Green Power for Mobile Dimensioning Overview and Feasibility Studies (March, 2009)

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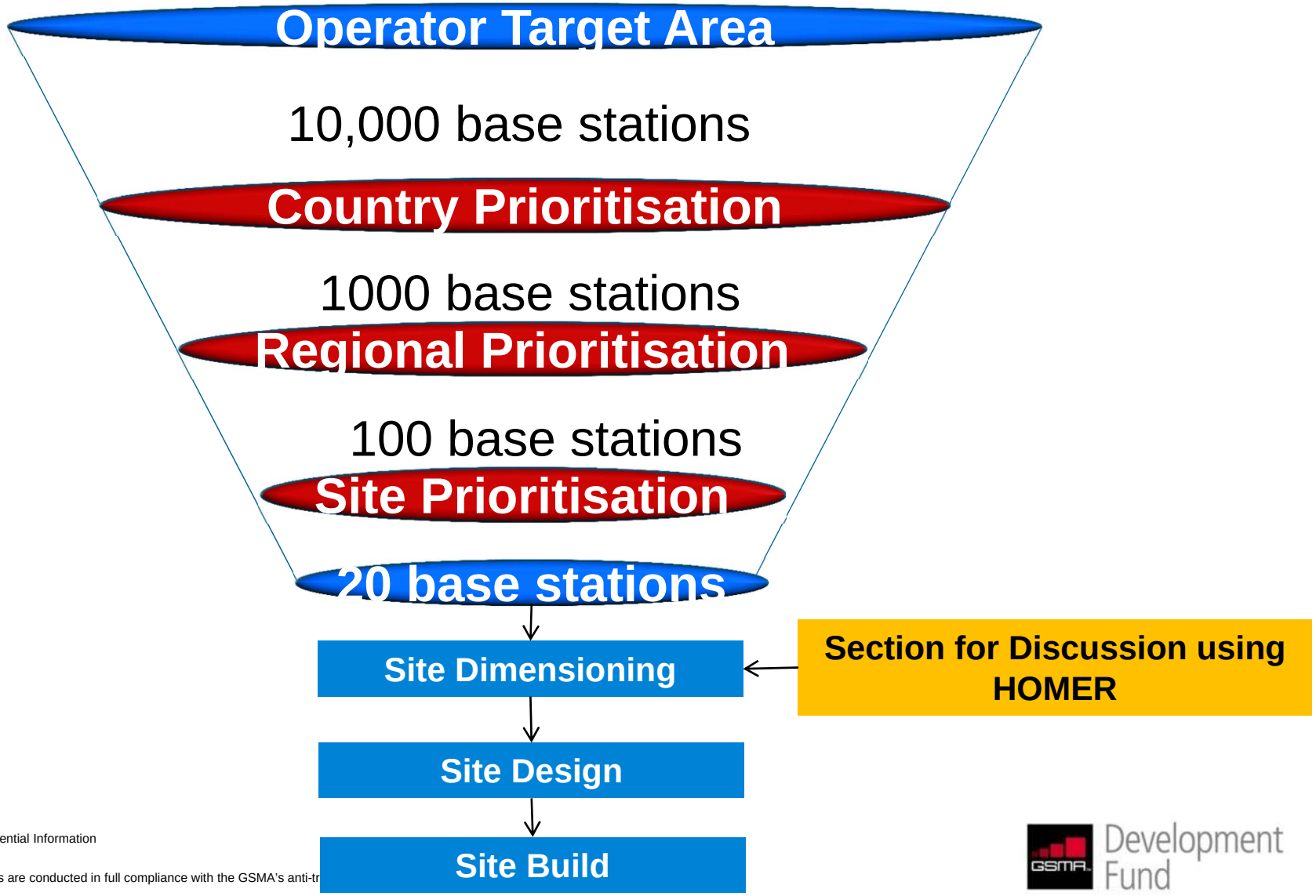
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Presentation Objectives

- Highlight that use of dimensioning software is only one step in extended methodology
- Demonstrate use of HOMER software for site dimensioning
- Outline Green Power for Mobile feasibility study service

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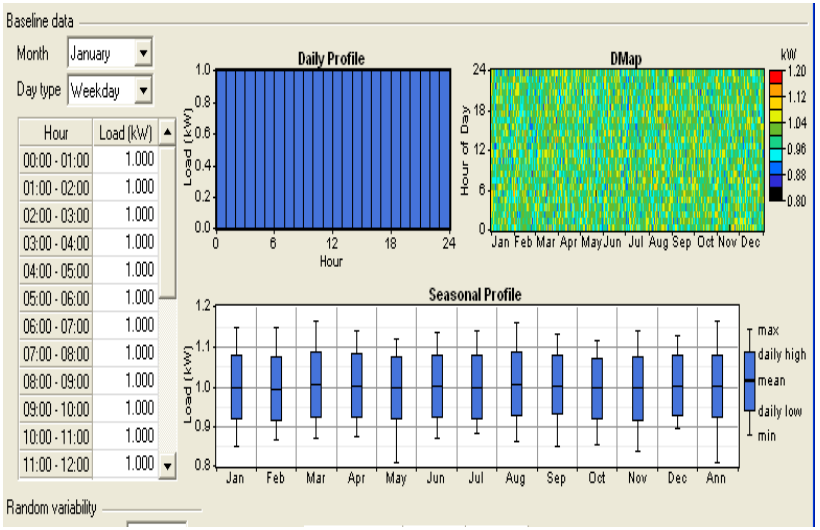
Methodology for Selecting, Dimensioning and Building Sites

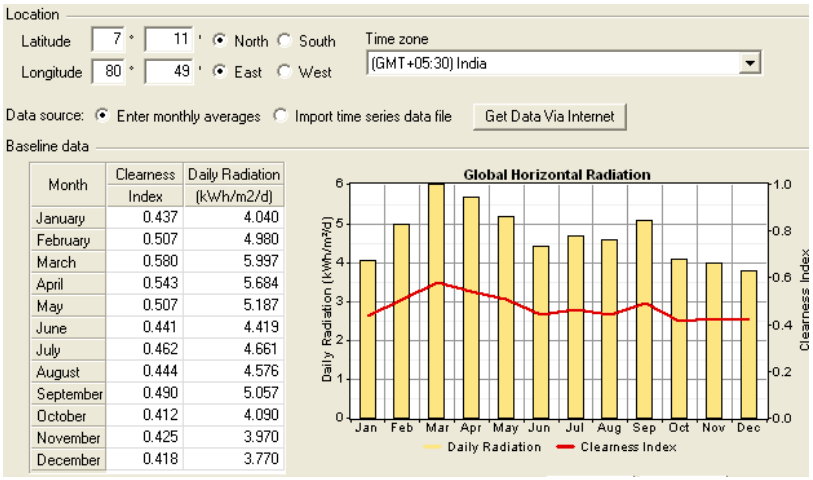


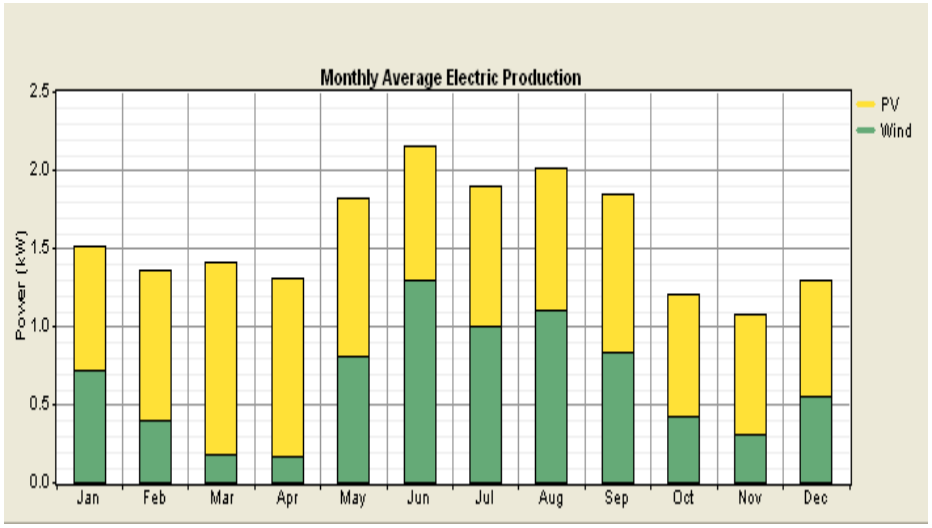
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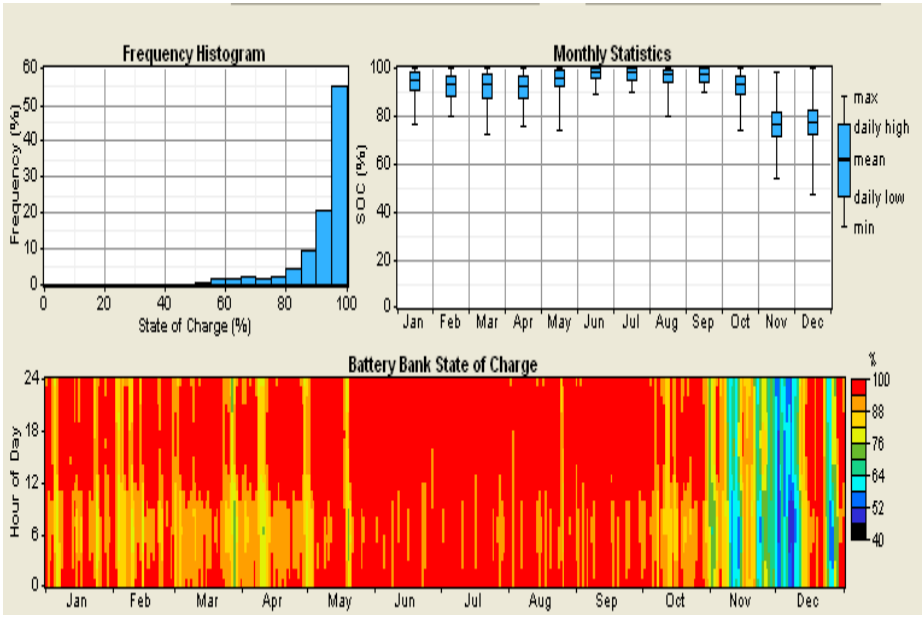
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Use Software to Dimension the Renewable Energy Equipment- HOMER – NREL









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Generate Accurate Financial Forecasts of Solution Options

	Best Financial "green" solution	Proposal 1 (SWW)	Proposal 2 (Kestrel)
Kandewatta	0 PV 3kW SWW 7.5 kVA Gen 4.5 kW Con 500Ah 48V Batt SSC controller	2.5kW PV 3kW SWW 7.5 kVA Gen 4.5 kW Con 1000Ah 48V Batt SSC controller	3kW PV 1kW Kestrel 7.5 kVA Gen 4.5 kW Con 1000Ah 48V Batt SSC controller
Payback period	1.9 yr	2.73yr	2.84
ROI	52.60%	36.60%	35.20%
IRR	53.22%	37.50%	36.64%
NPV	$39,805	$30,375	$27,615
Autonomy	13.7 hr	27.4 hr	27.4
Renewable vs Generator/Grid	Wind 70% Gen 30%	PV 30% Wind 64% Gen 7%	PV 45% Wind 28% Gen26%
Capex	$32,080	$48,405	$47,340

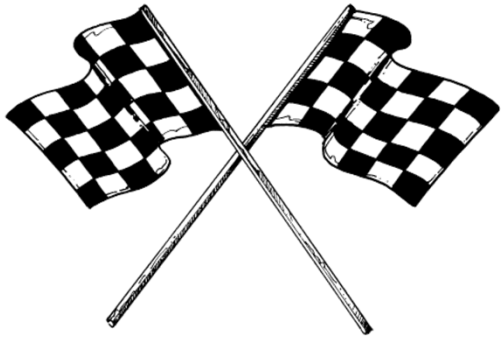
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Being a Formula 1 World Champion is not just about having a “Vodafone” Car…

Car = Software Tools

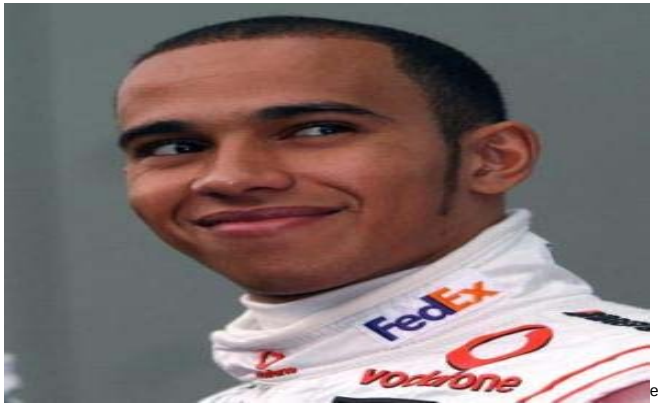




Track = Local Network Knowledge



Driver = Tool Users



Pit Crew = Operator Teams



HOMER Demonstration

- Switch to HOMER

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To Understand/Learn the Methodology GSMA suggests a Collaborative Feasibility Study

- Complete 10-12 week feasibility study of real life operator network
- Collaboratively generate suggested deliverables as per next slide
- GSMA training/education on the methodology/process for rolling out green power base stations

- **Operator requests for feasibility studies are welcome**

- Due to current pipeline of operator trials/projects Green Power for Mobile demand/workload may require operators to cover resource overhead

- These feasibility studies can be in collaboration with IFC engagement

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Feasibility Study Deliverables

- Country Level Business Case
- Rollout Strategy Report
  - Suggested Site List
  - Power Requirements by Site
  - Site Dimensioning Proposal
- Draft RFP/RFQ document
- Change Management Report
  - Organisation Design Impact
  - Training Requirements
- Suggested Implementation Plan

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Even if Outsourcing Operators need a Certain Amount of Inhouse Knowledge

- Detailed discussion have been had regarding outsourcing model
- Even if outsourcing model is favoured by operators a threshold level of inhouse understanding is required to:
  - Issue accurate/relevant RFPs
  - Accurately interpret responses
  - Select best partners
  - Interpret results data

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Suggested Next Steps for Operators

- If operator feasibility studies are of interest contact dtaverner@gsm.org for further discussion

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Appendix – Tool Locations

- Green Power for Mobile Decision Tree
- HOMER software
- NASA climate database
- 3Tier climate database

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