



The views expressed in this material do not necessarily reflect the UK government's official policies.



Data flows and Coordination for Decentralised Energy Planning in Zambia

Mashekwa Maboshe ^{1*}, Alycia Leonard², Sam Bickersteth³, Neil McCulloch⁴ and Stephanie A. Hirmer⁵.

Key Policy Recommendations

- To enhance decentralised energy planning, there is a need to define the minimum viable energy data requirements and data sharing policies.
- For effective decentralised energy planning there is a need to strengthen survey design, data collection, analysis and reporting skills among council staff.
- To promote inclusivity, there is a need to promote the involvement of local communities and civic and traditional leaders in energy decision making and planning.



Summary

Decentralised energy planning can be used to deliver quicker access to cleaner and more sustainable energy, and to achieve broader developmental objectives such as better livelihoods in rural and low-income communities. However, effective decentralised energy planning is anchored on good quality data, effective data flows and efficient coordination between local-level and national-level actors. Given the plans of the Zambian government to devolve the energy sector by 2024, it is important to assess the status of energy data sources, data flow systems and coordination amongst stakeholders. Based on input from two stakeholder workshops and insight from

over fifty interviewees from local councils and other stakeholders, our study established that there is currently inadequate data sharing and coordination among stakeholders, there is little availability of energy data, and there are inadequate data flow systems to support effective decentralised energy planning and provision in Zambia. To ensure effective energy sector devolution, the government must put in place minimum viable data requirements and data sharing policies; undertake capacity building in energy data collection, analysis and reporting; and promote the involvement of local communities and traditional leaders in energy decision making and planning.

Introduction

Zambia's electricity sector has been highly centralised and dominated by the state since the establishment of the state-owned, vertically integrated power utility, ZESCO, under the Zambia Electricity Supply Act in 1970. The main aim of the Act was to bring together all the electricity undertakings previously managed by the local municipal authorities to ensure consolidated power supplies to the mines, industries and the rapidly expanding urban centres [1]. Consequently, ZESCO has enjoyed a monopoly over the generation, transmission, and distribution of electricity in Zambia for over 50 years. Despite the liberalisation of the power sector in the 1990s, ZESCO still controls about 75% of all electricity generation and over 90% of electricity transmission and distribution in Zambia [2]. In addition, the historical focus on powering the mines, industries, and urban areas to support economic growth along the lines of the rail sector has resulted in a substantial gap in access to electrification between urban and rural areas; while the *national* access to electricity averages 31%, access is around 67% in urban areas and only around 4% in rural areas [3].

While centralised energy planning and provision systems can offer aggregation and efficiency benefits at the national level, **the inherent top-down approach to planning and supply fails to take into account the needs of end users** [4], especially of the marginalised groups such as the poor, people with disabilities, and women, in rural and remote areas.

On the other hand, **decentralised energy planning and provision can result not only in innovative energy solutions, but also broader developmental impacts in local communities** if undertaken in a participatory

and inclusive way [5]. For example, rather than deploy a more expensive grid extension to a low-income remote community, to improve household lighting and children's school outcomes, it could make sense to install a good quality, locally planned biofuel solution to achieve the same objectives at lower cost (if culturally acceptable and locally supported). However, this requires better planning efforts. Decentralised energy planning not only enables the provision of clean energy but also catalyses the achievement of broader developmental goals such as better livelihoods and improved outcomes for education and health in rural communities. This is because communities can select and plan energy services which meet multiple needs. For example, the community at Nachisenga in the Itezhi Tezhi district used part of the Constituency Development Fund (CDF) to install a solar powered water pump and incinerator at Nachisenga clinic [6]. This further illustrates the possibility of using the CDF to facilitate decentralised energy planning in rural areas.

While decentralisation has been part of government policy in Zambia since the 1960s, its actualisation has been somewhat slow. However, since 2011, its implementation has gained momentum, with at least eight non-energy central government functions devolved to the local councils as of 2023 [7]. In preparation for the decentralisation of electricity services, which is earmarked for 2024 [8], the government is currently undertaking consultations and drafting an energy sector devolution plan.

Effective decentralised energy planning and provision will require high-quality data. Such localised planning must be anchored on sufficient, accessible, and high-quality energy data, seamless data flows and effective coordination of work among energy players at

both the local and national level. For example, when deciding what type of energy solution a given community would need, variables such as household incomes, community attitudes to various energy types, willingness to pay and projected household electricity demand need to be collected, shared and analysed by

the different stakeholders involved in energy planning and delivery.

This policy brief explores the adequacy of energy data, and the data flows and coordination systems needed for effective decentralised energy planning and provision in Zambia.

Methodology

This brief draws on findings from stakeholder workshops and interviews held in early 2023. Two stakeholder workshops were conducted in Lusaka in March 2023. The first workshop was a two-day Climate Compatible Growth (CCG) Zambia annual conference that focused on a cross-section of energy and climate topics, including decentralisation of the energy sector. The second event was a half-day workshop designed to share insights on data needs and coordination for decentralised energy planning in Zambia.

In addition, the study conducted open-ended interviews involving over fifty technocrats from eighteen institutions, including two local councils in Choma and Livingstone. Questions around localised energy planning, energy data needs

and stakeholder collaboration formed the basis of this policy brief. Table 1 provides a summary of the interview sample.

Categorisation	Institutions	Interviewees
Central Government	3	10
Parastatal organisations	4	10
Local Government	2	17
Conservation organisation	1	1
Private renewable energy stakeholders	2	4
Donor Agencies	2	7
Political stakeholders	2	2
Independent experts	2	2
Total	18	53

Table 1: Interviewee categories.

Findings

The findings of the work from the interviews and the workshop discussions can be divided into data constraints and opportunities in relation to decentralised energy planning in Zambia.

Data Constraints

a) There are no clearly established data requirements and policies to support decentralised energy planning.

A key finding from the workshop discussions is

that, currently, local councils do not have clearly established minimum data requirements to support any form of decentralised energy planning or localised electricity supply. There is therefore a need for **deliberate efforts to establish a minimum set of data requirements** at the council or ward level for use in energy planning. These may include electrification demand rates, energy access rates, energy use patterns, distribution plans of energy infrastructure and so on. The lack of policies on decentralised energy planning in Zambia has contributed to the absence of clearly defined data needs.

“ Unlike neighbouring countries such as Kenya where local energy planning is required and actively takes place at the local levels, local-level energy planning in Zambia is not necessarily a requirement and local authorities do not actively produce detailed energy needs plans per se ” CCG Zambia Annual Conference.

b) There is very little planning data available for decentralised energy planning at local levels.

We established that, at present, there is very little comprehensive planning data available to support local-level energy planning. The only energy planning data that the councils had related to qualitative energy demand forecasts presented in the Integrated Development Plans (IDPs). The IDPs, however, lack detailed local area energy needs assessments, electrification supply plans, or detailed implementation plans and cannot be used for effective decentralised energy planning.

c) There is inadequate community involvement in energy planning.

Another finding was that there is inadequate community involvement in local area energy planning, and this was highlighted as a significant barrier to effective decentralised energy planning and provision in Zambia. The lack of community involvement is due to the absence of effective local platforms for discussing energy problems affecting local communities.

“ Community-level energy planning platforms are not there to promote local-level energy solutions. ” Stakeholder workshop.

The workshop participants recognised that having well-organised and inclusive platforms involving key stakeholders such as local traditional leaders, zonal leaders and ward councillors, women’s and youth groups, and local businesses can improve the awareness of energy issues and create the necessary buy-in and strengthen the local ownership of energy solutions.

d) There are poor data flows and inadequate coordination mechanisms to support decentralised energy planning.

We established that there is **very little day-to-day coordination** of any energy planning or data collection efforts among stakeholders involved in local area electrification. For example, ZESCO is often unaware of upcoming housing developments in council areas until the completed units request electricity connection services. Furthermore, councils do not typically participate in the Rural Electrification Authority's (REA) demand assessment surveys conducted prior to implementing electrification projects in rural areas. In addition, there is very little horizontal data sharing between the councils on one hand and other district-level stakeholders, such as ZESCO local offices or the district health office, on the other hand. There is also very little vertical data sharing between the councils and national-level stakeholders such as the Zambia Statistics Agency (ZamStats), largely due to bureaucratic encumbrances and the lack of updated disaggregated energy statistics.

The lack of coordinated work was echoed in almost every interview and workshop as a key barrier to effective localised energy planning.

“ There is a siloed work culture among district-level stakeholders. ” Stakeholder workshop.

Opportunities

Despite the above data flow and coordination challenges, opportunities exist for improving decentralised energy planning and provision in Zambia.

a) The ongoing development of the energy sector devolution plan presents a good opportunity for formulating data sharing and coordination policies.

Putting in place explicit data sharing and

coordination mechanisms would improve the flow of data and coordination of work between councils and district level stakeholders. It would also strengthen collaboration between councils and national level stakeholders.

b) The existence of district development coordinating committees and the requirement for producing Integrated Development Plans (IDPs) by every local council presents a good opportunity to strengthen and deepen collaboration among energy stakeholders.

Strengthening the district development

coordination structures and the IDP process would solidify work linkages and feed into quality energy-related development planning including coordination and sharing of any energy-related data. During fieldwork at the councils, an interviewee expressed optimism that the culture of working in silos was giving way to better coordination.

“ Sometimes ZESCO would not respond and sometimes would respond to our requests for plans for distribution lines...but integrated planning is helping break down silos. ”

Local Council Interviewee.

Recommendations

To prepare for efficient data collection and coordination systems for effective decentralised energy planning and provision, the following recommendations are suggested:

- Design clear data requirements and data sharing policies.
- Strengthen capacity in effective survey design, data collection, analysis and reporting.
- Strengthen the involvement of local communities and civic and traditional leaders in energy decision making and planning.
- Introduce and strengthen frameworks for collaboration in areas such as data collection and analysis, including project assessment, implementation and evaluation at the local level.
- Complete the ongoing energy sector devolutions plans to inform the needed legal and regulatory policies for effective decentralised energy planning.

References

- [1] Maboshe, M., Leonard, A., Bickersteth, S., McCulloch, N., Hirmer, S. (2023). The Status of Power Sector Decentralisation in Zambia. Climate Compatible Growth Programme Policy Brief Series.
- [2] Maboshe, M., Bickersteth, S., Hirmer, S. (2022). Off-grid Renewable Energy Investments in Zambia: Demand-side and sub-national constraints. Climate Compatible Growth Programme COP27 Policy Brief Series.
- [3] USAID. Zambia Power Africa Fact Sheet. <https://www.usaid.gov/powerafrica/zambia#:~:text=National%20access%20to%20electricity%20averages,for%20all%20Zambians%20by%202030.> (Accessed 1st May 2023)
- [4] Garside, B, Perera, N (2021) Energy services for local development: integrated and inclusive planning for country governments in Kenya. IIED Working Paper. IIED, London. <http://pubs.iied.org/16051IIED>
- [5] Johnson, O., Nyambane, A., Cyoy, E. and Oito, L. G. (2016). County Energy Planning in Kenya: Local Participation and Local Solutions in Migori County. Working paper no. 2016-01. Stockholm Environment Institute.
- [6] Daily Nation (2023). Nachisenga clinic to open soon. 5th April 2023.
- [7] Government of the Republic of Zambia (GRZ) (2013). The National Decentralisation Policy: Towards Empowering the People. Revised Edition 2013.
- [8] Government Republic of Zambia (GRZ), Decentralisation Implementation Plan 2022-2026.

Author information

¹**Mashekwa Maboshe** (*University of Zambia*): Conceptualisation, Methodology, Investigation, Writing – original draft preparation.

²**Alycia Leonard** (*University of Oxford*): Conceptualisation, Writing – original draft preparation.

³**Sam Bickersteth** (*The Policy Practice*): Conceptualisation, Writing – original draft preparation.

⁴**Neil McCulloch** (*The Policy Practice*): Conceptualisation, Writing – original draft preparation.

⁵**Stephanie A. Hirmer** (*University of Oxford*): Conceptualisation, Writing – original draft preparation.

***Corresponding Author:**
mashekwa.maboshe@gmail.com

This material has been produced under the Climate Compatible Growth programme, which is funded by UK aid from the UK government. However, the views expressed herein do not necessarily reflect the UK government's official policies.