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# Curbing Energy Deficiency Social Policies among Vulnerable Internally Displaced Persons in Northeastern Nigeria - A case study of Borno, Yobe and Adamawa State

**Abstract** - In this research paper, it draws attention to the discussion on social policies for mitigating energy poverty in Vulnerable and Internally Displaced Persons. This urgently needs a policy approach that would mitigate the current rising levels of energy deficiency to a sustainable Internally Displaced Community with a healthier future. While conducting an energy prices, the policy framework and household income, we conduct a preliminary investigation of energy deficiency from a macro-level perspective and associated policy interventions in the United Nations. Obtained from a non-classical qualitative comparative analysis, the results clearly show that the deficiency in energy can be deduced from highly substantial interdependence that may be summarized in two paths; that is, low household income and focus on energy policy, and high rate of energy prices and energy-policy focus. Surprisingly, my findings indicate that an energy policy focus is found in Internally Displaced Persons Camp with the highest levels of deficiency in energy. Furthermore, it also offers deep analysis into the absence of energy, where social policy seems to play the key role. Taken together, this argue that the IDPs facing above-average energy deficiency are captured in an energy-deficiency trap, whereby the existing energy-policy focus does not yield the desired results and the social policy is often too costly to implement due to the problem's magnitude. The main concern is that prioritizing any of the policies may slow down the transition to a sustainable energy community if the Internally Displaced Persons. Therefore, there should be a call on the Government and the International to further examine the energy deficiency phenomenon and to also participate in creating effective policies.

**Keywords:** Curbing, Energy Deficiency, Social Policies, Vulnerable, Internally Displaced Persons, Northeast Nigeria.

## I. INTRODUCTION

According to Vanguard news report, 40 percent of Nigerians suffer from energy deficiency. Nigeria's current energy capacity stands at 4,000MW against the 8,400MW expected to be active in 2018 [16]. Enhancing energy deficiency in IDPs communities of Northeastern Nigeria is part of ongoing social investment policy being considered. Recognizing the energy deficiency phenomenon as a social

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or energy related issue is a key factor determinant of the strategic policies to be put in place. The combination of suitable coverage of the policy interventions and targeting processes allows for IDPs households' energy needs to be met. While financial aids within social policy have a less distortive effect on competition and affect the Vulnerable Internally Displaced Persons (such as Unemployed, Victim of Conflicts, Widows, Orphans, retiree, poor farmers), it relies heavily on public expenditure. On the other hand, mechanisms within energy policy, grants for efficient energy improvements, tax reduction to invest in energy) might better cover other policy areas related to environmental and health costs caused by living in dilapidated housing conditions [2]. A difference among the policies is also observed in the time, with past, present or future problem-solving being given priority. In general, income based financial aids like palliative allow the Internally Displaced Persons to pay their electricity bills but do not tackle the root causes of energy deficiency. As such, measures on energy efficiency are equally important.

To confirm the doubts regarding the efficacy of public spending policies across Nigeria, this offer a preliminary analysis of the effects of macro level combinations of drivers on energy deficiency, energy prices, policy framework and Internally Displaced Persons income, through qualitative comparative analysis. Namely, this want additional insight into the effectiveness of the policy measures that are used to reduce energy deficiency across all IDPs and host communities and translate the results into a source for a critical debate on the potential to low energy deficiency. One of the earliest definitions of energy poverty is [1]; "a household is in energy poverty if it needs to spend above 10% of income on basic energy needs" [1]. In measuring energy deficiency, the most crucial approach to achieving this task is developing logical implementation guidelines. Outline the energy deficiency issue in more depth, it selected a strategy developed for the Northeastern Nigeria and conduct a preliminary analysis on 9 IDPs camps and host communities. This conceptual map includes drivers impacting the affordability of IDPs household energy

services that could lead to energy deficiency: natural systems (climate), structural (socio-political systems) and economic drivers (income), market system, and the macroeconomic and policy framework. In this preliminary study, it examines relationships among the following conditions: energy or social policy focus (the policy framework), energy prices (the macroeconomic indicator) and IDPs household income (the economic indicator).

Nigeria's government efforts to protect vulnerable IDPs consumers vary considerably. Some states take a broader approach to this issue through energy efficiency measures or social policy. Unlike citizens who benefits from government intervention, poor affordability and access to IDPs household energy are rooted in low income and poverty, whereas countries with more of an energy policy focus view energy deficiency as a distinct energy policy issue [7]. Meanwhile, West African Members State only applies individual measures. These are either socially energy relief packages or privileges and bonus being granted to ease the hardship on electricity.

#### *A. Statement of Problem*

Deficiency in energy among the IDPs camp is of enormous effect. There are various economic and health damage that energy deficiency has caused. This effect is not only limited to humanitarian but also sustainability. Therefore, the idea is to research and develop a logical solution to this great menace.

#### *B. Aim and Objective of The Research*

Energy is key to the sustainability of any nation. Though high percentage of the world still battle with energy deficiency. The aim and objective of this study is to provide ways is to assess the gaps in energy deficiency in the internally displaced persons' camp and how the government and nongovernmental organization can develop new social energy policies to can curb it.

#### *C. Preliminary Study*

The study adopts the fsQCA and exact logistic regression to ascertain the initial insight into the topic and

the unique advantages. The fsQCA enable the researcher to understand the causation in this area of study. This is an innovative tactics that is very relevant in situations with numerous correlated influences. This study adopts the qualitative comparative method due to some reason. Firstly, traditional quantitative approaches are not statically significance but it can still be very important and highly informative. Secondly, the fsQCA emphasizes equanimity, where it expects to see numerous paths leading to the presence or absence of energy deficiency at IDPs camp and host communities. Similarly, it expects that conjunctions of conditions, rather than single variables, are causally relevant for energy deficiency. Finally, fsQCA stresses asymmetric causality, namely, energy deficiency and its absence require separate analyses and explanations.

## II. DATA ANALYSIS

The obtained data for the analysis from different sources of [7], [6], [13]. To ascertain the complex phenomenon of energy deficiency at the African level, studies suggest taking a consensual approach [4], [12], [14]. According to the existing study, this adopted the three following measures of energy deficiency; the number of IDPs unable to warm their houses/tents; the number of IDPs with arrears on utility bills; the number of IDPs living in a dilapidated house or tents/camps. Due to a lack of statistical data, this only used cost data for the two most widely used energy sources in each IDPs Camp and Host Communities. Next, a causal condition that represents an economic driver of energy deficiency is median equal income measured in purchasing power standard, while the policy framework to alleviate energy deficiency is created by following [7]. IDPs Camps and Host Communities were categorized into social policy focused or energy policy depending the policy advocator, how the problem has been defined, and the appropriate steps taken by the Ministry of Humanitarian Affairs, Ministry of Power or the International Organizations.

## III. METHODOLOGY

The core idea of the fsQCA is set relations where every condition defines an independent set, and a membership score is assigned to every case studied in every set. The set of a fuzzy scale is up to a degree ranging from full inclusion of 1 to full exclusion of 0. The analysis requires conditions and an outcome to be transformed into calibrated sets using three thresholds; full membership (1), full non-membership (0), and the crossover point (0.5) [11].

TABLE 1  
DESCRIPTION OF OUTCOME VARIABLES, CONDITIONS AND DATA SOURCE

Construct	Definition	Source
Energy Deficiency	IDPs unable to warm their house/tent (Weight: 0.5)	Field Survey
	IDPs with arrears on utility bills (Weight: 0.25)	Field Survey
	Share of total IDPs living in dilapidated houses or camp/tent (Weight 0.25)	Field Survey
Income Purchase Power Standard	Median equivalised net income in purchasing power standard	Eurostat
Energy Prices	Natural gas prices charged to IDPs – PPS/kWh	NNPC Bulletin
	Electrical energy prices to IDPs – PPS/kWh	
	Petroleum gas prices delivered to IDPs camp – Naira/145 per Liter	
Policy	Policy in the area of energy deficiency, social or energy policy focused	Insight _E

## IV. RESULT

Before describing the fsQCA results, it critically analyzed the first insight into energy deficiency issue. To this end, the initially model energy deficiency as a binary outcome variable using exact logistic regression, which provides a reliable statistical inference with small-sample

datasets [3]. From my Estimated results, there is a good overall model fit (model score = 10.15, p= .01). Although none of the dependent variables is statistically significant. But coefficients which are positive for policy strategy and prizes in energy lead to assertion that energy policy and the exorbitant prices may not optimally work to relax energy deficiency. The table. 1 showcase the predicted tendencies of energy deficiency along the policy strategy and price of energy for the IDPs with a less equivalent net median income and for those with an above median one, table. 2. Shows truth table derived from the fuzzy set data.

NB

1 = membership in the set,

0 = non-membership in the set

(INCOME: 1 = high income, 0 = low income; PRICE: 1 = high price; 0 = low price)

(POLICY: 1 = energy policy, 0 = social policy)

As expected, lower energy deficiency rates are found in communities with a higher median income compared to those IDPs with a lower one. Here, it is very clear that in IDPs communities with an income below the median range, scaling from energy policy to a social policy declining the possibility of energy deficiency when the prices of energy are low, but this negative effect is less pronounced if energy

prices are high. On the other hand, in communities with an above income rate, moving from energy policy towards social policy declines the possibilities of energy deficiency more when the price of energy is high.

### V. FsQCA

Examining the situation related with deficiency in energy and its absence of energy, this adopted the fsQCA 2.5 software [8]. It applied the threshold of 0.9 in [15], [11] to ascertain the necessary situation, results showcase that no necessary situation for the presence and absence of deficiency in energy.

Fig. 1 presents the results for the analyses of sufficiency, i.e. the complex solutions, and measures of fit, for the presence and absence of energy deficiency.

The analysis identified two ways heading to energy poverty. The configuration PP1, typical for Ngala, combines non high household income and energy policy. The energy price level in this configuration has no important role. The configuration PP2, present in consistency and coverage and, therefore, provide a reliable solution. Kala-Balge shows that high energy prices and energy policy (irrespective of household income) also lead to energy deficiency.

TABLE.2  
TRUTH TABLE DERIVED FROM THE FUZZY-SET DATA

Conditions				No. of Cases	Case outcome			
Row	Income	Price	Policy		Ene Def (1)	%	Ene Def (0)	%
1	1	0	1	5		0	MAIDUGURI	100
2	0	1	0	7	MONGUNO	71	MUBI	29
3	1	1	1	2	KALA-BALGE	100		0
4	1	0	0	5		0	YOLA	100
5	0	0	0	1		0	DAMATURU	100
6	0	1	1	4	DAMBOA	75	BIU	25
7	0	0	1	2	NGALA	100		0
8	1	1	0	2	MAFA	50	JERE	50

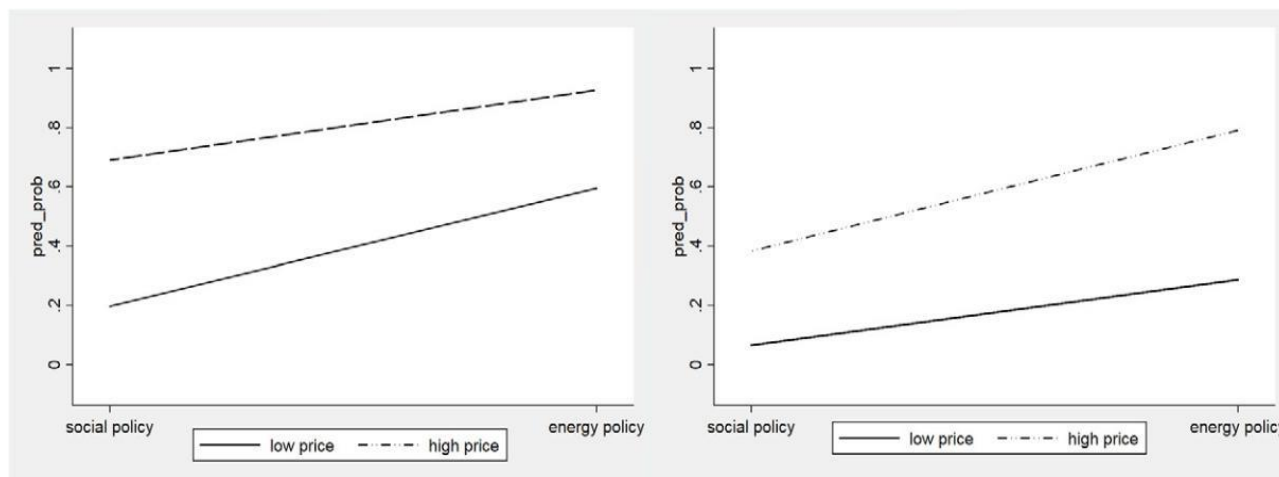


Fig.1. Prognosticating possibilities of energy deficiency for IDPs camps and host communities

The sufficiency analysis for the absence of energy deficiency also found two moving paths that directs towards the absence of deficient energy. Configuration NP1 includes upper class household benefits and social policy, with the Jere as representing them. The second configuration for energy deficiency absence, NP2, Maiduguri, Yola, Damaturu, comprises of high household income and a non-high energy price. Policy framework does not play a role here.

## VI. DISCUSSION

This preliminary study clearly explains that decision-makers across Northeastern Nigeria should rethink their regulatory systems to solve the problems suffered by energy-poor households. Energy deficiency is the result of overdependence on key drivers in that sector. Analyzing this study, driver may have a separate effect on energy deficiency depending on the visibility or invisibility of other drivers. Specifically, this result may be summarized in numerous distinctive paths. In the first path towards energy deficiency (PP1), energy deficiency is characterized by a mixture of low-income household and energy policy. The prices in energy level do not play a role in the solution. The energy policy focus, on these localities is specifically targeted at liberalizing and privatizing the energy sector. Since businesses are on verge of being liberalized, the increasing energy prices automatically overshadow the rise in income household.

TABLE 3

CONFIGURATIONS FOR THE PRESENCE OF ENERGY POVERTY, (PP1 & PP2), AND ABSENCE OF ENERGY DEFICIENCY,(NP1 & NP2).

Conditions	Configurations		Configurations	
	PP1	PP2	NP1	NP2
Policy	X	X	Y	
Income Price	Y		X	X
Consistency	0.85	0.80	0.92	Y
Raw Coverage	0.43	0.37	0.47	0.87
Unique Coverage	0.14	0.08	0.06	0.66
Solution Consistency	0.82		0.87	0.25
Solution Coverage	0.51		0.72	

Note: X Casual condition present; Y Casual condition absent; blank spaces indicate “do not care”

The solution PP2 shows that high energy prices and energy policy (irrespective of household income) also lead to energy deficiency. An explanation for the vulnerability of IDPs household living with energy deficiency with improper housing relates to housing deficits. However, the solution indicates that social policy, such as social bonus package or social energy intervention programs of energy bills prepaid meter, might work better. When the deprivation of energy services is pervasive, the cost in implementing such strategy

might be enormous due to the huge funding required. Sequentially, the measures will also have little positive effect on households if the amount for individual household is limited. Table 3. Configurations for the presence of energy poverty.

It also accesses the absence of energy deficiency. The first part, NP1 with the Jere as a representative combines high household income and social policy. The second path on the absence of energy poverty NP2, as in the case of Maiduguri consists of multiple household income and low energy prices. Obviously, this may be related to more energy efficient construction due to an insurgency. Policy orientation has no any responsibility in this configuration. Hence, countries with low or average energy deficiency tend to apply both types of policies to reduce energy deficiency, which is an important finding for policymakers. Those Northeastern localities with the wealthiest households (Maiduguri, Yola, Damaturu), unlike the vast majority of the IDPs, can afford to treat energy deficiency as a manifestation of deficiency in which low income households suffer from energy deprivation. However, seeing energy deficiency solely as another form of deficiency might hamper other forms of progress, for example, related to the natural environment and health.

## VII. CONCLUSION

On these grounds, this analysis supports previous claims that universal social assistance schemes and subsidies cannot exist within [10]. Thus, understanding the energy deficiency phenomenon is important because the policy measures will differ depending on how much deficiency is experienced and what are the biggest causes of IDPs households' energy deprivation across Northeastern states of Nigeria. The debate on reducing energy deficiency is much more complicated for the Northeastern states of Nigeria faced with above average energy deficiency. It seems they are captured in an energy poverty trap. On one hand, the solutions show the existing energy policy focus does not yield the desired results while, on the other, social policy is hardly available to any of them. These IDPs need is

affordable, yet clean technologies. Providing a national platform to the 21<sup>st</sup> century infrastructural energy scheme develop on a national level requires both corporate and social collaboration and investment, though the cost can be more or less looked into and replaced partially for the amount approved yearly in form of social intervention support. This problem is clearly worth exploring in future study. While this identifies the benefit of cost assessments of alternative strategy as another pivotal step in the decision making in order to account for all collaborations.

This preliminary examination pointed out that there is no national policy or strategy is able to address the problem of energy deficiency. Although, the positive affirmation is that recognizing different paths enables greater flexibility in choosing the appropriate policies. Therefore, next study should look into the statistics and methods in order to closely monitor energy deficiency, acquire fresh knowledge about the phenomenon, and propose energy policies that are effective.

## VIII. DECLARATION AND COMPETING INTEREST

This paper work is not for any financial benefit and no any financial privilege is attached to it. It is strictly for social development.

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