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## Whose and what futures? Navigating the contested coproduction of Thailand's energy sociotechnical imaginaries

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## ABSTRACT

The futures of energy in developing countries need to be catalyzed, created, and nurtured in a process hinged towards achieving the ambitions of the 2030 Agenda for Sustainable Development and the Paris Agreement. This paper looks at how Thailand produces this normative energy future. Using the STS concept of sociotechnical imaginaries and empirical evidence gathered through interviews and document analysis, this paper critically engages, describes, and compares the dominant and resistant imaginaries in the ongoing production of Thailand's energy future. I highlight three core imaginaries and describe how they intertwine with political economy, are determined by value sets and value systems, and present either visions of continuity or transformation. The dominance and/or marginalization of an imaginary, it appears, are contingent upon issues of power and resources. This entails that the production of energy futures in Thailand and beyond would be an ongoing process intertwining with heterogeneous actors and institutions, their value systems, interests and politics. Understanding these tensions and allowing alternative imaginaries to permeate policy-setting processes would be key in delivering a coherent and effective public policy.

## 1. Introduction

In 2016, the Government of Thailand released its twenty-year national energy strategic plan, the Thailand Integrated Energy Blueprint 2017–2036 (TIEB) as its long-term plan to enhance the country's energy security, development, and connectivity. The TIEB envisages a power mix that shows decreased reliance on imported natural gas but increased 'clean coal' use to 25% in the mix, up from its 20% share in 2014. The Blueprint also calls for reduction in energy intensity by 30% and an increase in the share of renewables in final energy consumption to 30%. The TIEB also introduces the role for highly contested nuclear energy by up to 5% [1]. The TIEB, in turn, becomes the coherent, single, unitary, and official vision for Thailand's energy future. The production of TIEB as a key energy policy document reflects a socio-technical imaginary aimed at orienting the country's institutions, actors and resources towards that pre-established goal, and to employ strategies so that this particular pathway of energy development, security and connectivity *could* evolve.

In short, the TIEB resonates and reflects the perspectives of 'who exercise power' in Thai energy polity [2] and shows who were (and are) able to mobilize sufficient resources to support their favored strategies and ways forward. In other words, the TIEB registers whose voices and politics were (and are) deemed vital and important. The TIEB, thus, institutionalizes the voices of these key powerful actors, at the same

time that it is marginalizing the alternatives. This paper brings to fore the key characteristics of these visions or what can be called 'imaginaries,' describes the tensions and contestations surrounding them, their production, and their extension. It also suggests and argues for—in light of the inherent complexities of producing Thailand's normative energy future—a reflective approach for setting up a future national imaginary.

Complexities in policy setting arise from a number of factors, but key is the heterogeneity of actors concerned and involved, their interests, and their politics—a fact arising since different actors interpret the world in multiple ways [3]. This variety of interpretations arises from their varied experiences, situations, understandings, values and interests. Actors will, thus, seek to promote their own preferred visions to create and/or shore up their most favored future pathways (cf. [4]). This paper focuses on knowing the ways in which imaginaries—broadly, the ultimate expression of these various world interpretations—are framed and, vice versa, the ways in which these imaginaries are used to justify the processes of world-making—or in short, their framings. I argue that recognizing heterogeneity in framings could lead to a better understanding of how multiple imaginaries arise. This, in turn, could serve as a precondition for a more coherent, effective, inclusive, and democratic process of future policy-setting. I base my analysis on the emerging conceptual frame provided by sociotechnical imaginaries in the science and technology studies (STS), and to a large extent using in-depth empirical analysis of the evolution of Thailand's

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energy policy.

Acknowledging the import of framings, I acknowledge my own normative position in relation to this paper and my personal and professional perspectives more broadly. As a private individual, I am a Southeast Asian male academic having grown up and been educated in the global South but also educated and now mostly based in Northern universities. I spent extended periods of time living and working in two Southeast Asian countries, one of which is Thailand, where this paper is set. I have worked as a resident research consultant at the United Nations (UN) in Bangkok, which gave me an intimate knowledge of energy issues in the country and the Asia-Pacific region. I continue to act as a UN consultant engaging with national and international policymakers on sustainable development, climate change, and energy policy. I have a normative commitment to climate change mitigation and sustainable development for all that can be met through accelerated sustainable energy transitions [5,6].

Following discussion on contemporary global agendas that primarily set our attention for the need to re-imagine energy futures (Section 2), the conceptual frame (Section 3), and methods (Section 4), this paper presents a critical analysis of how Thailand's current national energy policy has evolved (Section 5). The paper then engages on a discussion—and, based on this, advances an alternative way to envisage and frame future national energy policy (Section 6). This alternative is not a panacea for tackling the challenge of climate change and sustainable development head on; rather, it provides a new perspective on how energy futures could be governed in ways that would privilege the need for rapid emissions reduction at the same time that it cushions the rights of developing countries to develop their capabilities [59] in environmentally and socially sustainable ways. This normative position suggests that the framing of what constitutes the future of energy is also, if not largely, a political project [3,7], inasmuch as it is technological, financial, or social [8]. This alternative to imagining the future, nonetheless, is open to, indeed welcomes, critical engagement.

## 2. Background: the normative agenda of climate mitigation and sustainable development, and its contestations

The futures of energy in developing countries are subject to a number of 'landscape pressures' [8]. Key to these pressures are the normative objectives set by governments which introduced the Paris Agreement that calls for the rapid decarbonisation of the energy sector [9]. Imagining the futures of energy has always been a heterogeneous process, yet this new context has undoubtedly made this process highly contested and complex [6,8]. In the global South, these contestations and complexities are further perturbed as countries continue their quest for sustainable development—which, by now, is ought to be powered by energy that does not harm the global climate. With the 2030 Agenda or the Sustainable Development Goals (SDGs) also brought to fore normatively at the international sphere in the same year as the Paris Agreement was agreed on [10], both climate mitigation and sustainable development objectives have increased the tensions surrounding the production of energy futures [8].

Sustainable energy transitions can be said as the principal modus operandi of the new governance architecture that the Paris Agreement and the 2030 Agenda had normatively constructed [6]. Since these processes involve a multitude of actors with divergent interests, navigating these futures, how they ought to look like, and how they can be achieved are expected to be turbulent and highly contested [8]. In the near future, as well as in the longer-range one, these complexities could easily multiply, both in quantity and quality, in scale and scope, and in pathways and directions. Inherent in these processes of change, therefore, is the need to acknowledge and understand that the technologies assembled in, by, and for energy production, distribution and consumption are and will be co-produced alongside various and, at many times, conflicting, social, political, and economic forces [7,8,11].

Much interest can be seen in the trajectories of many fast developing

countries since they are expected to consume more energy and, therefore, spew more carbon emissions. However, these geographic and political spaces are also the least studied [12]. In these areas, tensions abound between narratives of 'development first' and 'climate first,' which are still seen as two polar opposites. The former is usually taken in the context of economic growth towards a state comparable to the affluent societies in the global North; the latter underlines the need to revamp the ways in which greenhouse gas polluting industries and sectors are quickly reined in to limit future growth in emissions. The question, therefore, lingers: will these countries able to meet their development ambitions while also being responsive to the need for rapid climate mitigation? The paper neither attempts to provide a stable or dogmatic response to this question, nor it provides an analysis of decision trade-offs. Instead, it illuminates the argument that both sustainable development and climate mitigation can be bundled together when producing energy futures.

The contestations on the futures of energy in the global South encompass a number of areas. Amongst these are: the kinds of technologies that should be given premium in energy transitions, the pace of technological change, the policy necessary to facilitate such change, the sources of capital, the institutions that need to be set up, the role of consumption-based strategies such as behavior change, etc. These areas of contestations are registered in questions such as: Is it the promise of 'clean coal' and greater efficiency at source regardless of the high-carbon nature of the fuel resource? Or, is it a large-scale change towards the greater use of renewable energy systems that would generate power from sustainable and environmentally benign sources such as water, wind, and sunlight energy? How about bioenergy, which many in the largely agriculture-based countries in the global South have tremendous potential? And how about fission or fusion power? Moreover, contestations extend around the scale and size by which sustainable energy is to be generated. Is it to come from traditional monolithic, utility scale systems? Or, is it to be generated by patches of distributed, small-scale systems such as those produced by households and community groups and organisations, and are connected together in mini-grids? These questions reveal competing visions of energy futures and hint at the underlying technological, cultural, political, economic and social differences within and across communities and nation states. To illuminate these processes, I use the emerging concept of sociotechnical imaginaries as an interpretive frame. The concept allows for the exploration of multiple imaginaries and their struggles for dominance.

## 3. Conceptual and interpretive frame: sociotechnical imaginaries

Ideas about what the future can be serve as powerful triggers of action in the present since these visions are embedded into decisions affecting the sociotechnical fabric of society. These 'ideas' or, as framed in this paper, a 'sociotechnical imaginary' connects creativity and innovation, and even more technology, with the production of power and social order to attain 'desirable futures' [13]. To be considered sociotechnical imaginaries, these visions of desirable futures have to be 'collectively held, institutionally stabilized, and publicly performed' and 'animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' [13, page 4]. Sociotechnical imaginaries are temporally situated and culturally particular [13]. They are at once products of and instruments of the coproduction of science, technology, and society in modernity [13]. While they describe desirable futures, imaginaries also delimit attainable ones [13]. It is, therefore, key to note that while there may be a dominant national sociotechnical imaginary, there are other imaginaries that compete for materiality [13]. Imaginaries gain traction and are complemented or strengthened through acts of power, ongoing coalition building, and fostering social and technical innovation [13]. In other words, there are a variety of ways by which they can be performed [13]. Examples of these performances are targeting or policy setting [14] and social mobilisations [15].

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