



EnerSHelf  
Policy Brief  
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# Understanding the drivers and barriers of institutional change towards a sustainable energy transition in Ghana.

Ensuring access to clean and reliable energy is of great importance for individual health and an essential requirement for the effective delivery of health services ('Energy-Health Nexus'). Against this background, the EnerSHelf project aims to enhance the reliability and sustainability of energy supply for health facilities through photovoltaic-solar hybrid systems while applying an interdisciplinary research approach. Based on the findings from a political economy analysis, this brief highlights the factors that facilitate or hinder the process of institutional change towards a sustainable energy transition in the Ghanaian energy and health sectors.

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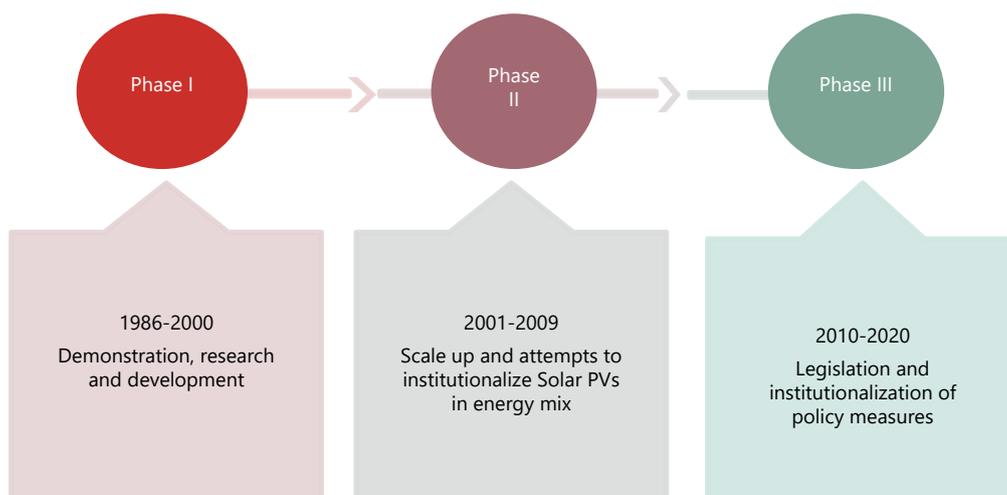
## Background

Like many other countries across the globe, Ghana is confronted with the challenge of transitioning from a heavy dependence on fossil fuels to clean and sustainable options particularly those centered on renewable energy sources such as solar PVs. However, this call for a transition to clean and sustainable energy systems does not only entail changes to the existing technologies or infrastructure, but as well, requires important changes to the institutional framework (for example, policies, legislations and regulations, etc.) that govern such energy systems.

In Ghana, since the early 1980s, several reform processes have been initiated aimed at providing some impetus for change towards sustainable energy sources including PV-based energy systems. However, tracing these developments over time, the process of institutional change can at best be described as slowly moving. Nonetheless, the factors influencing the emergence of the current institutional status quo and over time the political feasibility or otherwise of supporting sustainable energy systems such as PV-based solutions in Ghana remain underexplored. Drawing on qualitative information gathered from 21 national level interviews (i.e. public authorities/ policymakers, donors, NGOs/CSOs and independent experts) and a review of scientific literature, this brief summarizes the results of a national level study which sort to explore the factors that facilitate or hinder the process of institutional change towards a sustainable energy transition in Ghana, focusing specifically on PV-based energy systems.

## The reform process for PV-based Energy in Ghana (1986-2020)

Based on our analysis of development in the **Energy sector**, reforms, or the process of institutional change for PV-based energy in Ghana can be categorized into at least three phases. In phase I (1986-2000), reforms mainly centred on demonstration projects as well as research and development activities. In Phase II (2001-2009) the focus expanded to include scale-up and early attempts at institutionalizing PV based energy in the national energy mix. However, in phase III (2010-2020), a major goal shift from experimentation to institutionalization of various policy measures via legislation can be observed.



Source: The Authors

Interestingly, with respect to the **health sector**, our analysis also reveals that although in the past various PV-based energy programs have been implemented and targetted at energy provision for rural health facilities, up to date no explicit policy framework exist in the health sector to govern the diffusion of such systems. Strictly speaking, the process of institutional change towards PV-based systems and renewable energy technologies in general is now only beginning to emerge in the Ghanaian health sector.



We find that given the governance structure in the public sector, policy decisions on energy for public health facilities tend to emanate from or are guided by the overall framework provided by the ministry of energy.

## **Drivers of institutional change at the national level**

### **Power crisis and concerns over energy security**

A key finding from our analysis is that Ghana's numerous power crisis which has often resulted in extended periods of load shedding and power rationing has been very instrumental in facilitating the process of change towards PV-based energy systems. In particular, the periods of power crisis have always brought to the fore concerns about energy security and need to diversify energy sources since the weaknesses often became very clear during crisis events.

### **Decreasing prices of power from PV-based systems**

Global estimates show that since 2010 the price of power from solar PVs has fallen significantly by approximately 80 per cent<sup>1</sup>. Our findings point to the fact that the declining cost of power generated from PV-based systems has been very instrumental in driving reforms (e.g. amendment of the RE Act of 2011) towards promoting and institutionalizing such sources in the Ghanaian energy sector.

### **International influences**

The evidence gathered also points to the fact that the international institutional environment, particularly, prevailing ideas around climate change and sustainable development in the broader context has over the years provided some impetus for reforms or policy change towards sustainable energy options. Ghana is party to several regional and international conventions or treaties (e.g. Kyoto protocol, Paris Agreement on climate change, UN Sustainable Energy for All initiative, etc.) whose operationalization mandates policy makers to keep clean or renewable energy technologies on the policy agenda.

## **Barriers to institutional change at the national level**

### **Resource endowments (Oil and gas)**

Ghana's petroleum resource endowments has presented significant barriers for policy change towards renewable energy sources. In our analysis, we uncover that the discovery of oil and gas resources in commercial quantities in 2007 created an incentive structure for Ghanaian policy makers to recalibrate the entire energy sector and undertake both institutional and regulatory reforms aimed at promoting thermal power generation. The increased attention on exploiting the nation's oil and gas resources consequently slowed the momentum towards renewable energy sources.

### **Path dependencies (historical legacies)**

Insights from our analysis also reveal that the institutional architecture of the Ghanaian energy sector which it is built on the dominance of hydro-electricity and thermal generation has over the years induced path dependencies and therefore presented strong barriers to policy change towards new renewable energy sources. For example, although the renewable energy act was passed in 2011, the development of grid codes to allow for the integration of renewable energy sources into national grid delayed until 2015.

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<sup>1</sup> <https://www.weforum.org/agenda/2021/11/renewable-energy-cost-fallen/>

## Changing political priorities on decarbonization and sustainable energy

Whereas on the other hand, the government of Ghana has openly stated its commitment to sustainable energy, on the other hand it is also focused on exploiting the country's fossil fuel resources for socio-economic development. For many, the mixed commitment or changing political priorities on decarbonization presents significant barriers for policy or institutional change towards sustainable energy options.

### Key messages for policy and stakeholders

- Despite the fact that institutional responses towards PV-based energy systems emerged in the early 1980s, the process of institutional change or the reform agenda can at best be described as "slowly moving".
- Key drivers of the reform process include: power crisis and concerns over energy security, International influences and the declining prices of power from PV-based systems.
- Path dependencies in the energy sector (hydro & thermal) and the discovery of oil and gas resources in commercial quantities have also presented strong barriers to change.
- Although PV-based energy systems will continue to remain on the policy agenda in Ghana, strong political will is required for implementation.

### EnerSHelf Quick Facts

- **Project:** EnerSHelf – Energy Supply for Healthcare Facilities in Ghana
- **Location:** Ghana
- **Type of funding:** Public, CLIENT II
- **Sponsor:** German Federal Ministry of Education and Research (BMBF)
- **Funding period:** 01.06.2019 – 31.03.2023
- **Website:** <https://enershelf.de/>

## Energy Supply for Healthcare Facilities in Ghana

EnerSHelf is an interdisciplinary German-Ghanaian project of political economists, engineers and partners from the private renewable energies sector. The project deals with the sustainable and reliable energy supply for healthcare facilities in Ghana.

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[www.enershelf.de](http://www.enershelf.de)

