

Community Power

Using Mobile to Extend the Grid

Green Power for Mobile

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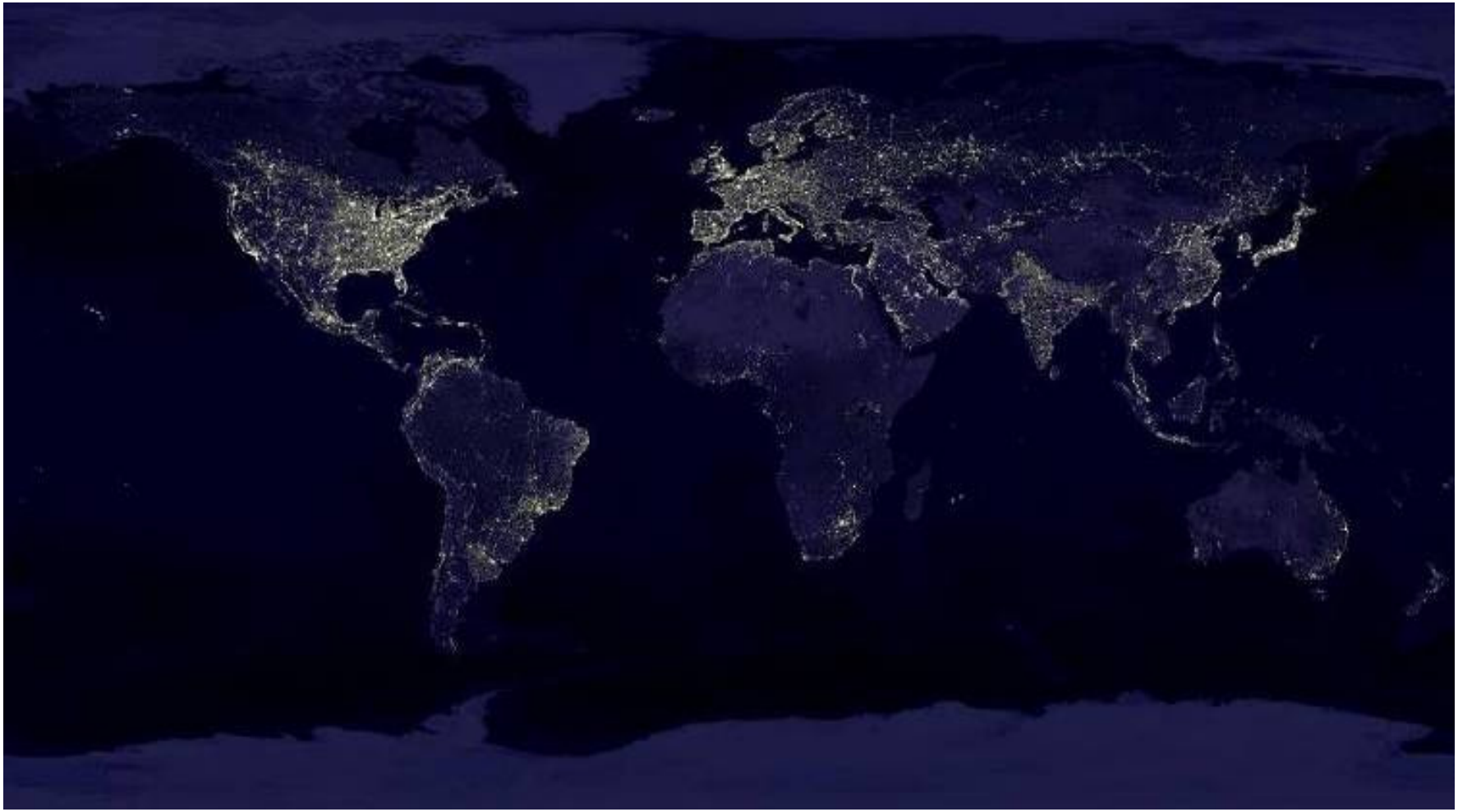
Agenda

- Community Power: Background and Scenarios
- Key Findings
- Market Size and Business Case

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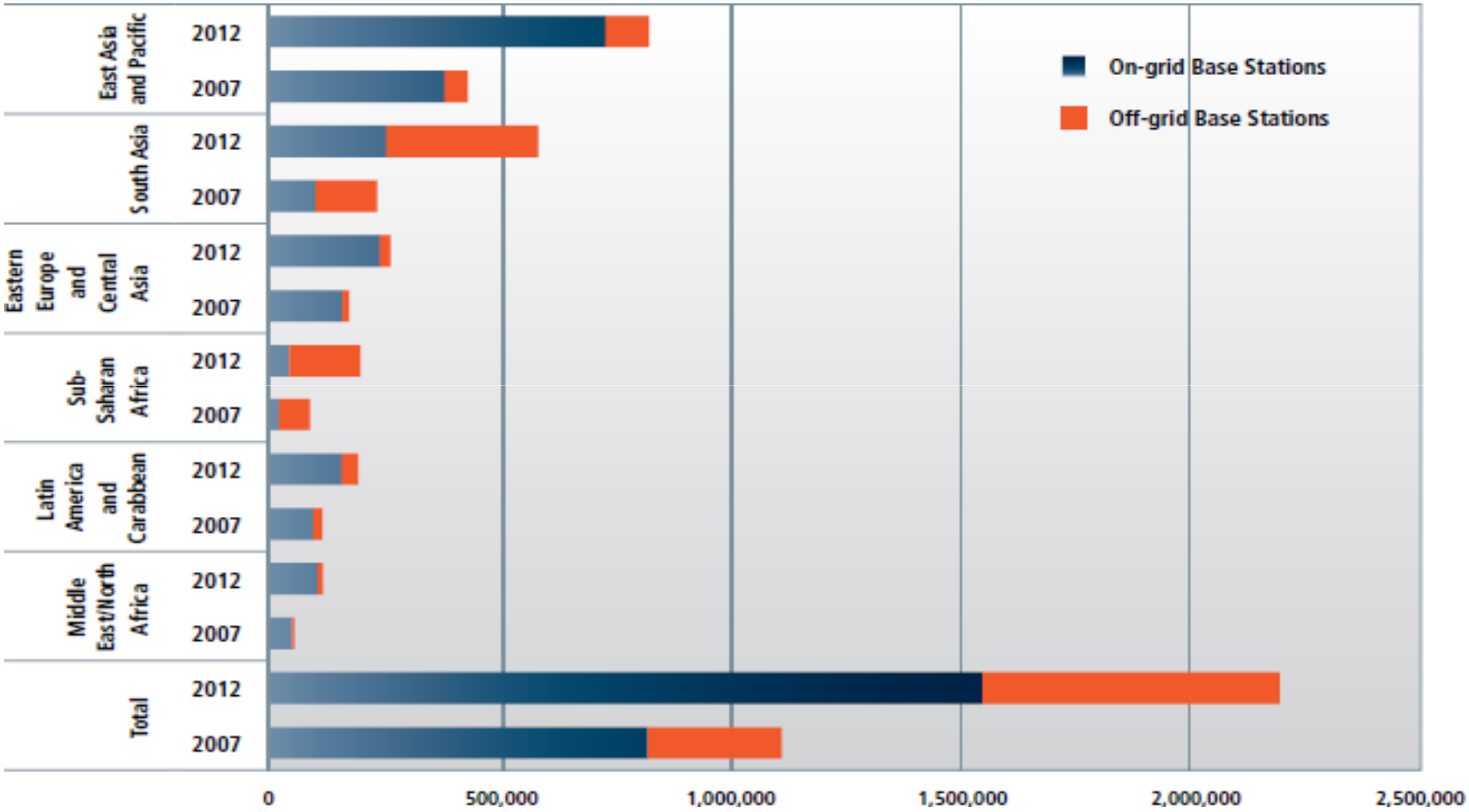
1.6 Billion People Live Off-grid



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639,000 Off-grid Cell Towers by 2012 with US$14.6 Billion Diesel Bill



Source: GSMA Research

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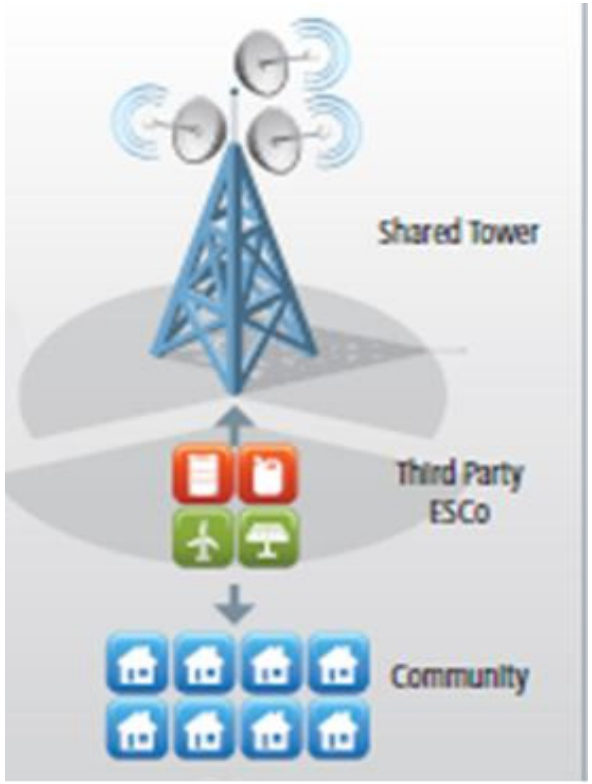
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Operators are trialling new business models to provide power to off-grid communities

Operators/tower companies provide excess power to communities



Operators/tower companies act as ‘anchor’ load for 3rd party Energy Supply Company



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Case Studies of both approaches exist





Safaricom Community Power Implementation at Tegea, Kenya

Location: 250 km North-West of Nairobi
Site: Off-grid diesel generator-based site, with 10-12 kW excess power
Implemented by: Safaricom (Kenya's largest mobile operator)
Community Applications:
- Mobile phone charging booth
- Market street lighting
- Lighting and socket power to local community church
- Lighting and socket power to the site landlord and the local provincial administration (chief's house)





Grameenphone Community Power Implementation at Gazipur, Bangladesh

Location: 60 km North of Dhaka
Site: A 250 kW rice husk-based power plant supplies power to Grameenphone's base station and local community
Implemented by: Dream Power (a distributed energy start-up in Bangladesh)
Community Applications:
- Street lighting
- Lighting and household electricity to 300 houses
- Lighting and electricity to a local poultry farm

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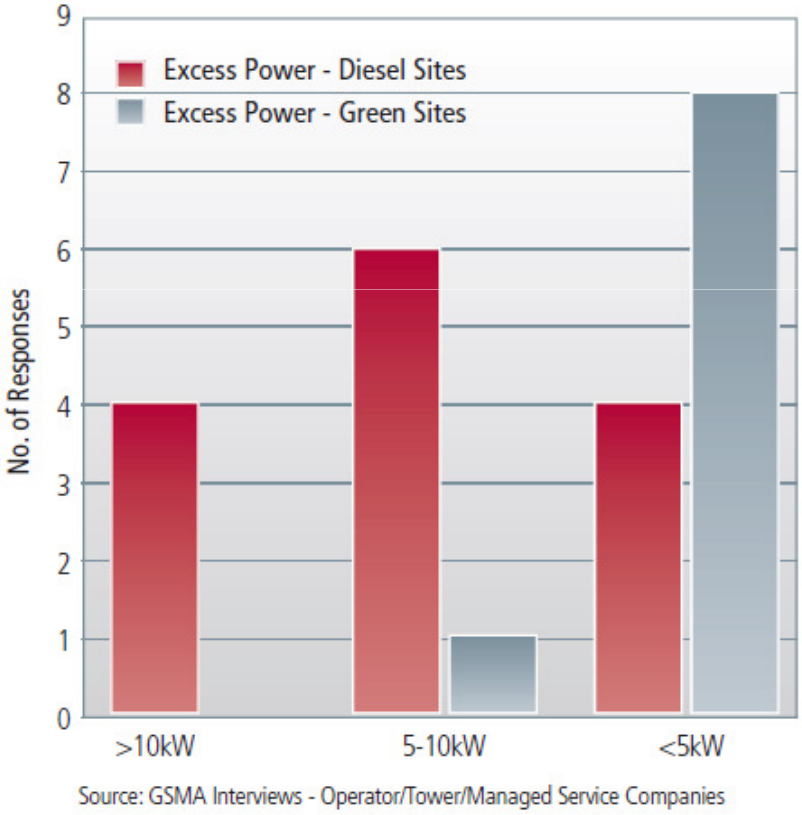
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Key Finding 1: Operators Will Implement Simple Community Power Applications

Figure 6: Excess Power Availability at Diesel & Green Sites



Source: GSMA Interviews - Operator/Tower/Managed Service Companies

- Standalone (not shared) diesel sites, on an average, have about 5 kW of excess power
- Green power sites have limited excess power availability compared to diesel sites
- The amount of excess power available in these sites is normally enough only to provide simple Community Power applications.

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Key Finding 1: Operators Will Implement Simple Community Power Applications

- Good business case exists for implementing handset charging and lantern charging applications from diesel generator-based off-grid sites
- Good business case exists for implementing only handset charging but not lantern charging applications from green power-based off-grid sites

Diesel Sites:

Payback Period - Months (Handset Charging Only)	8.5
IRR (Handset Charging Only)	140%
Payback Period - Months (Handset & Large Household (12V) Battery Charging)	12
IRR (Handset & Large Household (12V) Battery Charging)	89%

Green Power Sites:

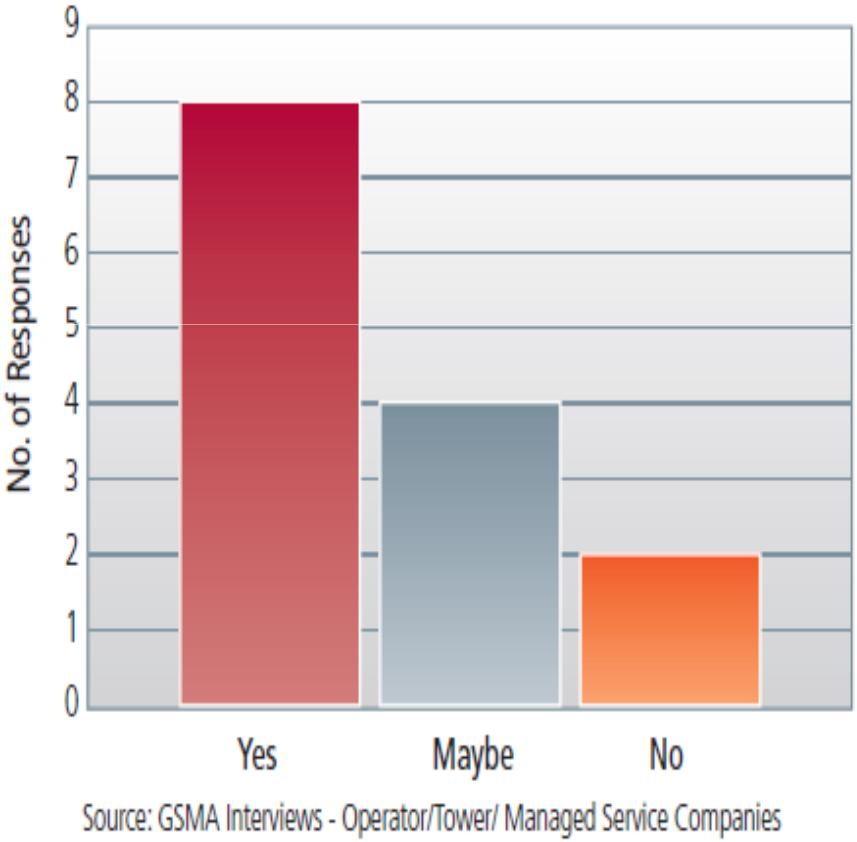
Payback Period - Months (Handset Charging Only)	8.5
IRR (Handset Charging Only)	132%
Payback Period - Months (Handset & Large Household (12V) Battery Charging)	No Returns
IRR (Handset & Large Household (12V) Battery Charging)	

Source: GSMA Research

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Key Finding 1: Operators Will Implement Simple Community Power Applications

Figure 8: Handset Charging Has Strong Benefits & Low Risks



Source: GSMA Interviews - Operator/Tower/ Managed Service Companies

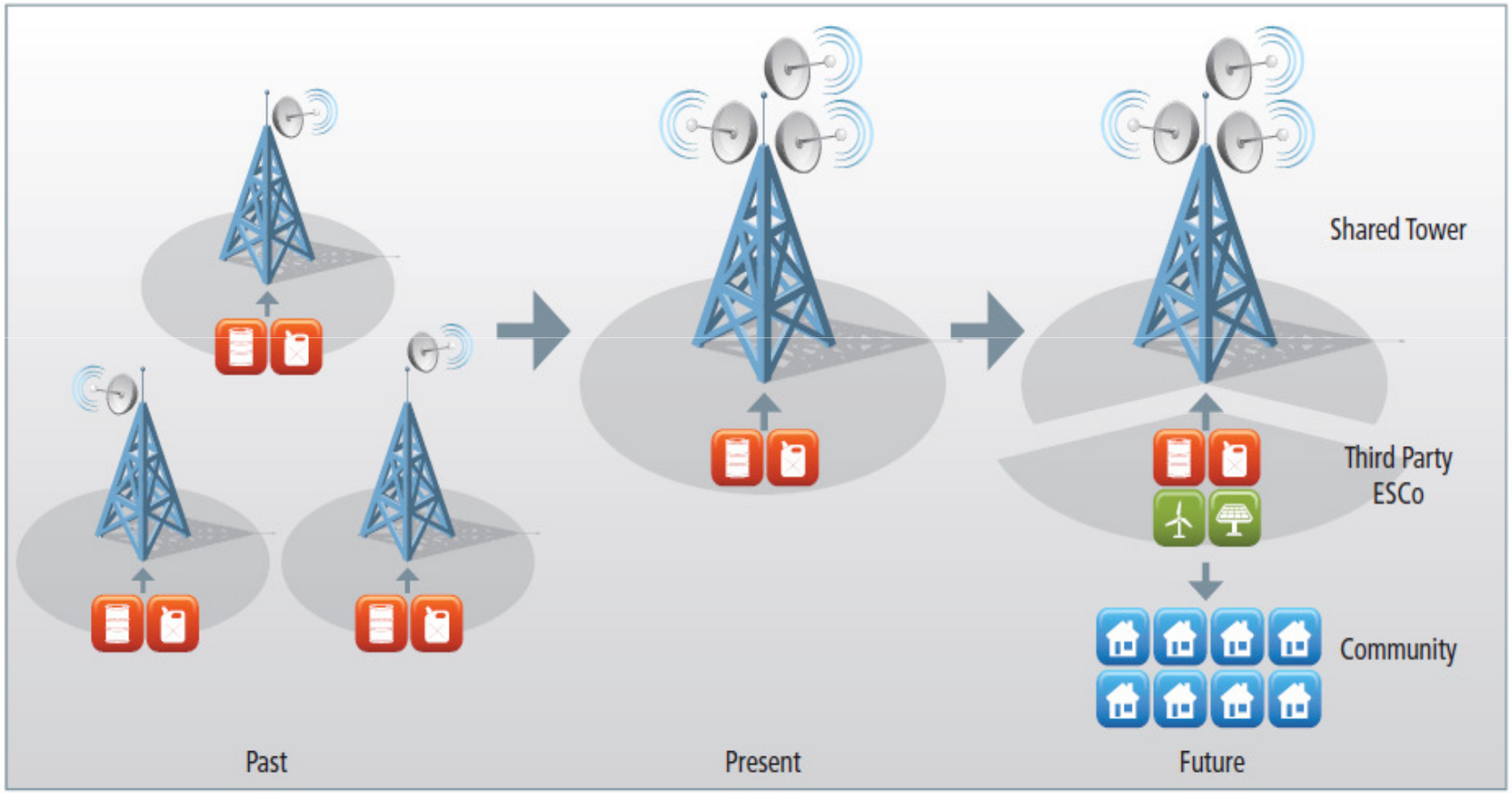
- The findings from the business case modelling is confirmed by the responses from the industry

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Key Finding 2: Third Parties Will Implement Complex Community Power Applications

Figure 11: Evolution of Telecoms Infrastructure Business Models



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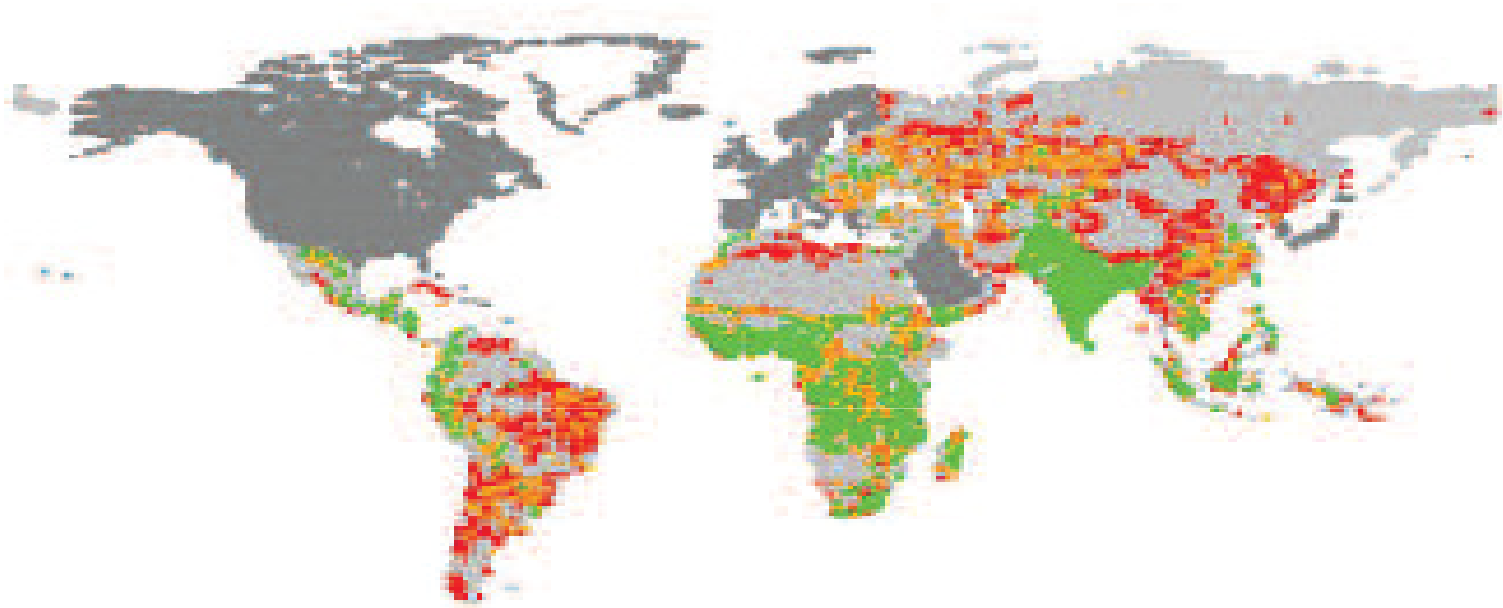
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Highest Opportunity Markets are South Asia and Sub-Saharan Africa



High Community Power Opportunity
Medium Community Power Opportunity
Low Community Power Opportunity
No Community Power Opportunity
Country Not Analysed

Source: GSMA Research

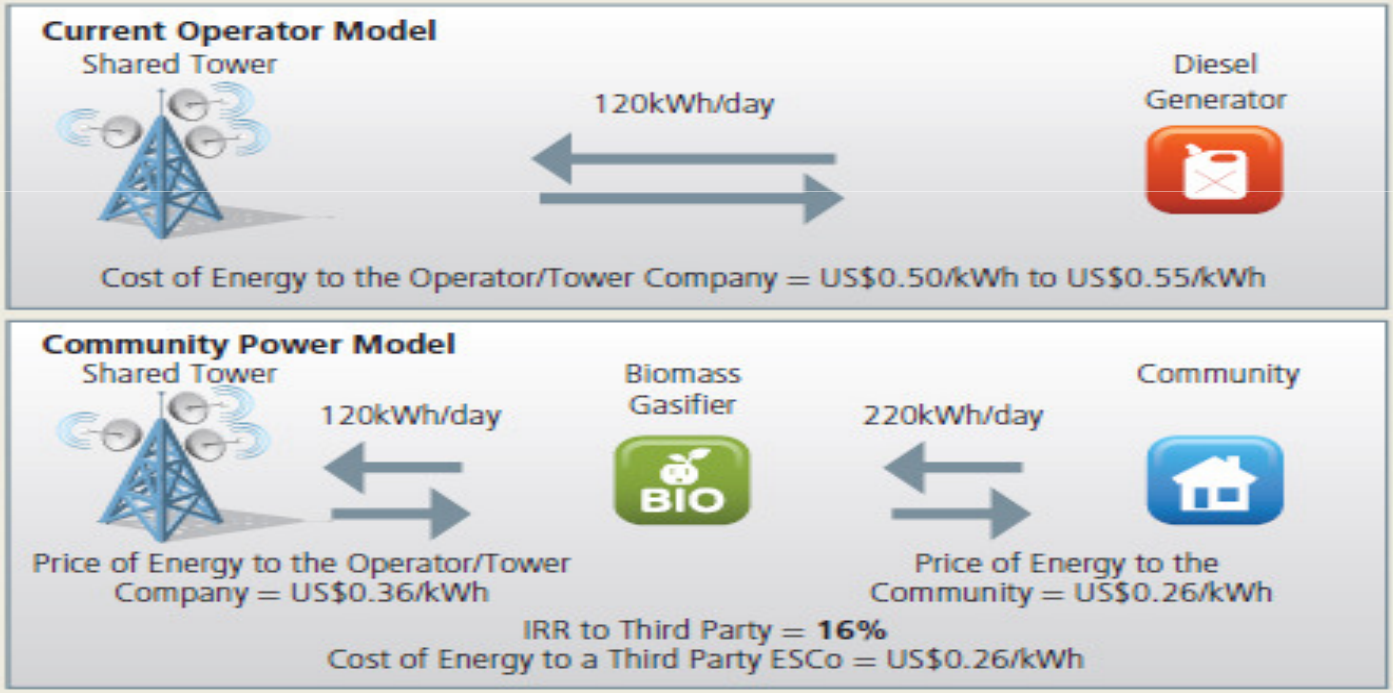
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Positive Business Case Exists

The business case for a biomass gasifier based Community Power implementation supplying power to a shared telecom tower and a rural community in India is shown below

Figure 29: Comparison of Biomass Community Power with Diesel-based BTS Power in India



Source: GSMA Research

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Source: GSMA Research

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Thank You!

Questions?

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