



Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Original research article

Solar energy for poverty alleviation in China: State ambitions, bureaucratic interests, and local realities

Sam Geall^{a,*}, Wei Shen^b, Gongbuzeren^c^a *Chinadialogue, The Grayston Centre, 28 Charles Square, London N1 6HT, United Kingdom*^b *Institute of Development Studies, Brighton, United Kingdom*^c *Southwestern University of Finance and Economics, Chengdu, China*

ARTICLE INFO

Keywords:

Energy
Infrastructure
Solar PV
Poverty alleviation

ABSTRACT

In 2014, China announced an ambitious plan to help alleviate rural poverty through deploying distributed solar photovoltaic (PV) systems in poor areas. The solar energy for poverty alleviation programme (SEPAP) aims to add over 10 GW capacity and benefit more than 2 million households from around 35,000 villages across the country by 2020. This article investigates the implications of the initiative through discourse analysis of policy documents and a case study of its implementation in the remote and largely pastoralist county of Guinan, in Qinghai province on the Tibetan plateau. The study illustrates the constraints on implementing SEPAP and contested local perspectives on the buildout of ostensibly low carbon infrastructure for electricity generation. In particular, it raises new perspectives on the limits of a state-led push for energy infrastructure in rural and underdeveloped areas, without proper incentive mechanisms for local bureaucrats and non-state actors, or independent oversight of a “top-down” policy implementation process.

1. Introduction: solar energy for rural poverty alleviation

The environmental benefits of solar energy are well understood, as a major source of clean and renewable energy that can help to mitigate the worst effects of climate change and air pollution by avoiding the greenhouse gases and other pollutants emitted by coal burning, which still makes up the largest share of China's energy mix. China's central government has in recent years supported a shift away from fossil fuels for these reasons, as well as to move the country towards a position of technology leadership, and restructure domestic industries towards services, innovation and higher value production, making the country the largest solar investor for consecutive years [1].

Since 2014, besides these environmental and industrial considerations, Chinese solar energy sector has been given a new mission. Chinese leaders and state energy regulators announced an ambitious plan to help alleviate rural poverty through deploying distributed solar photovoltaic (PV) systems in poor areas. The solar energy for poverty alleviation programme (SEPAP), which is positioned as an integral component of China's political campaign to eradicate poverty by 2020, aims to add over 10 GW capacity and benefit more than 2 million households from around 35,000 villages across the country by 2020. The policy aims to generate additional annual income of over 3000

RMB for each household, mainly through rooftop and small-scale solar systems [2].

In this paper, we trace the policy process of SEPAP by identifying the social, political and economic drivers and rationales for its emergence, examining major policy designs and developments at various stages and by various regulatory actors, and discovering some of the implementation outcomes since the inception of SEPAP. From such an analysis of the complete policy cycle, this paper aims to identify how top-down policy processes operate in Chinese energy regulatory system and what are the major challenges and obstacles for such processes to function at the implementation level.

The research is based on discourse analysis of policy and other documents and field trips in both Beijing and a county in Qinghai province, one of the more isolated and underdeveloped regions of western China. Such a methodological approach aims to reveal the often-overlooked links between the policy's designers and recipients, with wider implications regarding the dynamics of energy and development policy in China, particularly in the northwest and Tibetan Plateau. The field investigation was carried out in one of the SEPAP pilot counties, of Guinan in Qinghai Province in October/November 2016, on the Tibetan Plateau in north-western China, in Hainan Tibetan Autonomous Prefecture, south of Qinghai Lake (also known as

* Corresponding author.

E-mail address: s.geall@sussex.ac.uk (S. Geall).

Kokonor), where we conducted discussions and semi-structured interviews with local stakeholders.¹

The article is structured into five sections. Section 2 is a brief literature review around Chinese energy transitions and environmental policy processes, with a focus on the role of the state. Section 3 presents an analysis of the policy rationales for SEPAP, to explain why it emerged at this particular moment in China. Section 4 presents the key findings of the policy analysis and the case study. Section 5 discusses the major empirical, theoretical and policy implications. Section 6 concludes the paper by highlighting the major arguments.

2. Literature review: energy transitions and the role of the state

Although this article focuses on a specific Chinese policy approach, it hopes to inform perspectives on energy access and development in other contexts. Much of this literature is dominated by engineering and economics, a “hardware financing” approach, which considers less the socio-cultural or political dimensions of these questions [3,4,75]. Literature informed by the field of socio-technical transitions [5–7,4,8–12] has brought greater socio-cultural and evolutionary dimensions to the context of energy transitions, and more recent studies also call for greater attention to political dimensions of energy transitions (e.g. [13–16]). Scholarship on energy transitions is often criticised for overlooking the role of the state (Johnstone and Newell, 2016; [13,77,78]). Work that does, such as that around the entrepreneurial state [79] or the use of industrial policy [80], still tends to neglect more empirically informed perspectives on the different forms of state power that might manifest at local levels [17].

However, empirically informed literature on China’s renewable energy sector often highlights the role of a strong central government in supporting technology upgrading and industrial capacity expansion [81,82], which is broadly in line with the category of a developmental state [18]. Yet it is noted that the massive expansion of China’s renewable energy sectors is also due to the state’s capacity in synergizing various interests among various actors [19], which arguably cultivated a policy community that in favour of continuous market expansion [20]. Such alliances became crucial for the successful implementation of centrally crafted policy, as failure to do so would eventually lead to a ‘command without control’ policy outcome that often seen in China’s environmental governance system [83]. It is also noted that although the potential of renewable energy technologies in enhancing rural residents’ energy access, consumption and living standards had been long discussed in academic literature (cf. [21–24]), it largely remains as an untested assumption due to the lack of further empirical evidence.

Theoretically, our study aims to contribute to the emerging debate and critical understanding around the role and nature of the state in shaping pathways towards sustainability and low-carbon transitions [14,76,84]. First, by rejecting the notion of the state as a monolithic entity, we narrow our analytical focus to individual bureaucratic agencies, in this case the energy and poverty alleviation regulators. Our findings suggest that the seemingly ‘top-down’ policy initiatives are essentially the result of interaction of interests and power relations among actors in the bureaucratic apparatus. In addition, these relations are highly dynamic, as they are situated in a broader and often more complex relational and power configuration with private and local actors. Therefore, state-led interventions in the low-carbon transition often come at the historical juncture when sectoral preferences from various factions of the state can be synergised [76]. Yet, our research also suggests that such ‘historical alignment’ is only a necessary but not sufficient condition for the successful implementation of a transition project, as other parties outside this alignment with conflicting interests

and preferences may impede, either explicitly or implicitly, the implementation process. In this case, the apathetic attitude of financial institutions and localities is found as the main reason for the lacklustre implementation of SEPAP. The energy regulators’ ambitions for industrial expansion failed to connect with the local need for accountability or the financial sector’s quest for a monetary return, indicating the highly challenging nature of establishing and maintaining a hegemonic project of low carbon transition in a highly fragmented political system.

3. Why SEPAP now? Understanding the historical conjuncture

To understand the drivers of SEPAP — why it was launched when it was — it is worth understanding three major contexts: the persistence of rural poverty in China, in the context of a political push for poverty alleviation; the overcapacity and curtailment in China’s solar energy industry, and consequent need to encourage distributed solar PV installation; and the current situation for rural electrification, where previous technological preferences, particularly small hydropower, are no longer viable. It is then worth considering the context of the pilot county studied in this article.

3.1. The rural-urban income gap

Since initiating market reforms in 1978, China experienced unprecedented economic and social development, with GDP growth averaging nearly 10% a year over the past three decades. Along with this rapid economic growth came a dramatic increase in household incomes in both rural and urban areas, which lifted more than 800 million people out of poverty [25].

However, incomes in rural areas rose far slower than in urban areas. The average per capita disposable income in urban areas increased from 343 RMB in 1978 to 31,195 RMB in 2015, whereas in rural areas, this figure rose from 134 RMB to 11,422 RMB [26]. Throughout the economic reform era, the urban-rural income ratio in China was around 3:1, much higher than the international average of 1.5:1–1.6:1 [27], even before non-monetary variances in education, medical care, and other social welfare gaps between rural and social areas are taken into account.

The rural-urban income gap is exacerbated by unbalanced economic development between provinces: China’s less developed western regions have a higher rural-urban income gap, with some provinces reaching a 4:1 ratio [28]. According to China’s current poverty standard (annual net per capita income of 2300 RMB in 2010 prices), there were currently 56.30 million poor in rural areas in 2015 [29]. The majority this population live in western inland provinces.

Since President Xi Jinping came to power in 2012, poverty alleviation has been elevated among the highest development priorities in China. Xi has paid many visits to the poorest townships and villages across China and thus signalled a commitment to combat poverty. As a consequence, several crucial policy documents have been issued since 2013, echoing this determination to tackle widening inequality and income gap [30]. In 2014, the government announced that each year on October 17, “Poverty Alleviation Day” would be marked to coincide with the United Nations International Day for the Eradication of Poverty. Before 2015’s Poverty Alleviation Day, Xi formally announced the goal of eradicating poverty completely in China by 2020 [28].

However, addressing the remaining population under the poverty line is a difficult “last mile problem”: as the case study below illustrates, the majority of this population is located in the most remote and isolated areas of China. Data on the numbers of these households and their income are often outdated and incomplete. As discussed further below, a section of this population is also nomadic and therefore hard to locate and monitor statistically. Local environmental and geographic conditions can make it difficult to significantly improve local livelihoods in a sustainable manner, beyond government subsidies and temporary

¹ The political sensitivities of conducting research in this region mean the data sample for this fieldwork was more limited than we would have liked. For reasons of researcher and informant safety and ethics we have omitted some methodological and empirical information we otherwise would have included.

Download English Version:

<https://daneshyari.com/en/article/6557440>

Download Persian Version:

<https://daneshyari.com/article/6557440>

[Daneshyari.com](https://daneshyari.com)