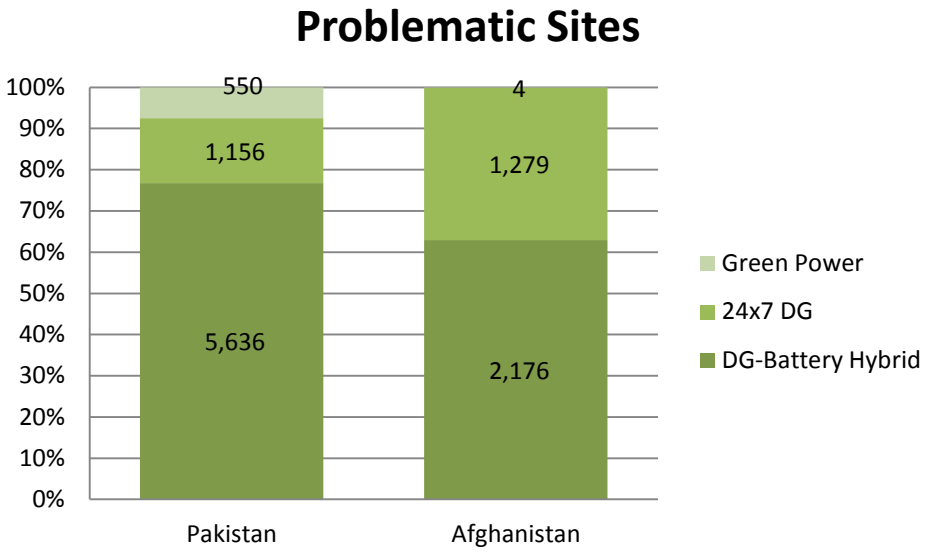


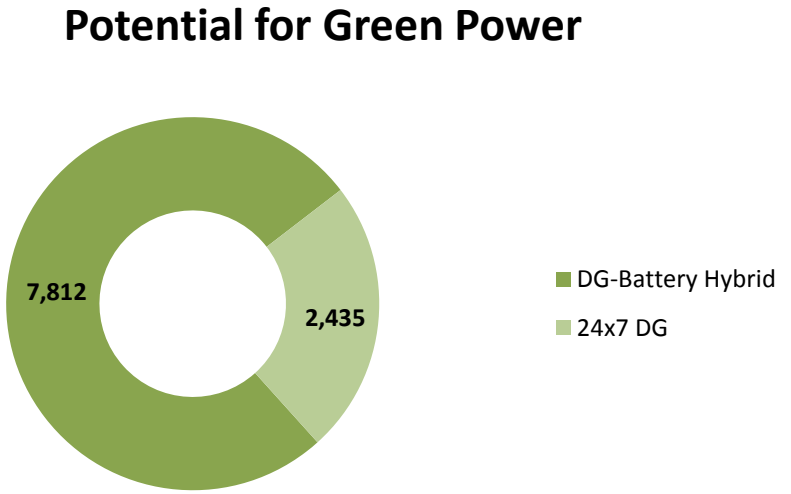
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POWERING TELECOM (CURRENT APPROACH)

Current Approach

- To power 2,435 DG sites for 24x7, MNOs need to spend OPEX for more than **US$ 54.5 million a year.**
- And to power 7,812 DG battery hybrid sites, MNOs will spend about **US$ 116.6 million a year** from fossil fuel.
- Those cost doesn't reflect the maintenance and overhead cost.

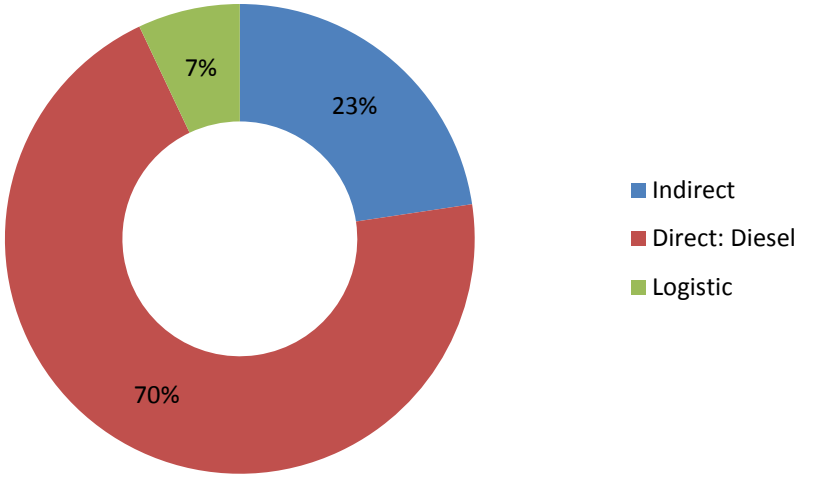




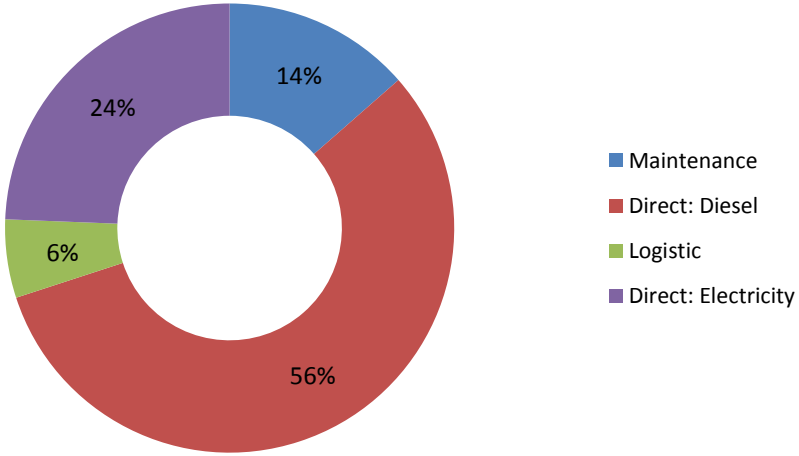
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POWERING TELECOM (COST STRUCTURE)

Off-grid



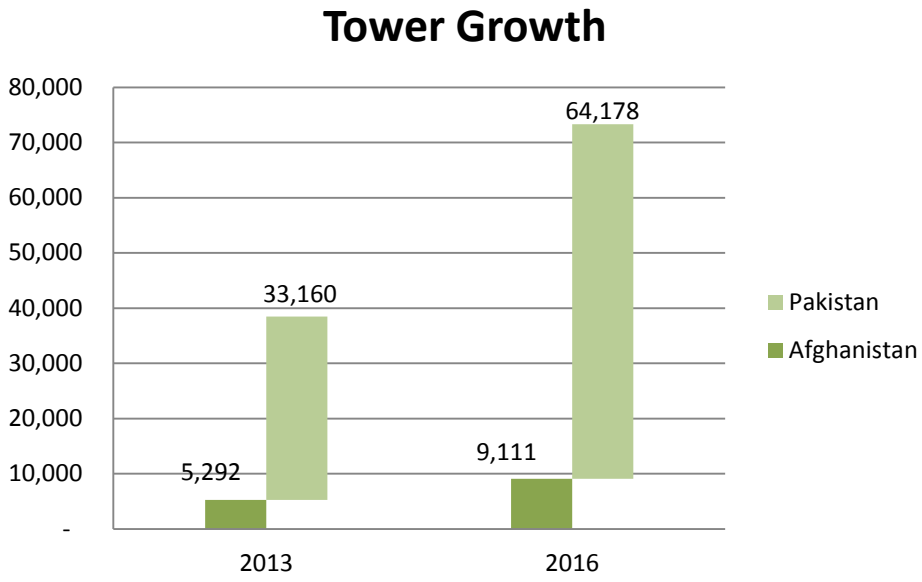
On-grid

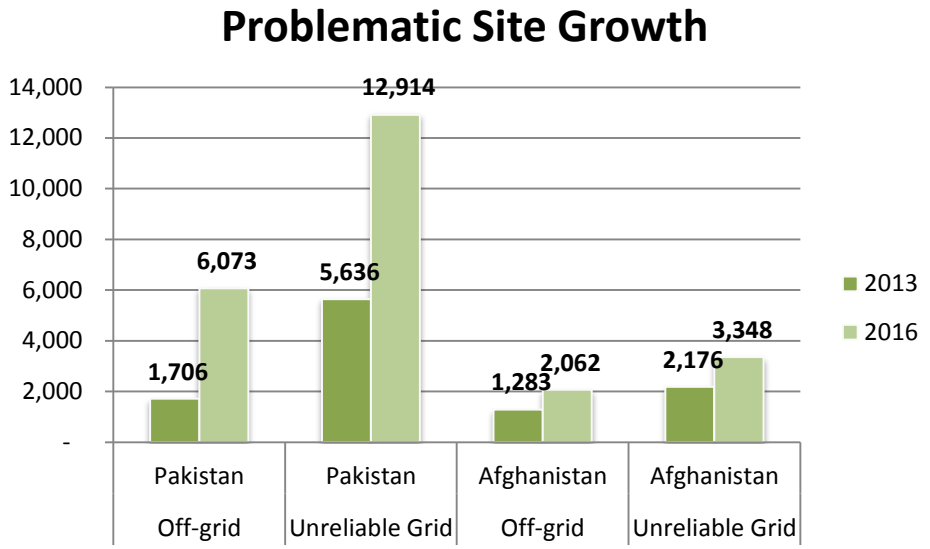


- Diesel cost dominates cost factor for powering on these 2 scenarios.
- Direct cost covers cost of electricity, diesel and fuel.
- Indirect cost covers cost of maintenance and overhead.
- The cost structure might change by year-on-year based on diesel market price.

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TOWER GROWTH





- GSMA calculates based on coverage and capacity expansion with consideration of 2% blocking on the network.
- GSMA estimates tower growth will reach **73,289 sites by 2016**, with assumption MNOs will extend the coverage to uncovered rural area.
- Unreliable grid site will increase **up to 12,914 sites for Pakistan and 3,348 sites for Afghanistan by 2016**.
- And **by 2016 off-grid site will reach 6,073 sites for Pakistan** and **2,062 sites for Afghanistan**, considering more operators go to cover rural area for the next 3 years.

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SAVING OPPORTUNITY

Short Term

- BTS equipment modernization.
- Replacing indoor BTS equipment with outdoor BTS equipment.
- Replacing AirCon with Free Cooling Unit (FCU).
- Converting 24x7 DG site with DG Battery Hybrid solution.

Long Term

- Converting all problematic sites to green sites.
- It will require big capital to implement green sites.
- Creating suitable business case to reach maximum OPEX reduction is required.

By converting 2,435 off-grid sites from 24x7 DG configuration to DG Battery hybrid solution, MNO will save around 33% OPEX from diesel consumption

In Long Term strategy, **CAPEX or OPEX Model?**

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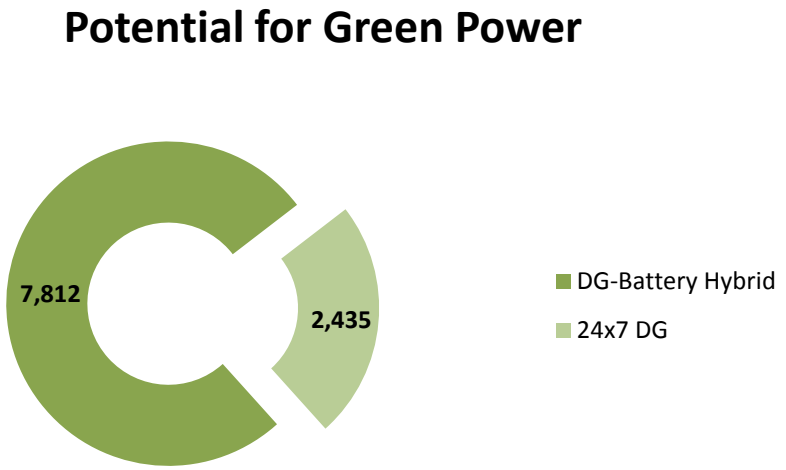
SAVING OPPORTUNITY (SHORT TERM)

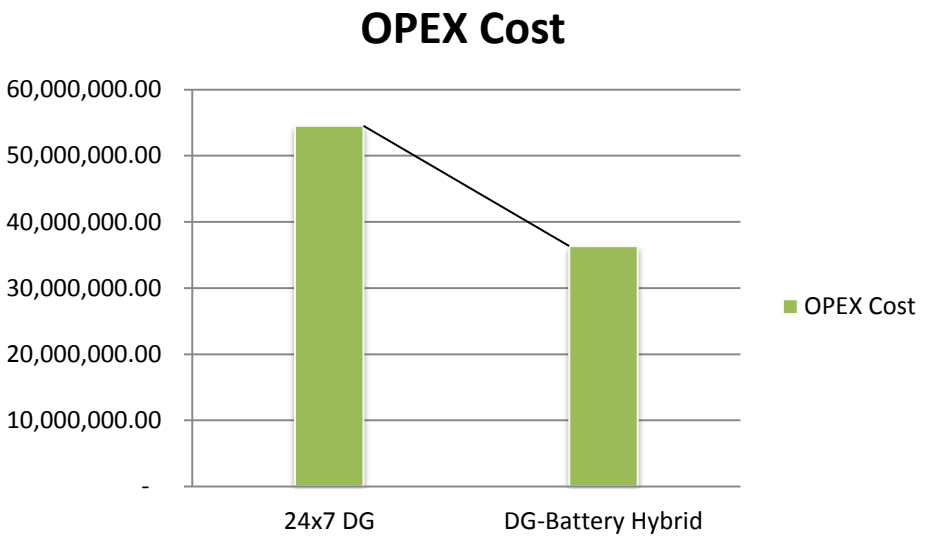
Short Term

- MNOs can save **15.1 million litres of Diesel consumption per year** by converting 24x7 DG sites to DG battery hybrid

- Potential OPEX saving can reach around **US$ 18.1 million a year**

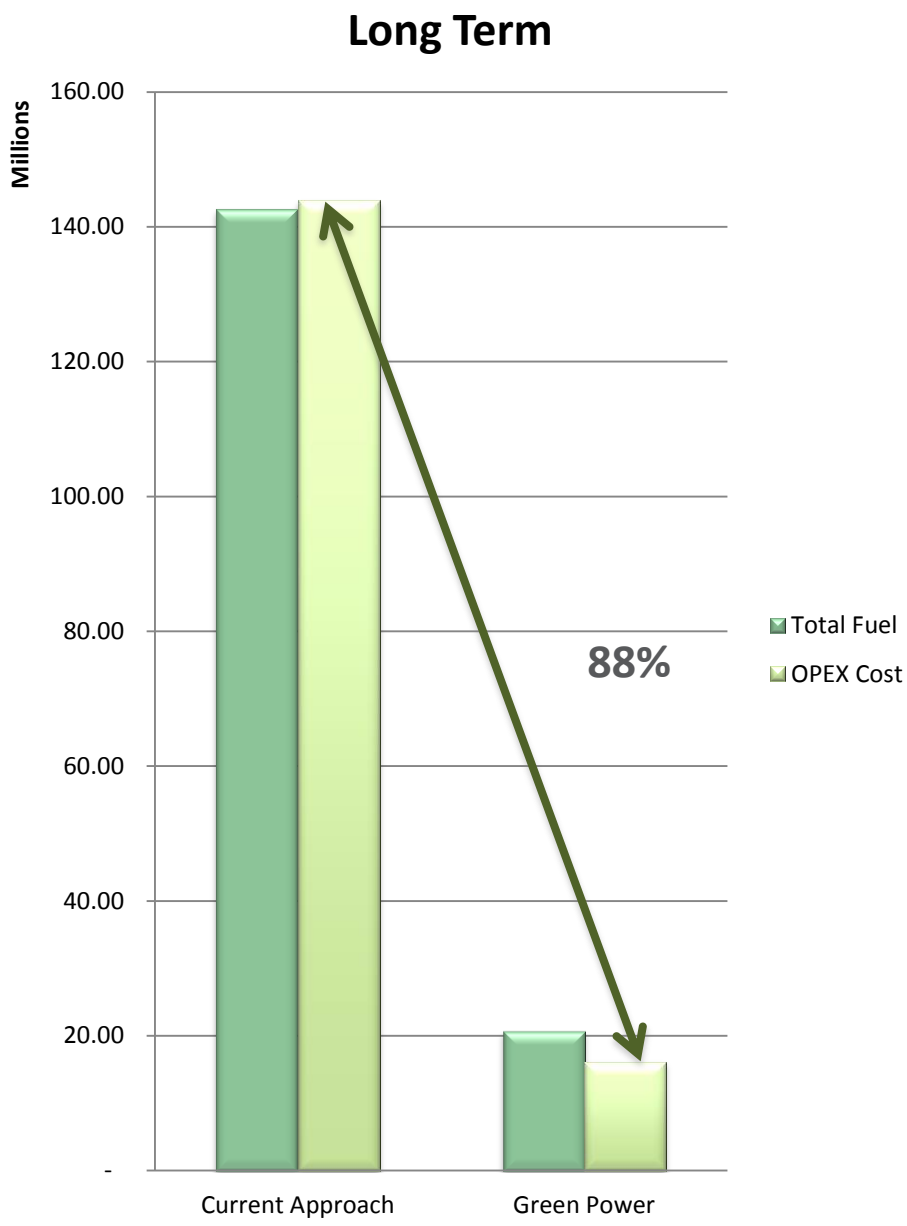
- **33%** saving can be achieved by converting 24x7 DG to DG battery hybrid solution.





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SAVING OPPORTUNITY (LONG TERM)

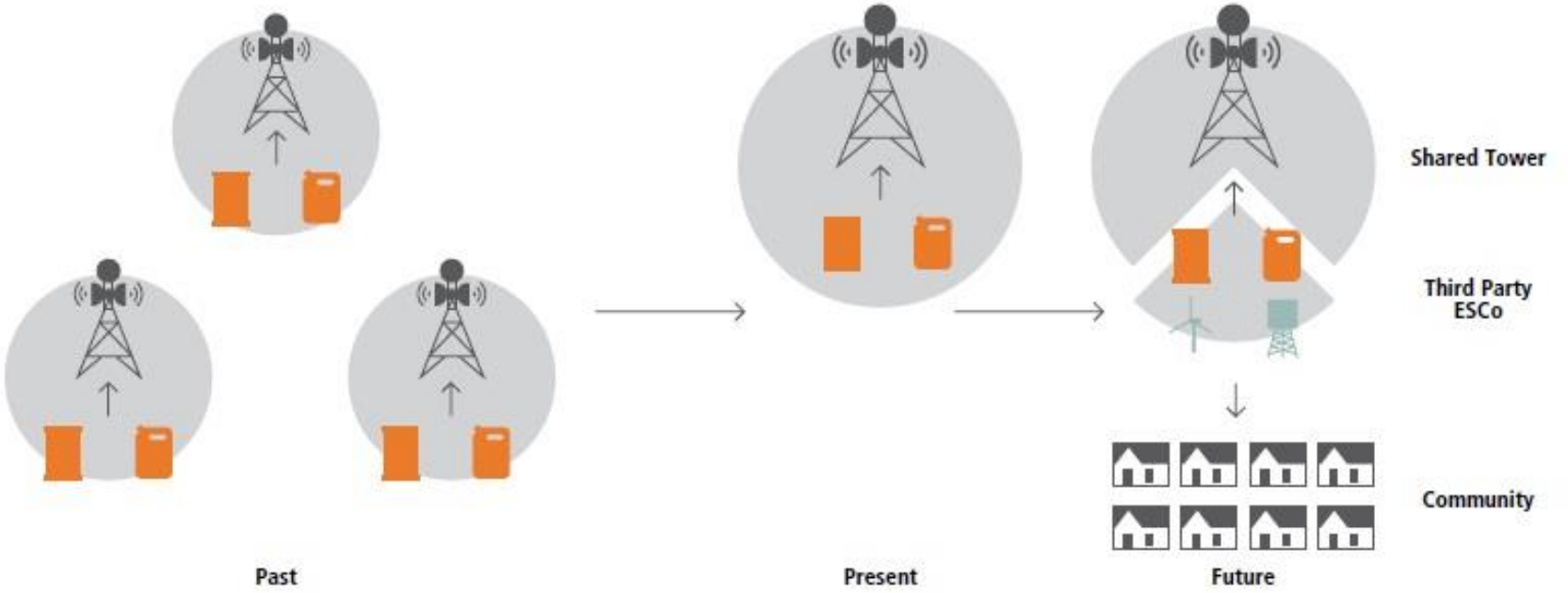


Long Term

- For **10,247** problematic sites, MNOs will be able to **save 88% of their OPEX** by implementing green technology solution.
- **By investing US$ 38,500 of solar solution, MNOs can save US$ 127.7 million a year for OPEX**.
- The total of investment for **10,247** sites reach **US$ 394.5 million.**
- **By 2016**, the investment will reach **US$ 939.3 million** for **24,397** sites.

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OPEX MODEL

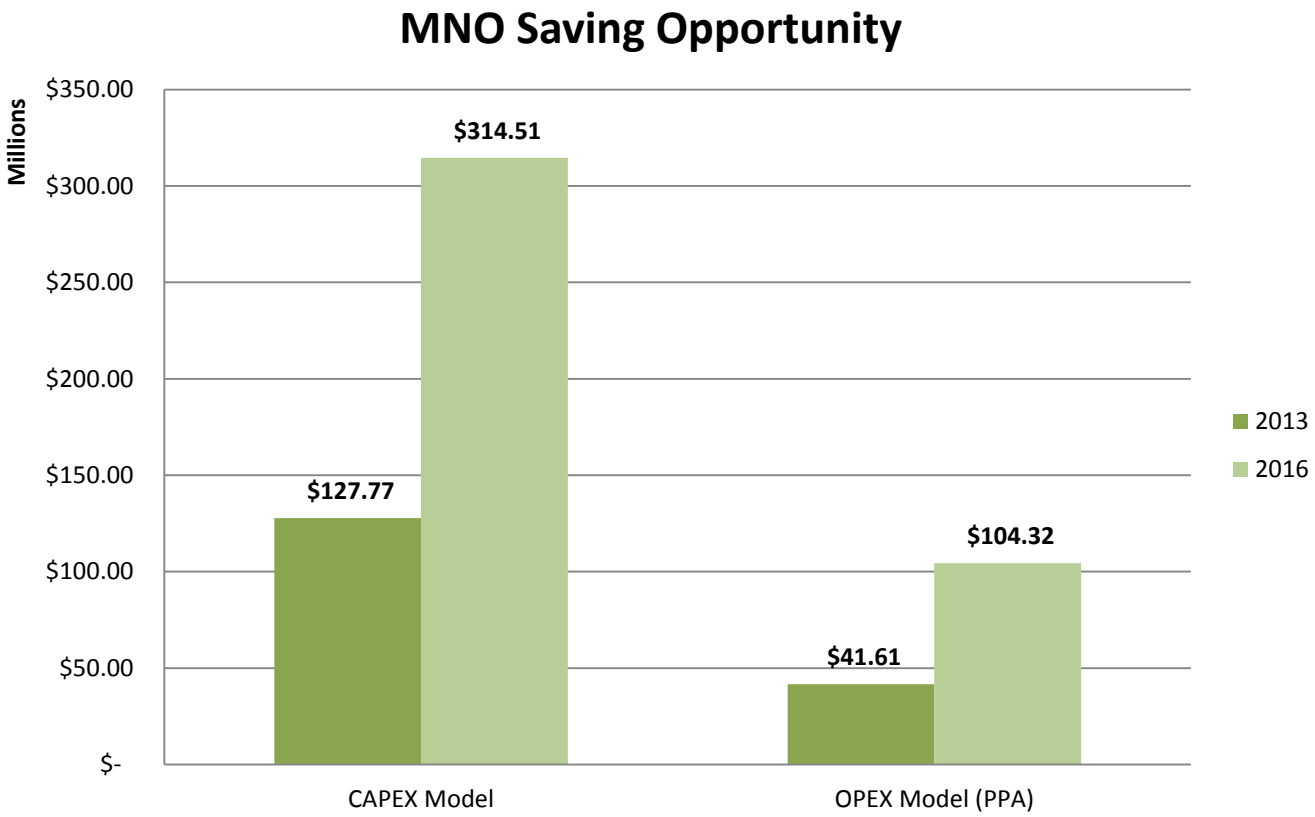


- GSMA estimates a potential saving based on PPA model will reach **US$ 41.6 million by 2013** and climb to **US$ 104.3 million by 2016.**

- On ESCO , the market size is about **US$ 141.9million by 2013 and will reach US$ 320.5million by 2016**.

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SAVING OPPORTUNITY (LONG TERM)



BARRIERS AND OPPORTUNITIES

Barriers

Here is the barriers on green technology deployment in Afghanistan & Pakistan:

- Lack of green technology offered to the market
- Lack of understanding on OPEX model in the market
- Less number of competitive ESCO players
- Most the offered solutions are CAPEX model that required huge investment

Opportunities

- Good opportunity for green vendor to offer their best solution
- Huge saving can be achieve by MNOs for implementing green power solution.
- Good opportunity for financial institution on green technology investment.
- Afghanistan & Pakistan needs US$ 394.5millions investment for green technology and will reach US$ 939.3 millions by 2015.

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Please check our website:
http://www.gsma.com/mobilefordevelopment/green-power-for-mobile

Thank You!

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