Green Deployment Updates in Ncell



Deepak P. Pandey

Ncell

Agenda

Nepal Introduction

- Ncell Introduction
- Green Initiatives in Ncell
- Solar Deployments Updates
- Impacts of Solar deployment
- Lithium Battery Trial Highlights
- Difficulties and suggestions

Nepal Introduction

- Area : 147181 sq KM
- Population : ~27.5 M
- Elevation: 70 m to 8848m
- Himalayan ~ 15%
- Mountain ~ 68%
- Terai (Plain) ~ 17%
- 6 telecom Operators
- Mobile Penetration:~ 70%



Why Green Energy for Telecom Operators in Nepal

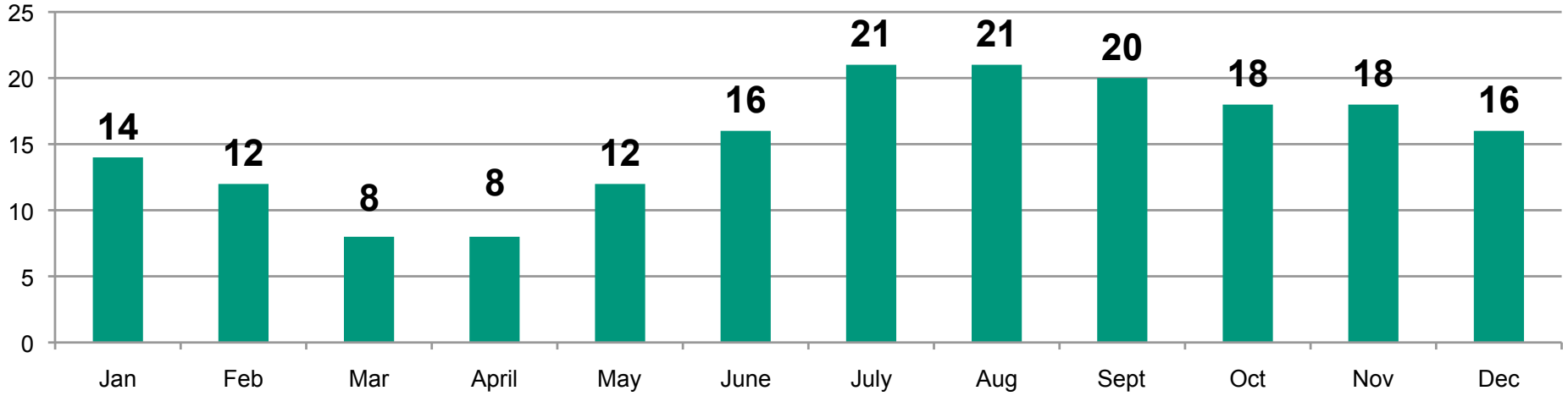
- No grid in remote areas
- Fuel transportation is not feasible financially
- Huge Power cuts. Up to 18 hrs in peak.
- Grid Quality
- DG is not suitable for dense Urban sites due to Noise and Vibration
- High OPEX for DG and Environmental effects as well

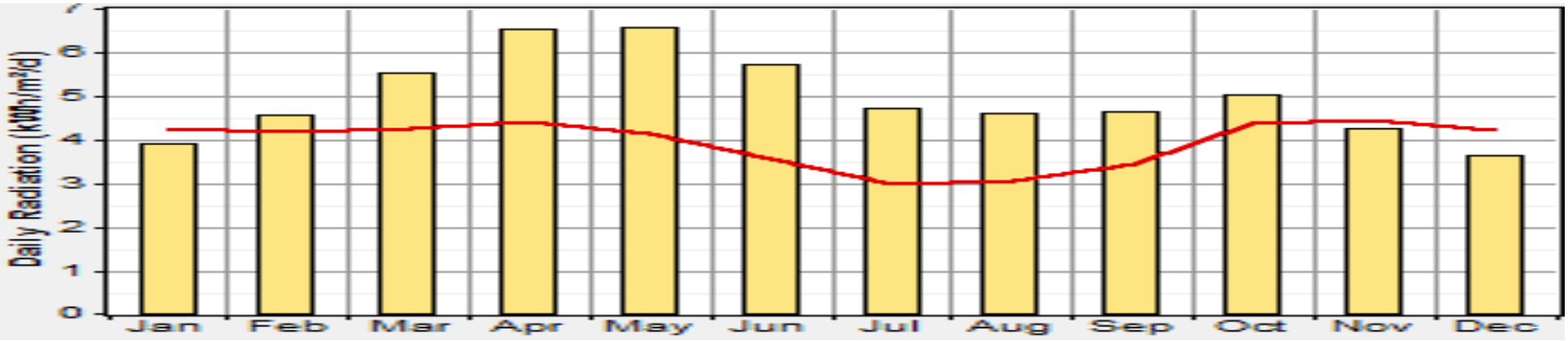




Grid and Solar Availability Pattern in Nepal

Average Hours of Grid Availability Per Day





Solar Availability Pattern

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General Introduction_Ncell

- Started operation in Nepal in 2005.
- Part of Teliasonera Group
- Number one GSM operator in nepal
- Population Coverage ~ 90%
- Geographical Coverage ~ 46%
- Coverage in all 14 Zones and 75 districts
- World's highest 3G site powered by Solar

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Green Energy/Energy Efficiency efforts from Ncell

- Solar Deployment in more than 260 sites.
- All Outdoor concept for new sites
- GSMA feasibility Study
- Low consumption BTS
- Free cooling Trial
- Use of fast charging Batteries Batteries
- DC DG trial
- DG-Battery Cycling
- Low consumption Air conditioner
- Automatic TRX shutdown
- Lithium Battery Trial



एनसेलले हरित ऊर्जाको प्रयोग बढाउने

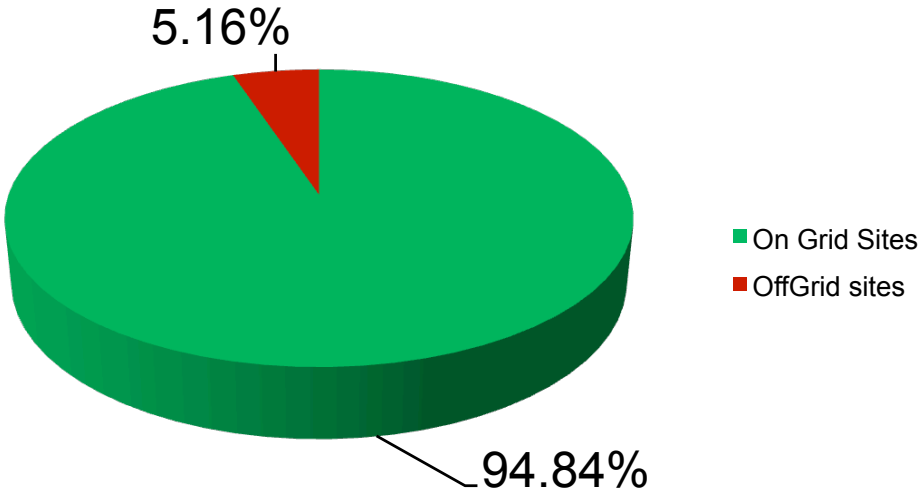
काठमाडौं (कास)- एनसेलले २०१३ भित्र आफ्ना १५ प्रतिशत बेस स्टेसनहरू सौर्य ऊर्जाबाट सञ्चालन गर्ने भएको छ ।

वातावरणमैत्री ऊर्जाको प्रयोगसँगै गुणस्तरीय सेवाका लागि यस्तो योजना बनाइएको कम्पनीले जनाएको छ ।

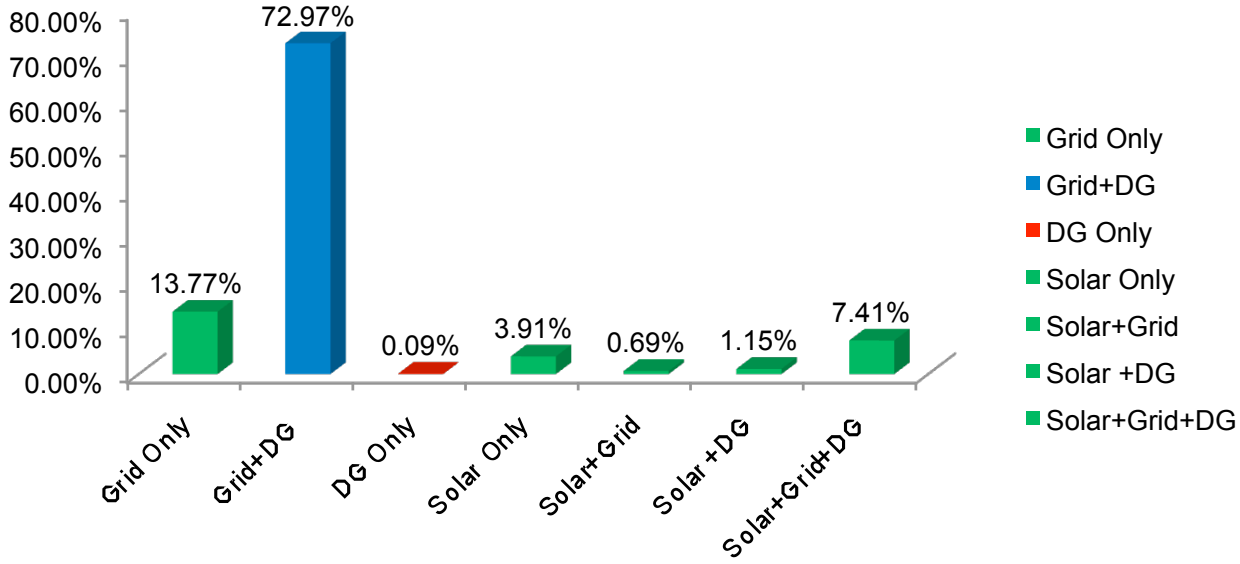
Ncell

विद्युत्बाट चल्नेभन्दा बढी खर्च हुने भए पनि कम्पनीले मुलुकको ऊर्जा समस्या र वातावरणमा पर्ने प्रभावलाई हेरेर यस्तो निर्णय लिएको उल्लेख गरेको छ । 'टेलिकमजस्तो अत्यावश्यक सेवाको क्षेत्रमा राज्यले निर्विघ्न विद्युत् आपूर्ति सुनिश्चित गर्न सकेको भए उत्तम हुन्थ्यो,' एनसेलकी कर्पोरेट कम्युनिकेसन निर्देशक सञ्जु कोइरालाले भनिन्, 'त्यसो नभएको अवस्थामा डिजेल जेनरेटरको सट्टा वातावरणमैत्री सौर्य ऊर्जामा जानका लागि कदम चालिसकेका छौं ।'

Ncell site Power Distribution *(till mid Sept)*



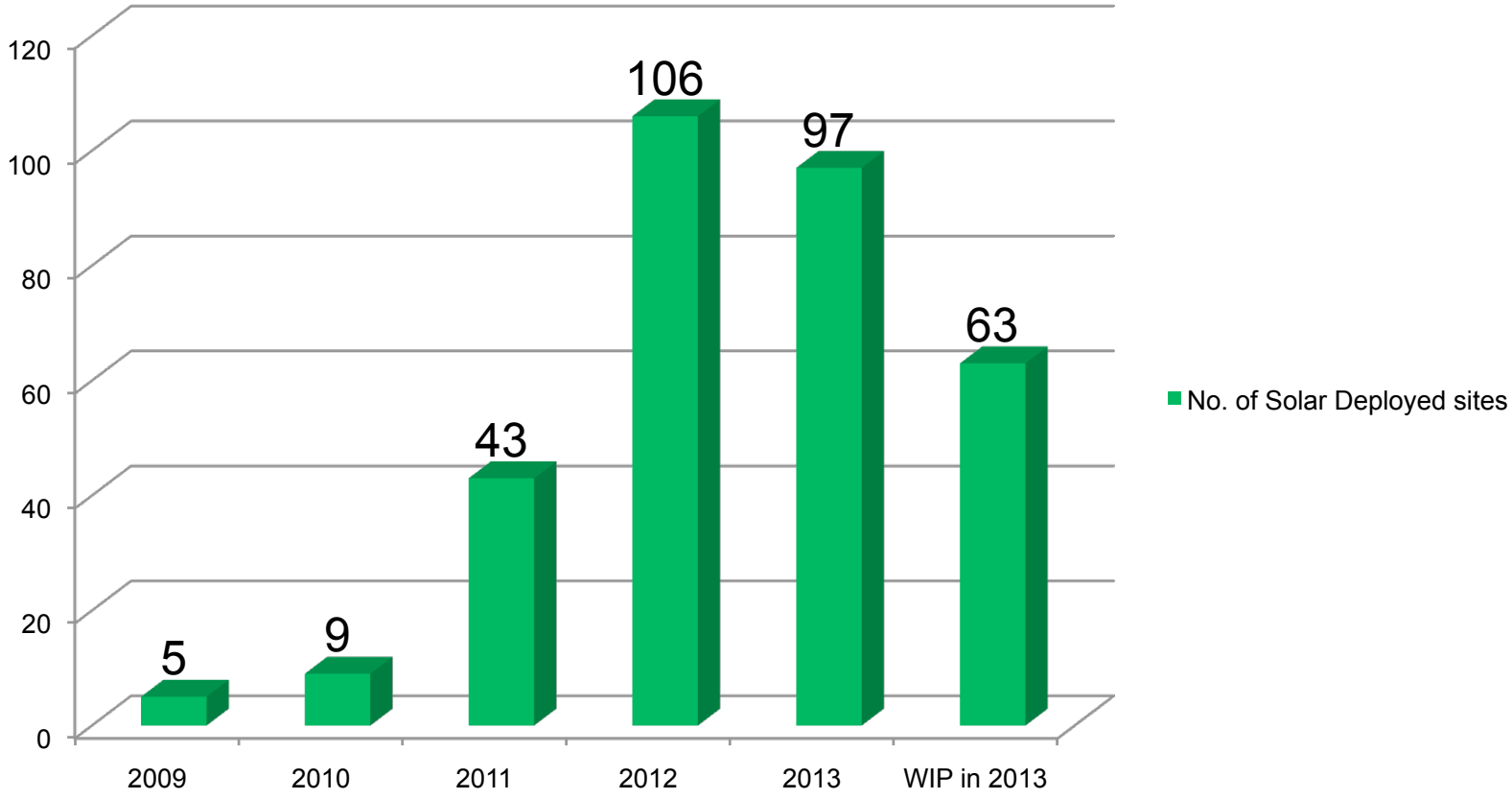
Totally Green	399 (18%)
Total sites	2172



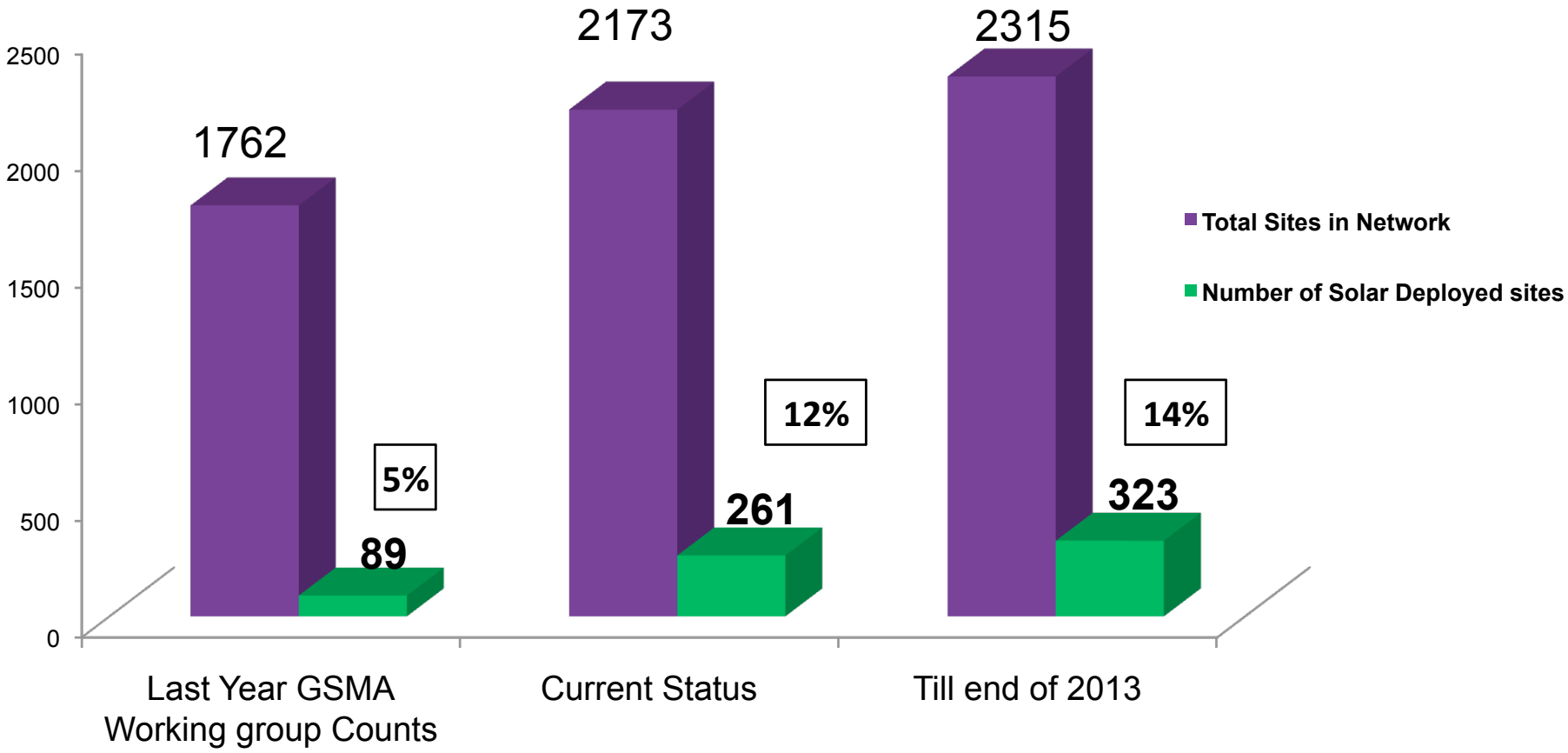
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Yearly Solar Deployments



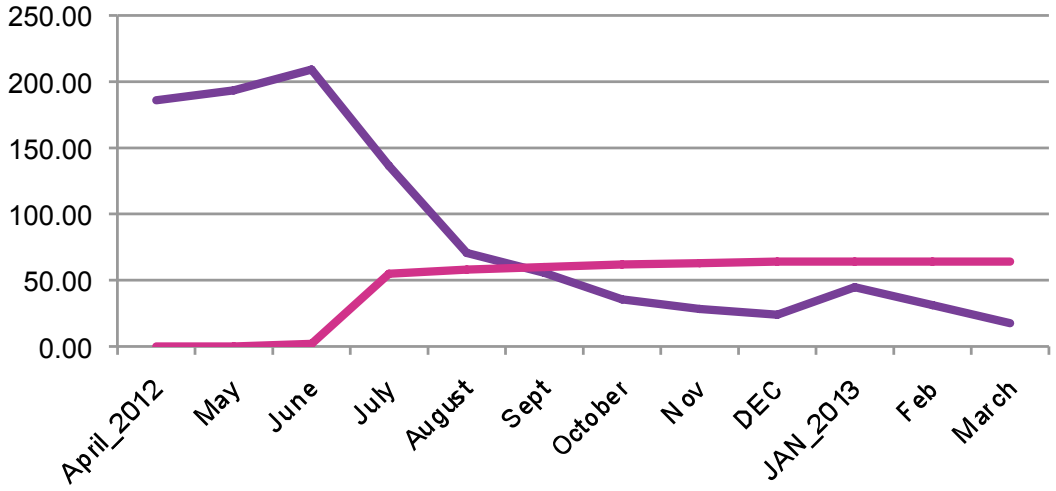
Last Year Vs. Current Vs Planned

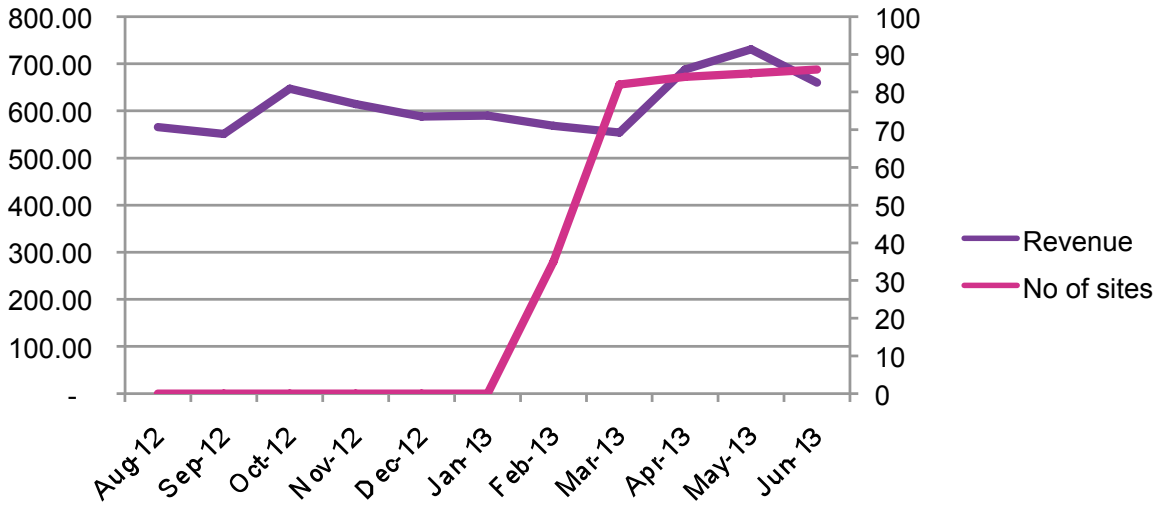


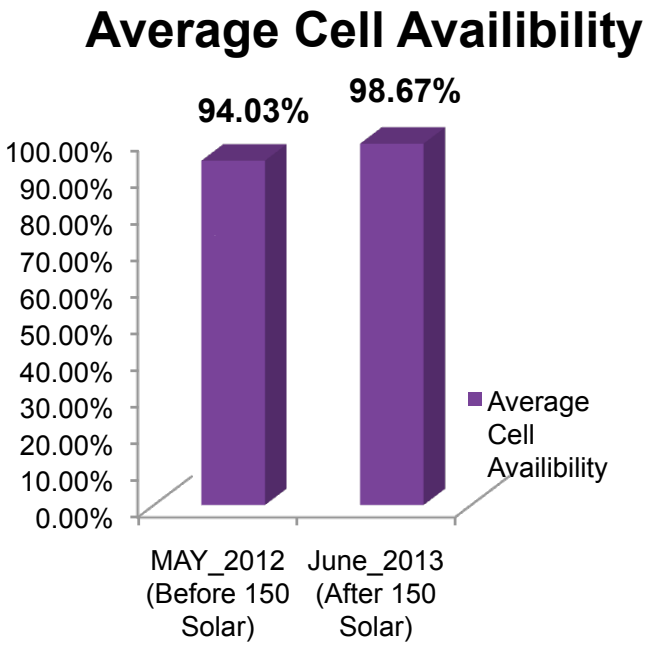
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Solar Deployment Financial Impacts







Solar Deployment Environmental Impacts

Site Type	Count of sites	Sum of Number of days running from solar	Litres of fuel saved	CO2 emission saved (Tons)
Solar Only	85	50226	**3024331.20**	**8934.46**
Solar+DG	25	19601		
Solar+DG+Grid	136	40939		
Solar+Grid	15	5313		
Grand Total	**261**			

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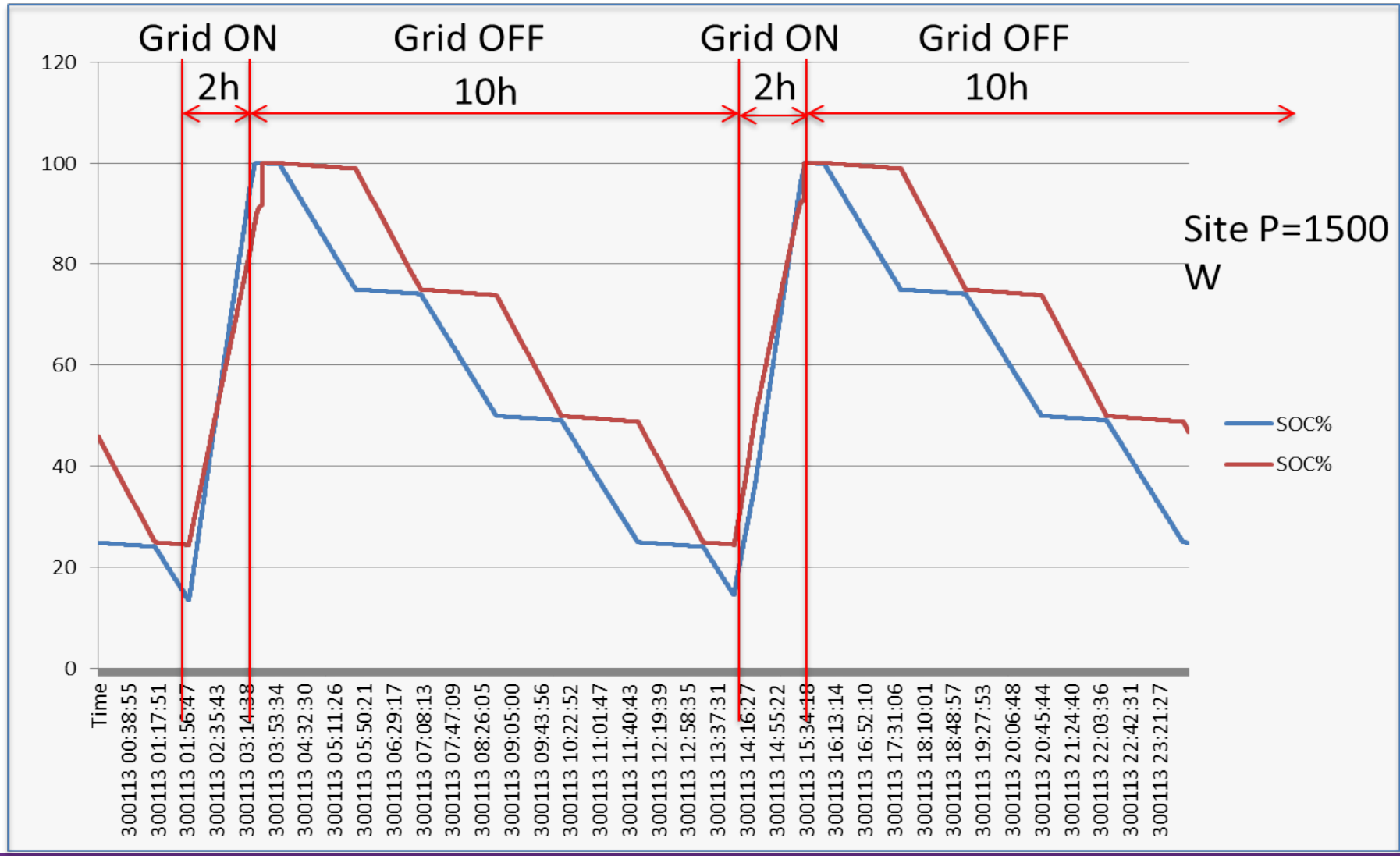
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Lithium Battery Trial Highlights

- Complete energy storage solution in one cabinet
- Charging time (0 % to 100 %) : 2 hours
- Flat discharge curve: Voltage remain stable

  independent of State of Charge
- 3000+ full cycles Promised
- Operating temperature range 0-50 °C. Optimal 40-45 °C
- Needed Higher Grid input capacity.

Lithium Battery Trial Highlights



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Challenges of Implementing and operating Solar

- Space Problem in Rooftop sites
- Building load bearing capacity
- Shadow issues
- Access problem
- High initial CAPEX
- Seasonal Limitations. Rainy season and Winter
- Dust on Solar Panels.
- Theft Issues

Solutions we are looking for…

- Financially viable fast Charging and deep cycle batteries that can cope up with Nepal's power cut.
- Generator Fuel monitoring and remote control system.
- Better Site monitoring system
- Anti fuel theft solutions
- Innovative Green energy technologies which are feasible technically and financially

Thank You

Deepak P. Pandey
Ncell Pvt. Ltd.
deepak.pandey@ncell.com.np
+977 9802100022