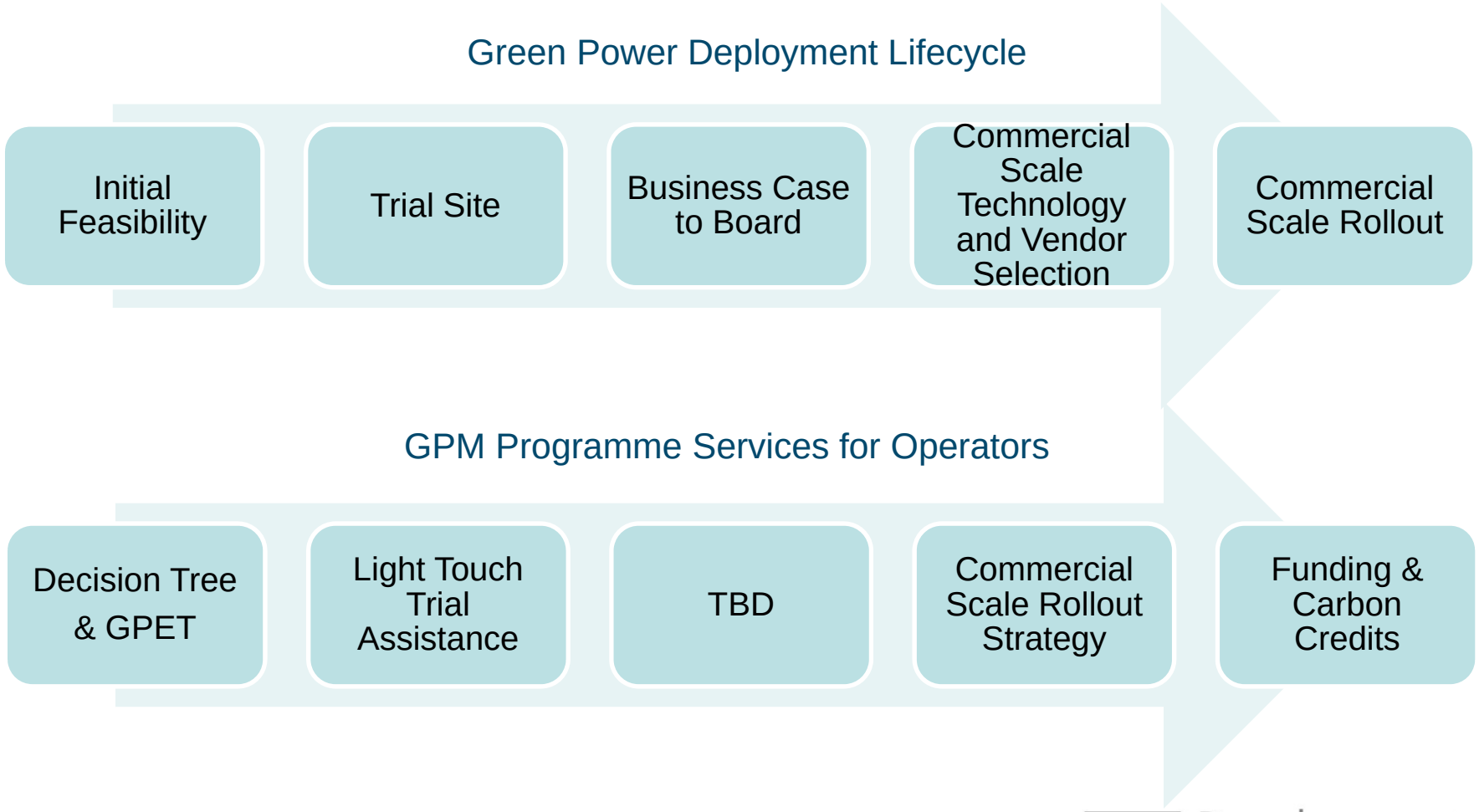
Green Power for Mobile
Programme Services for Operators
November, 2008

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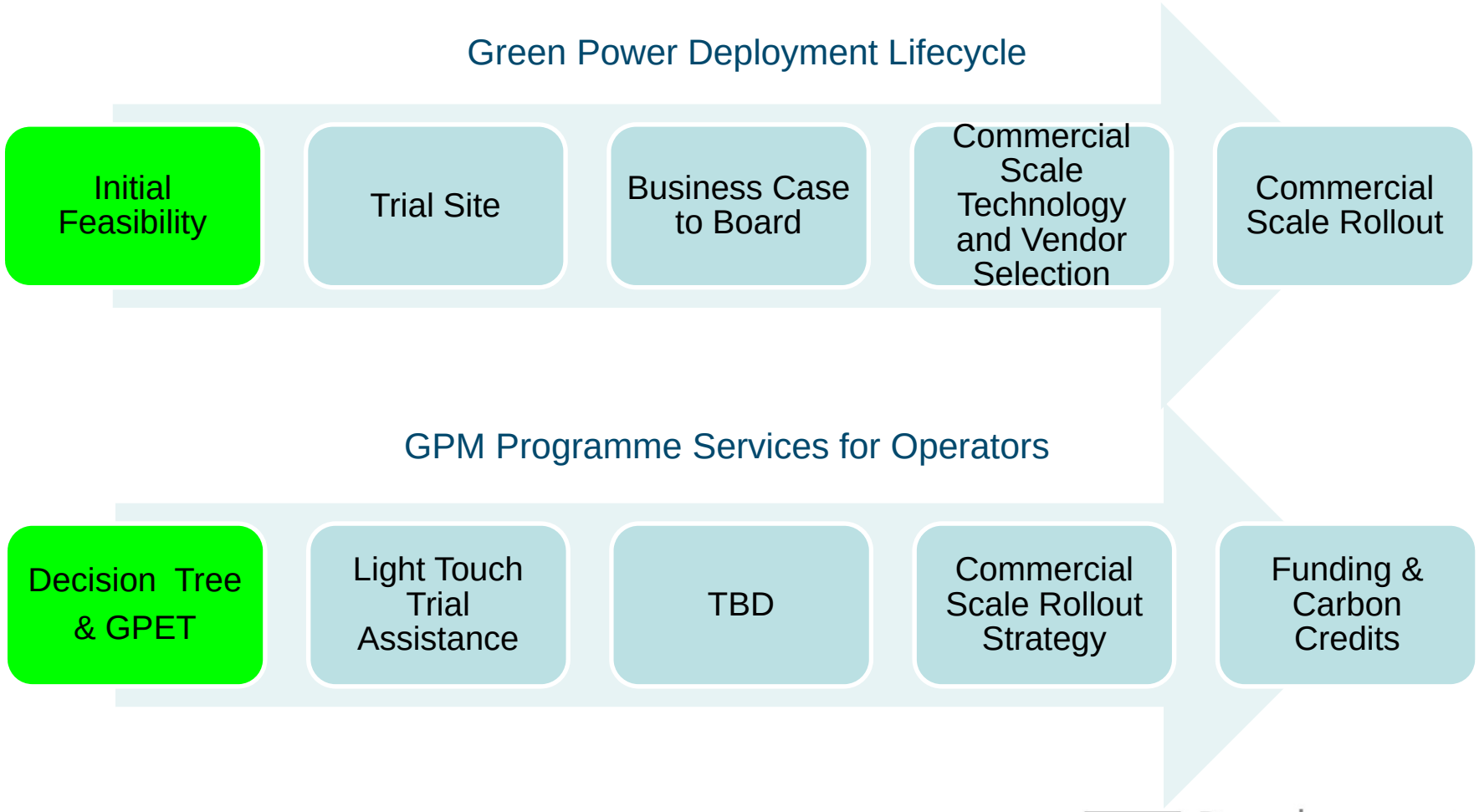
GPM Programme Services for Operators



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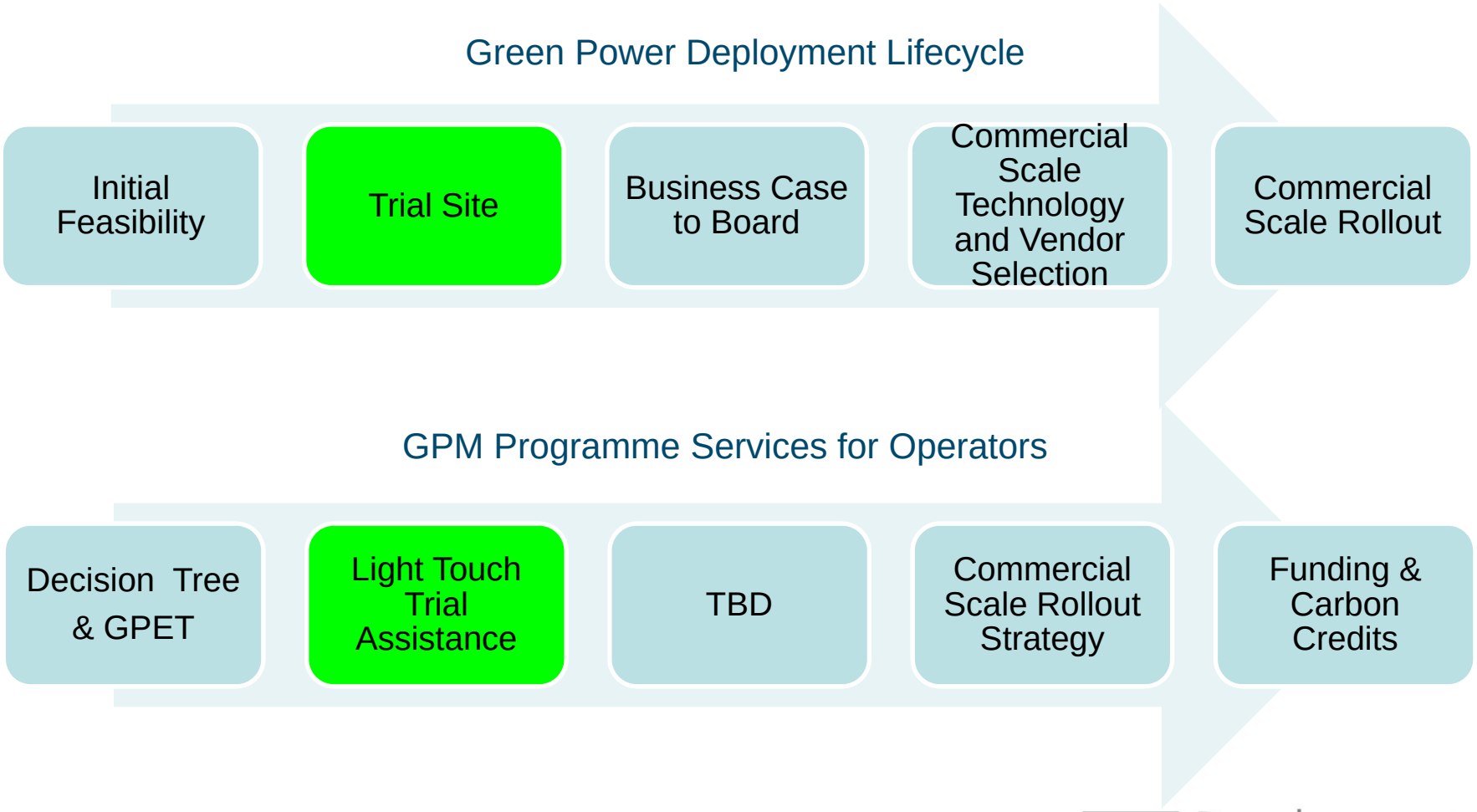
Initial Feasibility - Decision Tree & GPET

- Demonstration of Operator Decision Tree
- Demonstration of Green Power Evaluation Tool

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Green Power for Mobile Trials

- We work with alternative energy providers (including wind & solar) to develop cost-effective power solutions for GSM base stations and handsets
- We have undertaken pilots with 4 operators in 4 countries, in technologies:
  - Wind
  - Solar
  - Biodiesel



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MTC Namibia – Solar & Wind



In January 2007, Media Telecommunications (MTC) of Namibia partnered with the GSMA Development Fund and Motorola to conduct a trial at the Dordabis site in Namibia for wind and solar power systems to support their remote GSM cellsites.

Trial Objective:

Establish that wind and solar power can provide a feasible alternative to using fuel generators at sites where the main grid connection is not available by:

- Confirming that the equipment can comfortably support a 1000W-1200W base station
- Proving that the overall cost of the power solution, has a payback period of under 3 years

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Idea Cellular India – Biodiesel



Indian mobile operator Idea Cellular, Ericsson and the GSM Association's Development Fund partnered to develop biofuels as a source of power for wireless networks in rural India.

Trial Objective:

- Test the technical feasibility of non-edible plant-based fuels, such as cotton and jatropha, for use in base station diesel generators
- Definition of the operations and maintenance process for biodiesel powered base stations
- Definition of logistical processes to support the integration of biodiesel into network

After the successful trial phase Idea Cellular now uses waste cooking oil to help power more than 350 base stations in the state of Andhra Pradesh in India, where the conventional electricity supply can be erratic.

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Vanuatu Trial – Commercial Scale Solar and Wind



Digicel Vanuatu and the GSM Association's Development Fund partnered to develop solar and wind solutions at 19 island sites in Vanuatu.

Trial Objective:

- Demonstrate the viability of wind and solar solutions in commercial scale rollouts
- Educate the operator and gain key learnings of the methodology to select equipment and specify multiple sites
- Enable Digicel to expand use of green power into other regions

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Sri Lanka Trial – Commercial Scale Solar and Wind with Multiple Vendors



Dialog Sri Lanka and the GSM Association's Development Fund partnered to develop solar and wind solutions at 10 sites in Sri Lanka with multiple vendors.

Trial Objective:

- Show case to the global industry that renewables are now a real alternative to on-grid and generator power
- Highlight the multitude of options and vendors of renewables for BTS (both new and existing)

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Light Touch Trial Approach

- The previous approach to trials was to provide a full time GSMA project manager to the operator
- Due to increased operator demand for trials this approach is cost/resource prohibitive
- The proposed trial approach uses a remote, part-time project manager from GSMA to provide:
  - Vendor introductions
  - Project monitoring and guidance
  - Access to Green Power for Mobile methodologies, tools, knowledge and contacts
  - Publicity/press release opportunities at the GSMA level

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Trial Approach – Key Responsibilities

Operator	GSMA	Vendor
a) Engagement with vendors to identify a suitable engagement partner for project (Joint with GSMA) b) To oversee delivery of the overall project plan c) To engage with all the stakeholders re: civil works, logistics, procurement, installation (either Operator or Vendor) d) Monitoring and evaluation (Joint with Vendor)	a) Engagement with vendors to identify a suitable engagement partner for project (Joint with Operator) b) Implementation planning (Joint with Vendor) c) Project monitoring and guidance d) Publication of GSMA press releases & case study	a) Implementation planning (Joint with GSMA) b) Technical and market insights c) Site specifications for renewables d) To engage with all the stakeholders re: civil works, logistics, procurement, installation (either Operator or Vendor)

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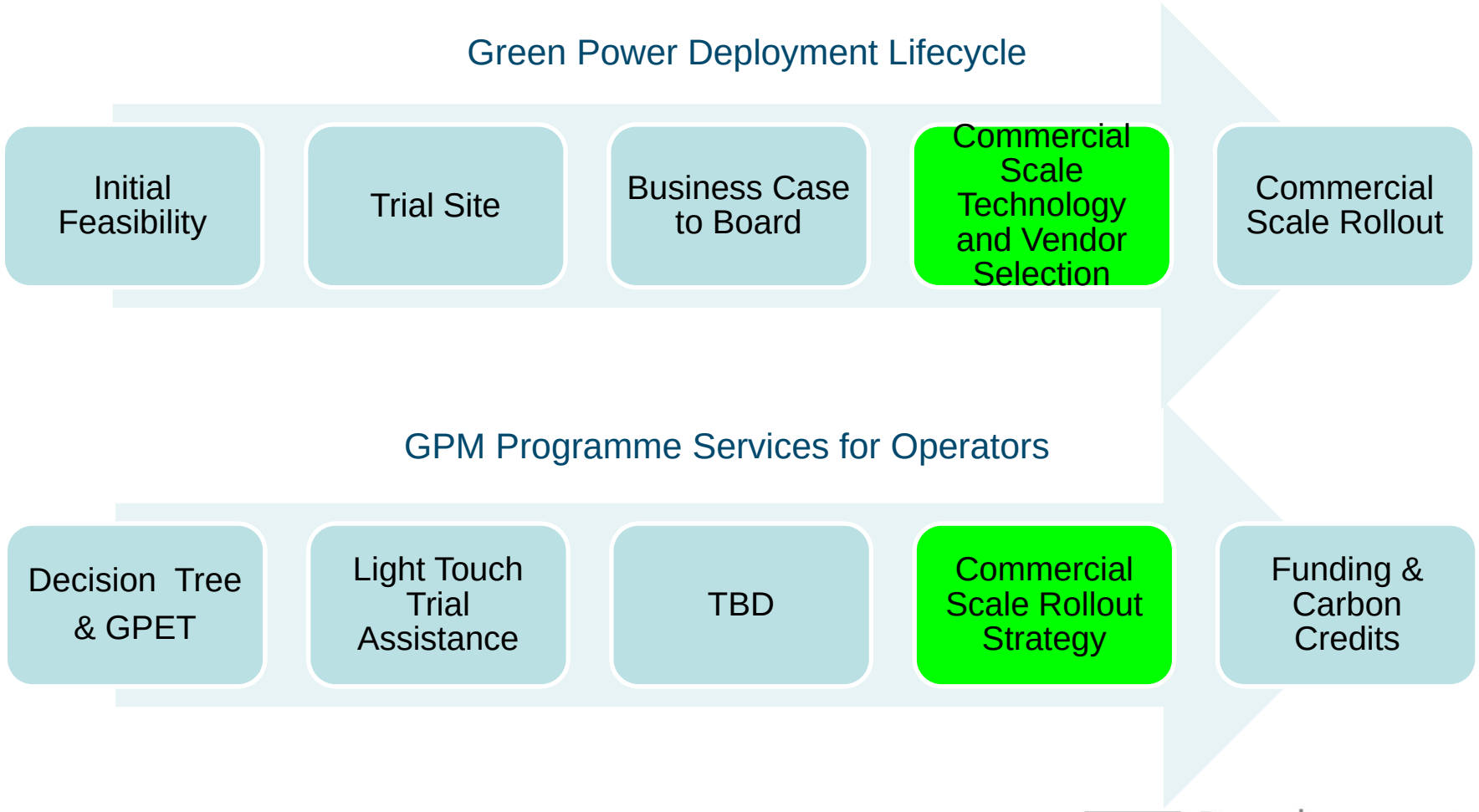
Next Steps

- Operator to assess interest in GSMA assisted green power trial
- Operator to arrange call with David Taverner to discuss further (dtaverner@gsm.org)

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Commercial Scale Rollout Strategy

- Commercial Scale Rollout Strategy is the definition of the approach to expanding the use of green power in an operator's network to multiple sites

- Green Power for Mobile is offering a service for operators in this space to:
  - Minimise poor decision making due to prevalent assumption that 'one solution fits all' with green power
  - Ensure operators are identifying optimal sites for green power and most appropriate technology
  - Assist operators with the vendor identification process

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Key Questions Answered

- The Commercial Scale Rollout Strategy service will answer the following key questions:
  - What is the number of sites in my network that are financially & technically viable for green power solutions?
  - What sites in my network are most viable for green power solutions?
  - What is the ROI for these prioritised sites?
  - What green power solution should I use for each site?
  - Which vendors should I approach?
  - How can I maintain the green power equipment?

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Deliverables/Approach

Estimated 4-6 weeks delivery time:

- **2 day onsite kickoff/training workshop with operator providing:**
  - Green power technology overview
  - Explanation of the differences between sites
  - Introduction to methodology to select technologies
  - Communication of data requirements to operator to allow network analysis

- **Network analysis:**
  - Back office analysis of actual operator network using data gathered from workshop above

- **Delivery of rollout strategy report and closeout workshop:**
  - Ranking of priority sites due to technical & financial feasibility
  - Suggested solutions for sites
  - Possible vendors
  - Communication of other GPM services e.g. carbon credits & funding

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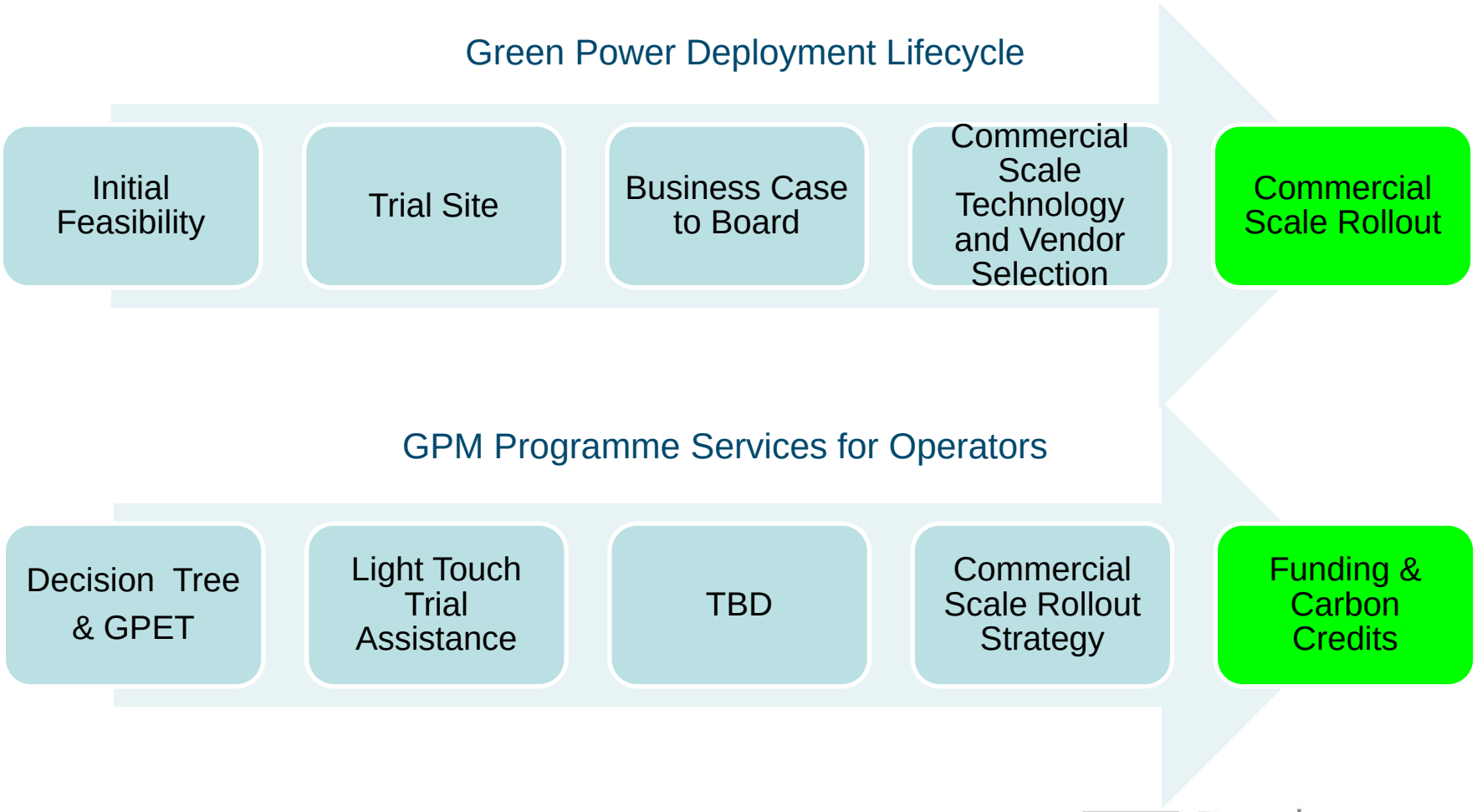
Next Steps

- Operators to voice interest in Commercial Rollout Strategy Service
- GPM to assess demand pipeline and schedule projects according to:
  - 1st come, 1st served basis
  - Operator rollout timeline
- Operator to arrange call with David Taverner to discuss further (dtaverner@gsm.org)

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Funding Opportunity

- Funding opportunities are being discussed with the development banks
- The arrangements are still in discussion and the availability of funding is not confirmed as of yet
- At the next Green Power for Mobile Working Group (either January Middle East or February Barcelona) a deep dive workshop on funding opportunities is being planned

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Carbon Credits Opportunity

- See Carbon Credits Opportunity Presentation

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