







Considerations to Energy Outsourcing:

A Strategic Perspective on Cutting Costs and Going Green(er)

GPM Working Group

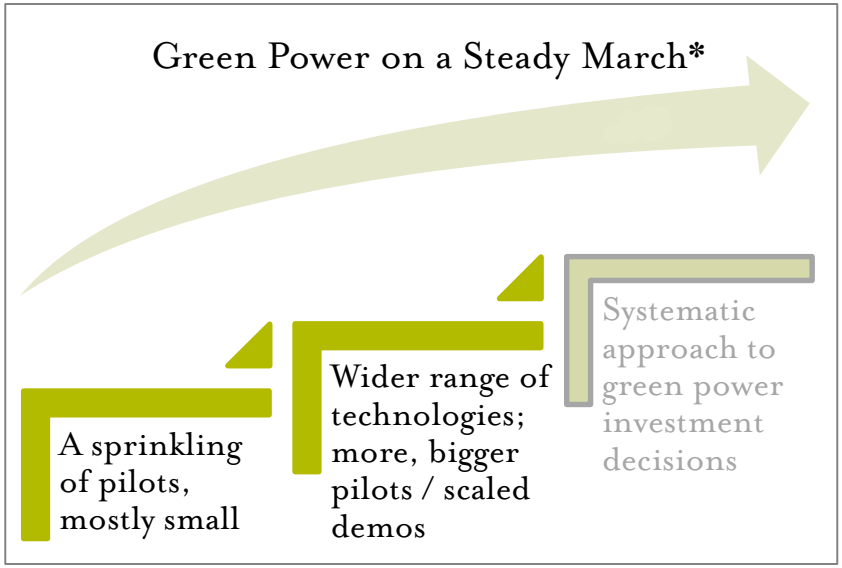
Dar es Salaam, Tanzania

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Where We Are: Green site deployments have continued their momentum in recent years, and hopefully build towards wider economies of scale

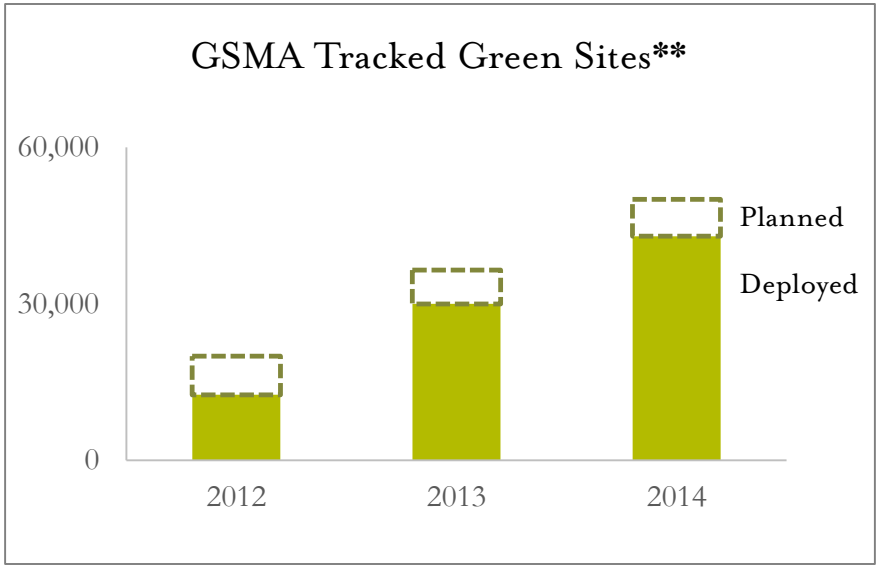
State of Market as Presented in 2012



Observations then:

Though green power is gradually moving up the MNO priority list…there is still some distance to travel before realizing global mainstream adoption

Progress Observed Since

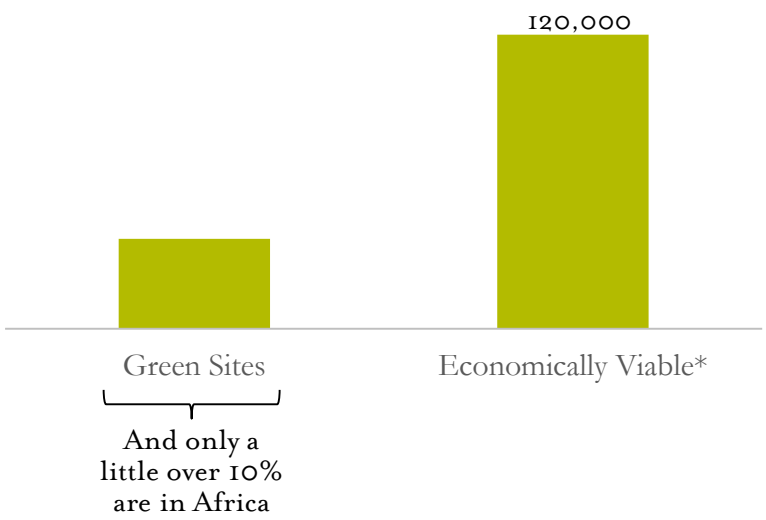


- Building momentum potentially leads to scale
- Everybody benefits from scale & expertise
- Viability of new areas drives revenue growth
- Facilitates/d (by) other services, such as MM

** IFC / GSMA Bi-Annual Report July 2012, "Phase of GPM Market" category*

*** In addition, there are 50k genset-battery "hybrids" (GPM deployment tracker)*

Some Way to Go Yet: Many candidate sites remain, and rural expansion may increase this further; important not to leave money on the table



Business case for renewable power is generally accepted by market participants; could potentially be an issue of replacement cycle timing, but other issues likely at play

* Based on 2012 GPM Bi-Annual Report; this can likely assumed to be a conservative estimate given decreasing component pricing, rising diesel prices, improving operational expertise & business models, and increased number of off-grid sites over this time period

What is driving the adoption headwinds?

- Demonstrations & pilots have shown cost potential
- Rationale actors should adopt lowest TCO NPV
- Market failure? Need to assess methodically
- Pilots can be detached from wider org issues
- Learning curve / capability building not captured
- Incremental overhead front-loaded / not to scale
- Market potential may end up being other than 120k

Is green power indicative of wider issues in MNO energy strategy and management?

Alternatively, are suppliers yet scaled sufficiently to make deployments economical?

Or Both?

Canary in the Mine: Assuming the economic viability of green power, slow adoption may be indicative of wider energy planning issues

Innovation Center Phase	Operationalization
Technology focus testing proof of concept and potential capabilities	Building organizational capabilities such as procurement and maintenance

Considerations:

- "Radar" of emerging technologies & use cases
- Conceptual design for incorporating into systems
- Demonstration sites & performance comparisons
- Co-development with vendor partners
- Alignment to broader organizational objectives
- Evolution of power's role as a differentiator
- Strategic capabilities to keep in house
- Third parties to leverage for cost efficiencies

Bridging this gap

- Innovation management process w/ defined gateways & KPIs
- Senior-level working group w/ both commercial & technical
- Mandate for portfolio approach w/ org-level business case updates

Strategic Planning: Structured process to plan path forward, including placement within overall capital budgeting and what to outsource vs. keep

Phase 1: Analyze and Adopt Strategy

Assess legacy energy cost structure:
- Benchmark major cost drivers
- Identify problem/risk areas

Conduct strategic analysis:
- Network evolution
- External energy trends
- Competitive positioning
- Organizational resources
- Economic / scenario analysis

Identify Desired State:
- Design strategy, set priorities
- Risk assessment

Initial phase assesses energy in the context of business objectives and competitive environment

Identify quick-wins along with long term investment requirements

Phase 2: Develop Energy Program Roadmap

Conduct requirements analysis:
- Organizational resource and capability requirements
- Implementation dependencies
- Build, acquire or outsource

Develop implementation plan:
- Map critical path
- Investment decision process
- KPI targets to sustain beyond a few budget cycles

Design primary processes:
- Cross-functional participation
- Technical / commercial interface
- Business intelligence systems

Integrated approach with realistic targets founded on a solid business case to achieve long-term commitment

Phase 3: Execute, Assess and Calibrate

Divide and conquer:
- Isolate lowest common denominator projects
- Outsource v. Internalize for each

Monitor and optimize:
- Benchmark against targets and industry standards
- Unintended consequences
- Flexibility to change course or incorporate new technologies

Reassess:
- Disruptive technology or new entrant impact on competition
- Emerging business models

Flexible processes prevent vendor or technology lock-in and to find niche applications with above average returns

Outsourcing Considerations: While presenting the opportunity to optimize operations and realize cost efficiencies, careful planning is required



Strategic Fit

Ideally suited to commoditized, non-core operations which do not impact competitive advantage



Business Models

Contractual terms facilitate alignment of interests and take into consideration risk aversion / projections



Trade-Offs

Outsourcing and reliance on third parties can result in an entirely different set of challenges to be managed

Consider Full Set of Options: Strategic planning process considers when and where outsourcing might make the most sense among other options

Strategic Fit

Business Models

Trade-Offs

Approach may differ by network layer, region, or technology

Internal

Maintain greater control or organizational capabilities

- Green value chain complexity
- Innovation management
- Ensure ROI transparency

Site-Sharing

Benefit from cost-sharing where interests align

- # of tenants may drive energy
- For example, # of containers
- Need shared views on energy

Outsourced

Leverage operational expertise & learning curve of specialist

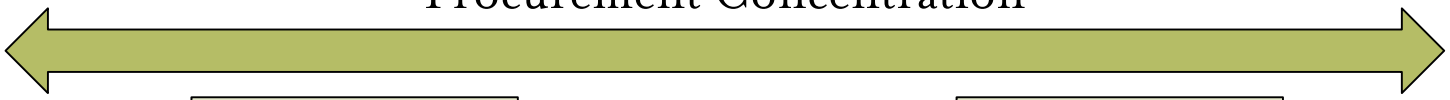
- Long-term deals require care
- Financial stability / capability
- Process to Enforce SLAs

Energy is a multi-dimensional issue with strategic, operational, and organizational implications; it is too complex to address from a purely technical approach and, if implemented piecemeal, may fail to realize full potential

Balance Top-Down w/ Bottom-Up: In deciding what to outsource, ensure participation across the organization to optimize alignment with operations

Strategic Fit
Business Models
Trade-Offs

Procurement Concentration



	Functional / Regional	Centralized
Benefits:	• Bottom up innovation feeds through org • Encourages locally optimized solutions • Leverage relationships with local providers • Better placed for implementation issues	• Leverage economies of scale and cut duplicate costs of "siloed" initiatives • "Pet Projects" assessed in overall capital budgeting process and prioritized • Engage larger power companies / ESCOs
Risks:	• Duplicate fixed costs across organization • Limited economies of scale / big player interest in fragmented projects • Alignment issues with corporate strategy	• One size fits all approach may limit market testing of new business models / technology • Providers' service levels can vary significantly across regions / expertise • Decision makers may lack local knowledge

Energy solutions can be very location specific so it is important that integrated procurement processes include cross-matrix stakeholders

Alignment with corporate strategy allows demand aggregation on a scale not possible absent a presence in executive level planning

Outsourcing Considerations: Each approach has unique commercial and technical profiles, which lend themselves to different applications

In-house

- CAPEX-based model
- MNO (individually and/or shared) owns, installs, operates, and maintains the system
- Direct management of technology & service quality
- Leverage existing credit to keep cost of capital low
- Direct balance sheet impact

Outsourcing

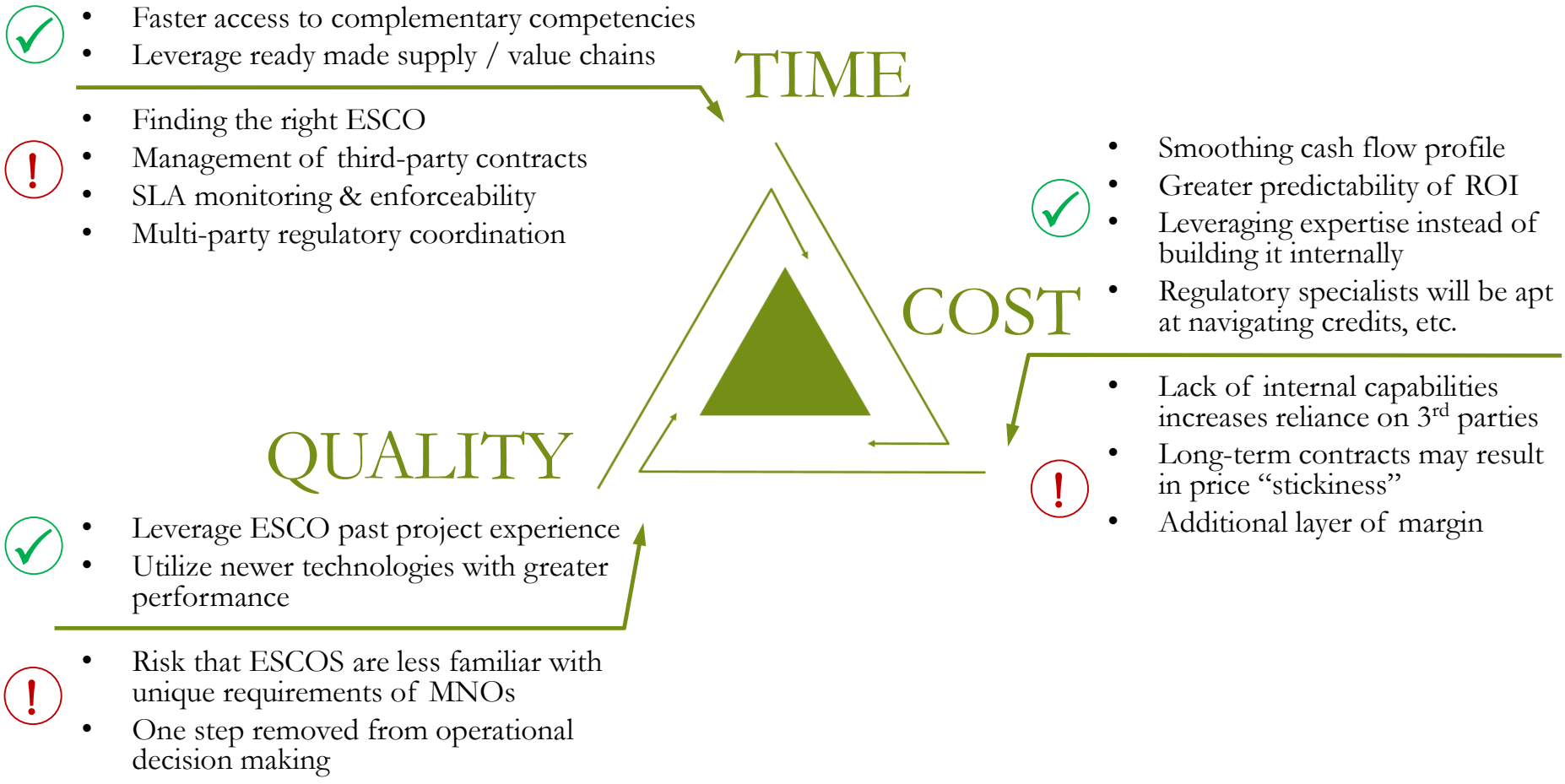
- OPEX-heavy model
- ESCO/TowerCo controls most aspects of system for one or many MNOs
- Concentrate firm skills on telecom & outsource energy component
- Service charge will factor in the ESCO's return on investment
- Distribute costs over time

To the extent markets cannot support traditional ESCO business models, potentially may need to consider a hybrid of these two, w/ innovative approaches to financing, ownership, etc.

Various Models: In structuring deals and agreements, ensure commercial terms align parties' interests and meet the desired risk profile

	Power Purchase Agreement	Operating Lease	Cost-Sharing or Results-Based Agreements
Cost Structure	Usage-based, incorporating some capacity and energy costs – often $/kWh	Flat rate based on a fixed cost – often monthly	Cost is determined by a percentage of the savings from current OPEX or split
Risk Allocation	MNO to bear risk of variable fuel costs, unexpected capital costs, etc.	ESCO manages risk and prices it into service	Split among MNO and ESCO
Supplier Risk	Low	High	Medium
Incentive to Invest	High	Low	Medium
Cash Flow Impact	Volatile cash flows that are dependent on cost of energy, weather, etc.	Reliable cash flows, but ESCO bankruptcy in adverse conditions could be costly	Tough to estimate given complex nature of cost calculation
Across all:	• Service level agreements, operations and maintenance schedule and procedures • Procedures for handling and rectifying faults, dispute resolution mechanisms, termination of service and expansion of central grid provisions • Demand management and load shedding priorities • Billing and payment terms and conditions • Obligations of parties		

Outsourcing Trade-Offs: While potentially delivering significant benefits, it is also important to be proactive in anticipating & mitigating risks



Developing Market: ESCOs are still not too well established throughout Africa, and sector evolution may require structural change

Challenge
Viable outsourcing options

Risk
Network downtime if ESCO can't meet performance requirements

1 LOW PENETRATION

- Projects too small for large players & entrants lack capacity
- External financing difficult to obtain for investments with variable track records

POLICY UNCERTAINTY 2

- Lack of clarity into central grid expansion makes long-run planning difficult
- Taxation can be onerous
- Policy roadmap often unclear or lacks public consultations



Challenge
Investment planning & roadmap

Risk
Risk profiles reduce appetite of 3rd parties to enter the market

SCALABILITY 3

- Cost savings are generally achieved with scale & scope
- Competing projects, e.g., fiber and tech upgrades impact demand

Challenge
Funding all positive NPV projects

Risk
Scale efficiencies are unrealized, forcing ESCOs into cost mitigation

DILEMMA

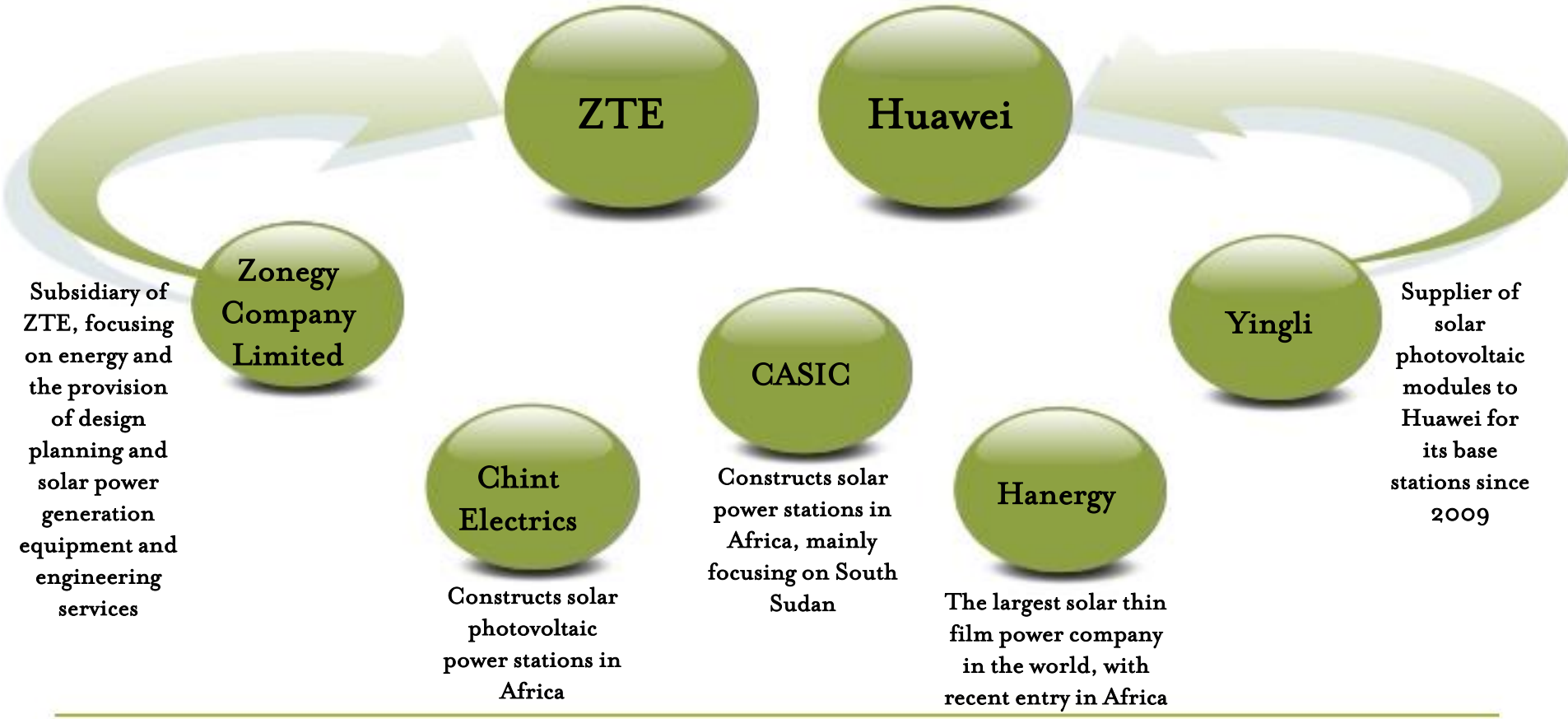
ESCOs will want a solid return on their investment, and may need to charge a risk premium, while MNOs may have access to cheaper financing in retained earnings, but do not necessarily have the organization capabilities to manage an increasingly complex portfolio of energy assets & thus have higher Opex

Potential Transition: Given the two-sided nature of the issue, a collaborative demand-supply approach could ensure funding and achieve scale

- Potentially focus efforts initially on concentrated usage such as switches and facilities
- BTS are more challenging given their fragmentation and localized requirements
- Collaborative approach may be useful in driving towards comprehensive outsourcing:
  - Interim phase w/ MNOs taking the lead with financing to leverage retained earnings
  - Scaled suppliers in parallel sectors (e.g., towers) increase range of energy services
  - Public sector support via favorable taxation and regulatory frameworks
- Objective is to build scale to offer a more turn-key service, and selective risk shifting
- This differs from some current offerings, which tend to be more managed services
- End-state ESCOs may be bundled into larger integrated suppliers, or stand-alone pure plays

One Example: While not being ESCO equivalents at this point, two Chinese vendors building out energy offerings

Some Chinese solar companies supply solar power equipment for Huawei's base stations; ZTE founds subsiduary to provide itself solar modules



Key Takeaways

1) Green power deployment challenges may be indicative of wider issues

- MNOs have been aggressive in rationalizing costs, yet energy remains comparatively un/under-addressed
- Renewable power makes sense in certain instances, yet appears to be under-weighted in power portfolios
- Given that the technology is maturing, and less of a obstacle, should also consider organizational issues

2) Important to undertake a methodical strategic planning process

- An Integrated Energy Strategy & Program facilitates organizational alignment and leverages company processes to maximize returns
- Conduct an organizational/operational audit and competitor analysis to identify strategic assets, core competencies and the desired end-state business model
- Develop an Energy Program Roadmap for timing the "build, acquire, or outsource" phases

3) Outsourcing is one potential approach, but has its own set of issues that need consideration

- Decision is not necessarily so much "whether or not" to proceed, but "where, when, and how"
- Important to be aware of associated trade-offs and risks in order to be proactive in anticipating issues
- Energy outsourcing in Africa is still emerging, and collaboration may be needed to jump start activity