

FEED (Front-End-**Figineering**-Design) for Preparation of Bide for Seven Universites & Two University Teaching Hospital Pl

g Documents e II Projects

# STATUS UPDATE

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KEY FINDINGS

# Outline



Timeline of completed activities which provided inputs to the FEED



### **On-going activities...**

- Equipment & appliances audit for retrofits covering:
  - 1. Energy audit and geo~tagging of buildings.
  - 2. Audit of electrical equipment and appliances for implementation of energy efficiency plan
- Sustainability plan
- Detailed Engineering Design (with inputs from ESIA and sustainability plan)
- Transient analysis of the existing Distribution Network and street lighting design
- Design of world class Workshop & Training Center
- Benchmarking costs for preparation of bidding documents

# Outline



## Federal University Of Agriculture Abeokuta, Ogun State

	FEDERAL UNIVERSITY OF AGRICULTURE							
	ABEOKUTA							
	PARAMETER	VALUE	PARAMETER	VALUE				
	Latitude	7.236906 N	ESTIMATED NIGHT LOAD [KW]	1,254				
	Longitude	3.442456 E	AVERAGE SOLAR RESOURCE[kW-hr/m^2/day]	5.89				
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# Federal University Gashua Yobe State

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# Michael Okpara University of Agriculture Umudike Abia State



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# Nigerian Defence Academy Kaduna State

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# University Of Abuja FCT Abuja

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	Longitude	3.442456 E	AVERAGE SOLAR RESOURCE[kW-hr/m^2/day	] 4.82
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### University Of Calabar And Teaching Hospital Cross River State



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## University Of Maiduguri And Teaching Hospital Borno State

	UNIVERSITY CAMPUS & TEACHING HOSPITAL								
	MAIDUGURI								
	PARAMETER VALUE PARAMETER								
	Latitude	5,329							
	Longitude	3.442456 E	AVERAGE SOLAR RESOURCE[kW-hr/m^2/day]	5.83					
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# Outline



#### What went wrong...

Unexpected site (ground) conditions due to inadequate feasibility studies that would naturally precede the designs and project plans.

> Lesson Learned... The soil investigation should be done before the final bidding, as this will pave way for a smooth project execution.

What went wrong... Substantial amount of time lost due to major delays in design production during the EPC stage

# FEED should be done before procurement of EPC

What went wrong... Provision of encumbered swampy land for power projects in some universities leading to delays in completion of EPC Works

Lesson Learned...

Universities to provide adequate lands devoid of encumbrances

What went wrong... Undue going back and forth in review of the equipment capacity sizing between the EPC and review team

> Lesson Learned... Effective FEED to be conducted prior to procurement of EPC in order to set the benchmark for equipment capacity determination

What were the size of the Battery energy storage system (BESS) leading to very high diesel consumption per day with attendant high cost of O&M which is not sustainable in the long run

Hese defines more a trade-off between the initial CAPEX for providing adequate BESS capacities and the OPEX for the diesel provision during the O&M

What went wrong... Drastic load demand growth of BUK within one year of the commencement of the EEP phase 1 projects

#### Lesson Learned...

The off-grid power plants should be sized appropriately by considering unconnected loads, suppressed (hidden) loads and planned future expansion or load forecast of not less than 30%

#### What went wrong...

Delay in commencement of project implementation due to farming activities at the allocated sites

#### Lesson Learned...

There is a need for early and effective resolution of farmingrelated issues including the payment of compensations if any

#### What went wrong...

Surrounding community disturbance due to labour allocation and other agitations.

Lesson Learned... There is a need for early and effective resolution of such community issues before sites are eventually handed over to EPC contractors

### **Outstanding Concerns To Be Addressed**

- Highly inductive loads need to be identified and replaced to reduce high surges which negatively impact on the power system
- Smart metering need to be introduced to encourage adoption of energy efficiency devices as well as improve sustainability
- Enforcement of regulations on use of unauthorised appliances by students in hostels

