All habits die hard: Exploring the path dependence and lock-ins of outdated energy systems in the Russian Arctic

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ABSTRACT

In the middle of accelerating climate change and global energy transition, Russia has set a course for transitioning from fossil fuels towards low-carbon alternatives. The government has taken a series of strategies in both the national and regional levels. Nevertheless, the established ways of fossil fuel usage are most resistant to change in this context and what we may expect of solutions in the region must do so by supplementing and supporting the dominant ones.

1. Introduction

After years in the margins of national attention, the 2010s witnessed the Russian Arctic regaining considerable interest from the federal government. The main reason for the renewed interest is the global wish to gain profits from the Northern Sea Route, expected to open up for commercial shipping in the future. However, before the towns and settlements along its way may transform into modern transport hubs and ports, the Russian state should find an answer to a persistent question – that of reliable supply of energy. This question has featured regularly in official strategies regarding the socio-economic development of the region during the last decade, especially concerning the region’s numerous communities located outside the centralized power supply zone.

During the 2010s, Russia has searched for quick solutions to complex development issues with the help of a policy tool known as mega projects. They involve furthering authoritarian politics with the help of neoliberal tools such as highly centralized, fast-tracked development plans, cooperation between public authorities and semi-private companies, and non-transparent practices [1,2]. The stagnant socio-economic development of the Russian Arctic and the quite as stagnant development of renewable energy production are examples of such complex issues, in addition of which both involve outdated energy systems and attempts to rearrange them. Instead of compiling comprehensive, long-term plans to reach its goals in these fields (as the general policy was during the Soviet era), Russia now opts for investing on certain priority projects. In the Arctic, they often link with the national goals regarding the Northern Sea Route.

In this article, I explore the form that these mega projects take on the regional and local level and analyze, firstly, why outdated energy systems are so resistant to change and, secondly, what shape does change take under the current circumstances. I rely on two case studies, which both originate from the Republic of Sakha (Yakutia) and retrace back to the republic’s need to make its energy portfolio more self-sufficient, a goal that also the government promotes. In addition, municipalities themselves could gain various economic, social, and ecological benefits from using local fuels, especially when the price of diesel fuel is high [3–5]. The first case examines the building of a wind park near Tiksi, on
the shores of the Arctic Ocean, in the peninsula of Bykov Mys. The second considers the establishment of the state-owned company “Arctic Roads” (Дороги Арктики) to maintain the winter roads used for diesel fuel deliveries. Both projects were set in motion in 2014 with the intention to not only solve energy delivery problems, but also to strengthen regional socioeconomic development and to streamline local energy systems to better meet future plans for the region.

Sustainability transitions are known to be multi-faceted and unpredictable processes, often taking one step forward, two steps back. Nevertheless, the existing research regarding the role of energy systems in sustainability transitions and the battle against climate change has been unevenly biased towards cases originating from liberal Western democracies, involving technological innovations and competition for the choice of an educated, relatively wealthy customer. Reforming energy systems in these settings is a fundamentally different process than under authoritative political rule or in isolated, sparsely populated locations, such as in the Russian Arctic [6]. Focusing solely on similar cases creates a bottom-up bias, which may lead to assume that pioneers representing the grass-root level and actively pursuing their agenda must initiate a sustainability transition for it to progress while the dominant players of the field remain impactive [7–9]. This dichotomy between actors representing ‘the new’ and those maintaining ‘the old’ has been further questioned by researchers who have pointed out that these dividing lines usually fail to take into account the interplay and linkages between the different levels involved [10]. Therefore, to reach a more comprehensive overview, we should pay more attention to cases within frameworks such as the Russian Arctic, where decision-making is highly centralized and commitment to switch to renewables is low. There already exists studies that consider the role of sustainability in Russian (Arctic) energy policies [11–13] and this study contributes to them by discussing the relationship between dominant and new practices from the viewpoint of interplay, instead of contradiction.

The aim of this article is to discover what kind of goals and processes are involved in attempts to alleviate the troubles caused by the current ineffective energy delivery system with the help of both renewable energy (case study 1) and fossil fuels (case study II). The article seeks answers to the following research questions: 1) How do the processes within these cases differ, and what core characteristics link them together? 2) What do these cases tell us about the prospects of renewable energy in the Russian Arctic?

The article will proceed as follows. I begin by presenting the national and regional policy-making realities with a focus of mega projects as policy tools, which serves as context for the two case studies. Then, I discuss the theoretical framework of the research, the pragmatist approach, followed by an account of the research design. Next, I discuss the two case studies regarding their main events, key actors, and the role of institutionalized habits. The article concludes by evaluating the research questions in the light of the pragmatist concepts most relevant here, and finally by discussing what pragmatism has to offer for research on sustainability transitions.

2. Mega projects as a policy tool

Russian official strategies promote an approach called “mega projects” to attain broader national policy-making goals. According to the Russian Institute of National Strategies, the term signifies a pilot project that is realized via public–private partnerships and by creating “growth-poles”, which then serve as a measure for development instead of whole territories [14]. Realizing large scale projects within special support zones should reshape the Russian Arctic as a greater, interlinked region where the federal government has indisputable presence [14,15]. In contrast to the Soviet Union, Russia is no longer striving for comprehensive regional development but instead prioritizes selected territories and industries. Initiatives that fit under the umbrella of a mega project receive targeted funding and special policy arrangements to execute projects relevant to larger national priorities in situations where inserting initiatives from above appears as the only way to materialize them. However, development in the context of a mega project often happens in the span of a few years, making realizing any long-term visions difficult. For this reason, regional development remains as one of the weak points of plans involving this type of ‘authoritarian modernization’, since its aims to drive both spatial equalization (to improve all-around socioeconomic development) and spatial agglomeration (to target investments in highly centralized fields and locations) are fundamentally contradictive [2].

Russian regions adjust their own development plans to meet the assumed priorities of the state to get access to resources that mega projects and other prioritized investments may entail. This happens even though mega projects tend to be nationally oriented and rarely redistribute institutional resources across levels to municipalities. To achieve this, regional development plans call for an approach called ‘targeted program management’, which interlinks regional projects and target programs [2,16].

Territorial development of the Russian Arctic follows the mega project logic in general, as is evident from its toolkit consisting of strong state control over regional decision making, strategic development interventions, and creating nationalist narratives of a modern and managed Arctic. The plan to establish Arctic core development zones, as they are called in the policy programs, are a part of the same trajectory. The socio-economic development strategy for Arctic regions from 2014 presented this concept and stated that the aim of these zones was to concentrate resources to pre-determined, interconnected priority areas, so that the state may administrate the transport, energy, and social development needs more efficiently [17]. In addition, administrative efforts should aim to streamline development funds and other resources to achieve more effective governance in Northern regions. As one example, the federal strategic development program for the Arctic from 2014 laid groundwork especially regarding the Northern Sea Route and proposed creating a unified transport zone for the whole region [18].

Linking unified transport schemes together with the Northern Sea Route is not surprising since opening the route for commercial shipping is among Russia’s main goals for Arctic development. Others include the efficient use of the region’s natural resources, boosting the socioeconomic development of settlements, and in general strengthening Russia’s influence in global Arctic politics [19,20]. Commercial shipping along the Northern Sea Route (between Arkhangelsk and Kamchatka) is hoped to transform previously peripheral towns into transport hubs along its path and to turn the country’s geographic position into profit [18]. Another aim is that new infrastructure investments and the increase of traffic will bolster the socioeconomic development of Arctic municipalities by linking them with profit-generating locations, eventually turning the Arctic into Russia’s leading “strategic resource base” [21,22].

The uneven and uncertain development of renewable energy in Russia displays symptoms of the mega project logic as well. In theory, the Russian renewable energy politics in the Arctic focus on so-called ‘optimization’ measures. They target the urgent and practical problems related to fossil fuel deliveries to isolated settlements via system called the Northern Delivery (Северный приток), which is notoriously slow and vulnerable to delays and accidents. In addition, it requires hefty subsidies from the regional budget, releases copious amounts of black carbon into the environment, damages public health, and harms the prospects for socioeconomic development [23–26]. Thus, renewable energy technologies in the Arctic revolve around aims to reduce the amount of fossil fuels delivered to isolated settlements and improve their energy security by offering more locally produced alternatives [25]. In practice, however, the lack of institutional support, the high cost of renewable energy technology, and the fact that main support mechanisms for renewable energy are not applicable for isolated locations or micro generation makes realizing these objectives very difficult [27]. Here, we see in action how the aims for spatial equalization and spatial agglomeration contradict.
Instead, the state mainly drives projects and policies (such as the strict requirements for domestically manufactured equipment) that profit certain powerful industrial interest groups, such as the producers of solar power technology. This emphasis leads to seeking quick profits from producing green technologies for export and neglcts plans that would entail comprehensive commitments to long-term transition and end rent-seeking practices [28,29]. Examples of results, or the lack thereof, can be found by reviewing the history of other renewable energy initiatives in the early 2000s. During this time, pellet and biofuel industries have witnessed rapid rises and as rapid declines, with several of their main problems leading back to inadequate support at the national level and the resulting deep-rooted uncertainty about whether projects once started would ever meet their goals [30,31].

Under the current circumstances, both the development of renewable energy and goals for Arctic development are tightly linked to the idea that instead of combatting against climate change, Russia should seek to profit from its manifestations, among them the opening of the Northern Sea Route for commercial shipping. These priorities and the logic of a highly focused development paradigm align well with those new oil and gas production, which typically operates in a highly centralized and controlled manner [32]. New Russian mega projects in the Arctic remain tightly linked to the development and interests of its hydrocarbon industries due to their influence in the regional and national economy and Arctic politics. As a result, the state is unlikely to support, for example, reducing burning coal even though this would be key in order to meet the climate goals of the Paris Agreement. Coal companies have plenty of leverage in national politics as large employers and are vehemently against climate change policies [29,32,33]. However, views of Russian extractive industries in general are not unanimous in their stances on climate change policies but vary according to their other alignments. As long as such divisions exist, policy-makers may choose to utilize them and favor other lobbying groups, as has already happened with solar power industry. In the long run, this will likely benefit other renewable energy actors, as well [29,33].

As a region, Sakha has neither the strategic appeal nor the risk factors that those situated closer to the national nerve centers or border zones carry [34]. Thus, to avoid being neglected as peripheral, the region may strive to link the socioeconomic and energy development of the region’s isolated parts with projects of larger national significance. For example, regional policy-making documents have linked their energy distribution projects with infrastructure aims related to the Northern Sea Route since 2015, when Prime Minister Medvedev declared that the amount of ships transiting through the passage would and should significantly increase in the near future [35].

The risk of relying on mega projects for wish fulfillment is that the strategic priorities of Russia are known to be unpredictable. For example, Sakha has been planning to build a bridge across the Lena river near Yakutsk, the regional capital, for long but the project was again left pending in 2014 after the government withdrew funding in order to redirect it to Crimea [36,37]. Later, the region linked building the bridge with another mega project: the plan to build a Kolyma-Irkutsk transport corridor, providing Russia another gateway to the Sea of Okhotsk [38]. This example underlines the need for regional actors to follow closely the ever-changing priorities of the federal state. On the other hand, due to the geographical vastness of the Arctic zone, it is impractical for Moscow to attempt to micromanage all that occurs there, meaning that national, regional, and local levels must have some say in interpreting what form national Arctic programs will take in practice [39].

2.1. Theoretical background: A pragmatist approach

This article aims to discover what pragmatist theories have to offer for research on energy politics as an action-centered approach to social structures and, in particular, their habitual basis. Pragmatism was first introduced by the philosopher Charles S. Peirce and developed further by William James, John Dewey, George Herbert Mead, and, more recently, Hans Joas [40]. Peirce coined a process known as ‘doubt-belief cycle’, which lies at the core of pragmatist action theory and explains the impetus that habits wield in human societies. Human beings seek to attain a state of stable existence, where they may rely on habitual action. However, since the world is an unpredictable and ever-evolving place, they are continuously faced with surprising situations, which trigger a need for reflection. The role of reflection in habitual behavior helps understand that habits are far from stagnant routines but most importantly active toolkits [41,42]. These toolkits, waiting to be used after conscious reflection, are also called habitual dispositions [43]. Changes in the environment reveal ‘dead’ habits that have ceased to help us adapt to our surroundings, encouraging us to come up with new, creative solutions for problems [44].

At the individual level, how warm people prefer their apartments to be would be an example of habit. The dataset of this research, however, directs its focus on the institutional level. I understand institutions as social constructs that both restrict and enable the choices available for actors – such as conventions, norms, and rules [45]. The relationship between habits and institutions is that they intertwine and reinforce each other. Pragmatists and Veblenian institutional economists maintain that institutions function precisely and only because their rules are embedded in shared habits of thought. Institutions help offering consistent ways to respond to changes in the environment (habits), which then make our surroundings more predictable and enable orderly thought and action. This in turn helps institutions to achieve a durable and authoritative status [46–48].

However, habits not only speed up action by removing friction from thought processes but may also slow it down in situations where an old habit has become static and is forcibly fitted into altered conditions [46,49]. The force of habits compels people to follow their habitual responses instead of coming up with novel solutions even under crisis or when alternative ways would be available [40]. This may be because new actors and projects always arrive in the middle of previous, ongoing action since habit, crisis, and new undertakings are always affected by decisions made before. While these conditions hamper the implementation of new solutions, they also imply that even most conservative institutions are not monolithic but include several, even contradicting trajectories of development [40,49].

Pragmatist approaches help understand these processes in environmental policy-making by not prioritizing conscious decision making over the more instinctive and semi-conscious ways of thinking [50]. Habits cannot be changed by sheer will but only by altering the wider environment, including broader infrastructural change and engaging a wide range of stakeholders [43,51]. Policy-makers seem to be unaware of this fact, since for example energy transition models wrongfully assume that economic decisions are based on rational choices, where goal, action, and outcome follow each other in neat succession. Looking into institutionalized habits, instead, could help us find a way to break out of the cycle of stagnant habits [52]. Recent research has discovered the value of looking into habits in environmental policy-making processes and discovered that by taking their influence better into account, societies might be more apt to solve the “efficiency paradox”, i.e., the amount of unexploited, profitable investment options to save energy in countries seemingly motivated to achieve this goal [53–55]. One resolution is to target people whose habits have already previously been disturbed, for example due to change of residence, as they are more responsive to new ways of conduct in other fields, as well [56].

In my analysis of the two cases, I will first present their events chronologically. Then, I examine how the shared habits and institutions reinforce each other and identify what kind of habitual dispositions, or toolkits, are at play in processes where actors seek to accommodate new practices with the old ones.

3. Research design

The first case, the construction of a wind park in Tiksi, is an
exemplary case of priority investments on renewable energy in strategic locations, in this case near the Tiksi port. It is important for the state both as an individual project situated along the Northern Sea Route and as a component of national development priorities. The second study focuses on the establishment of the state-owned company Arctic Roads as a case that illuminates the relationship between regional energy institutions and national development priorities. I chose to analyze these two cases together because as such, they offer a comprehensive view of what kind of rationales Russia utilizes in the process of seeking to reorganize its Arctic energy systems. In addition, comparing a project on renewable energy with another involving fossil fuel deliveries demonstrates which parts of the current ways of energy consumption are more resistant to change than others.

Data on the two projects derives from document searches, which cover a wide spectrum of primary and secondary sources and focus on the policy-making environment around the two projects. The dataset includes relevant national and regional policy documents discussing Arctic socioeconomic development and energy politics: strategies, decrees, and target programs. In addition, I extracted local media sources using the database Integrum, the online news portals Yakutia24 and NewsYkt, and press releases from the energy companies involved and the Republic of Sakha ministries. In total, 18 Russian media articles, 10 articles pulled from company or regional government websites and 15 policy documents contributed to the final analysis. The data was gathered and selected following the principles of triangulation, meaning that diverse sources were gathered not so much to validate each other (as that might not be possible in the case of relatively marginal and recent pilot projects) but to create as exhaustive and multifaceted overview of the situation as possible.

I utilized the datasets to trace, first, central goals that have influenced the decision to put the two cases into motion, and second, the progression of the two projects in the Republic of Sakha. I started by making a note of all specific mentions of the two case studies in source materials, and then broadened the search to include key words that repeatedly appeared in the context of these cases and which I interpreted to portray some of the underlying reasons why these projects were launched. I compiled my dataset by searching media databases with the key words “Вуков Мус” (Вуков Мус), “Тикси ветропарк”, “Дороги Арктики” (Дороги Арктики), and “ветроэнергия” to gather information pertaining specifically to these projects, and the policy documents with the same key words and, in addition, those of “renewable energy” (воздобивная), “Northern Delivery” (Северный завод), “delivery” (доставка), and “fuel” (топливо). Finally, I searched the Russian academic database cyberleninka.ru with “Arctic mega project” (Арктический проект) and “Northern Sea Route” (Северный морской путь) to check for any regional reports that mention these case studies.

In the process of conducting a content analysis of my dataset, I created a chronological chain of events of both projects. To analyze their linkages with broader national priorities, I made note when themes such as “energy efficiency”, “optimization”, or “Northern Sea Route”, for example, appeared in context of either of the cases and examined how these aims were discussed elsewhere in the text and with which other priorities they in turn linked. In the end, I compiled two timelines that both follow the concrete steps that were taken to complete the two energy projects and explain what broader aims the state wishes to accomplish by implementing them. These timelines are presented next.

The scope of this study is limited to the views of those in power and to the priorities of the federal and regional governments, meaning that the views of local communities and the lived realities of people affected by the choices of energy policy-makers are left outside the scope of this article. In addition, focusing on regional projects that receive resources from the national state skews the view of the regional energy landscape since many problems and their solutions that are of a much smaller scale are now left in the margins. Therefore, I do not claim to provide an overview of the realities of local energy needs but instead of the imagined realities as the national and regional leaders choose to present them, acknowledging the significant bias involved. However, I claim that even though the official documents and mega projects offer a biased view of Arctic energy politics, they still shape many of the choices available for all actors in a situation where all resources are highly centralized.

4. Case studies

4.1. Case study 1: Tiksi wind park

Renewable energy began to gain ground in policy texts after the presidential decree of 2008, which linked renewable energy with reducing waste and increasing energy efficiency, a goal that has since become a top priority in Russian energy politics – at least on paper [57,58]. The Russian wind energy industry witnessed modest growth in investments, both in remote and more urban areas of the country, after the implementation of a capacity-based renewable support scheme in 2013. This marked the first systematic support measure for renewable energy. It was followed by another decree in 2015, which, however, mostly benefits the solar power industry [25,59-61]. The localization decree of 2013 rules that if a renewable energy project meets the standard of producing a certain share of its components in Russia, it is entitled for a guaranteed return on its investments [62,63]. However, namely the strictness of localization standards has also held up the growth of renewable energy markets because local production often does not yet meet the demand [58,59].

In the years following the presidential decree, several regional programs and decrees linking energy-saving and renewable energy together with socio-economic development emerged. The regional energy optimization program of 2011 mentions investing in the Tiksi wind park as a way to increase the efficiency of energy deliveries to decentralized settlements [64]. A few years later, a federal program on energy efficiency and energy development (with a subprogram on renewables) recommended utilizing renewable energy in the electricity sector to improve energy efficiency and boost the Russian industries in general. The subprogram set aims for localizing wind, solar, and small hydro power production to reach energy saving goals, with a special emphasis on investments in wind energy [17].

In 2014, several documents laid the foundation for new energy projects, making it a decisive year for the regulatory and policy development of renewable energy in Sakha. The Regional State Assembly declared 2014 as Year of the Arctic and 330 million rubles (over four million USD) were allocated to new energy infrastructure, among them the Tiksi wind park [65,66]. At the same time, the regional law ‘On renewable energy sources in Sakha Republic (Yakutia)’ coined the need to develop renewable resources [67]. In 2016, RAO ES East published its own energy saving and energy efficiency improvement program, declaring that 178 solar and wind stations should be built in the Russian Far East, including Sakha, in the near future [68].

Around the same time, Russia linked renewable energy development to broader national goals. The regional socioeconomic development program followed the national direction of establishing core development zones (for their outline, see Fig. 1). According to this plan, Tiksi is an integral part of the Northern Yakutian core development zone due to its maritime port, which should become an important junction along the Northern Sea Route. Building new energy infrastructure there ensures supply to meet the increasing demand for electricity when, if all goes to plan, Tiksi becomes a major transport hub [69].

The Tiksi wind park project launched officially in late 2016, when the Republic of Sakha, the regional energy company RAO ES East, and the Japanese Organization for the Development of New Energy and Industrial Technologies (NEDO) signed a declaration of intent. RAO ES East is a daughter company of RusHydro, Russia’s largest hydropower company [70]. The wind park was built upon cooperation between RAO ES East and a Japanese company Komaialtetc with the capacity of 900 kW, and the operator of the wind farm construction is a subsidiary of RAO ES East, “Peredvizhnaja Energetika” [71,72]. The wind park

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started its operation in November 2018, and the construction of a diesel power station on side was planned to be finished later [73,74]. According to estimations, combining wind energy with diesel fuel should decrease the overall price of electricity by 25% in the Russian Arctic [5].

The wind park is a good example of a consortium that often forms around a renewable energy project in Russia and consists of a foreign investor, a big national energy player, and smaller local companies that manage practical issues [62]. Its purpose was to advise future projects in remote Arctic locations and for this reason, the Japanese partner NEDO gave the equipment to Russia free of charge [73,75,76]. Previous attempts to set up wind energy projects this far North have failed due to extreme weather conditions [5].

The habitual dispositions, or toolkits, visible at work in this case are similar to those linked to mega projects in general and include the use of centralized rule state-owned companies and top-down regulation instead of supporting, for example, municipal initiatives that would cater to the needs of local stakeholders instead of those of extractive industries. Truly local projects would involve comprehensive, grass-root level development of small-scale energy systems in remote settlements and although they would be less expensive, they would require municipalities to have more control over their resources and, as a result, more habitual adjustments from the part of institutions, making them a less desirable prospect. Experiments and mega projects such as the wind park in Tiksi promise exciting ramifications (such as turning the whole Arctic into a modern transport hub and a resource base) yet entail little need for questioning existing habits. In short, they are ideal projects for an actor not too keen for change. Large renewable energy projects offer relatively quick add-ons to the existing structures and for this reason, projects featuring more systematic change and actually addressing energy effectiveness and energy saving problems are less likely to receive federal attention.

It is therefore unsurprising that the current support schemes would fit better to the much larger scale and operations of fossil fuel industries than with those of renewable energy. In their current form, they are unlikely to help meet the national energy efficiency goals linked with renewable energy or solve the energy security problems of small, isolated communities. These kinds of discords reveal stagnant habits: even though the old model of practice has ceased to bring the results it should, its use continues until strong external pressure compels otherwise. Nevertheless, the new wind park does bring forth some changes. The socioeconomic balance shifts as the state spends more resources in certain locations over others, and power relations between industries also fluctuate, possibly creating openings for new practices in the margins of the dominant ones.

The role of renewable energy and the new transport corridor related to the new core development zones (which represent an institution) is to serve as a supplement for the established habits of fossil fuel consumption. Improved regional energy security would bolster all institutions involved against unpleasant surprises, allowing the status quo of extraction and burning of fossil fuel to continue. Similarly, the new transport corridor is linked to broader aims regarding commercial traffic along the Northern Sea Route, ultimately increasing general trust in the state’s view that climate change will generate profit for the Russian Arctic. If this were the case, it would entail that no fundamental, structural changes in either habits or current energy institutions were necessary, and only minor improvements would suffice. This is an example of how institutions and habits intertwine and reinforce each other.
4.2. Establishing the company “Arctic Roads”

During the last decade, accelerating climate change, melting permafrost, and the consequent disruptions in fuel deliveries have accumulated extra costs for maintaining the Northern Delivery system [21]. After the collapse of the Soviet Union, municipalities received more autonomy to organize local issues and therefore the financing and management of the Northern delivery system was not uniformly regularized at the national level for 15 years [77]. The problem of this post-Soviet reform is that the budgets of municipalities were never increased to match their new responsibilities, leaving them highly dependent on federal subsidies when unable to attract private investments [1]. Since plans for developing the Northern Sea Route entail vastly improving the region’s transportation network and energy security to support the large logistics hubs planned in Sakha, plans for new, more centralized delivery chains have also been gaining ground [69].

The current fuel delivery system is overseen by the regional Ministry of Transport and Road Facilities, responsible for both road and river transportation. In practice, residential heating is managed by the regional Ministry of Housing and Communal Services and by the state-owned enterprise in charge, also called Housing and Communal Services and established by the president of Sakha in 2003 [78]. As for the logistics of energy deliveries, they fall under the regional energy company Sakhaenergo (subsidiary of Yakutskenergo, and ultimately Rushydro) [79,80].

The regulatory work done in the 2010s maintained fuel deliveries under centralized, state-owned actors instead of municipal, decentralized, or private ones. However, the need for a more efficient management of fuel deliveries remains urgent as remote settlements have regularly faced many uncertainties regarding fuel supplies during the last decade. One problem is the sinking water level of the main river Lena and its tributaries and insufficient dredging work conducted there, another that coal from the company Yakutugol’s Yebarki-Khaya mine has not always met the quality standards required to ensure energy supply for the whole heating period [81]. Moreover, the ice-free season is very short, so even when the cargo ships are able to get through, delays are substantial [82]. In 2013, the Lena United River Shipping Company (LORP) was prosecuted for neglecting its duties regarding the Northern Delivery after completing only 35% of deliveries planned for that year [83]. These types of unpleasant surprises are typical examples of external pressure that makes stagnate habits visible.

As a solution to these issues, the region decided to first modify its toolkit only slightly and replace most of river deliveries with trucks driving on (seasonal) roads [84]. However, as traffic on all roads has increased, melting permafrost and consequently worsening road conditions have raised overall concern and further undermined the vulnerability of the current, rigid system that leaves very little room for spontaneous responses [85]. All these problems combined have significantly raised the cost of fuel deliveries. Already in 2006, the republic estimated that the losses linked to underdeveloped transport infrastructure rose to 18 billion rubles (circa 230 million USD) [86]. To solve the problems stemming from irregular fuel deliveries, the republic has allocated more resources to road maintenance via institutions such as the regional Road Fund, established in 2013 [87]. For a start, the regional fund received 720 million rubles (over nine million USD) from federal excise taxes on oil products and the federal Road Fund. Its initial aim was to increase the resources available for regional road maintenance by 2020 and to redistribute money as subsidies for separate road programs [88].

In August 2014, by the order of the Republic of Sakha, a state-owned enterprise “Arctic Roads” was established to manage the maintenance of regional and inter-municipal roads [87]. The republic assigned a total of 4500 km of roads under its responsibility, of which 90% were seasonal roads (over half of which ice roads) [89]. After its establishment, the company has worked on opening new roads and buying more equipment [90]. In 2016, the Ministry of the Russian Federation for the Development of the Far East and Arctic declared that by 2019, up to 85% of the total length of federal roads and 30% of regional roads should be regulated by Arctic Roads [91]. Despite all, Sakha had to declare a state of emergency already in 2017 after only half of the planned deliveries were made. The regional prosecutor’s office questioned the directors of Arctic Roads, alongside other actors responsible for managing regional fuel deliveries, about possibly violating their duties [92]. However, the regional State Assembly noted the same year that regional legislation should be modified so that the new company could take over the maintenance of all winter roads [93]. Since the establishment of Arctic Roads, many roads that used to be municipally maintained have transferred under the control of the republic [94]. As with the Tiksi wind park, local infrastructure and fuel delivery needs are linked with the broader development goals of Sakha and the Russian Arctic. The general goals behind the creation of Arctic Roads can be found from the “Comprehensive Program of Socio-economic Development of the Arctic from 2014”, which follows the goals of the Year of the Arctic of 2014 in Sakha. After stating that underdeveloped energy and transport infrastructure, as well as the isolated position of several settlements, are among the main problems hindering Sakha’s overall development, the program calls for reorganizing the region’s road networks into a more centralized and comprehensive form [95]. Regional officials believe that the opening of the Northern Sea Route for commercial shipping will link Sakha’s rail roads, waterways, and highways with the national development priorities for the whole Arctic zone, and thus the region expanded its road fund in 2014 to match the needs of the Northern Sea Route project [21]. The region wishes that transporting fuel via the Northern Sea Route could further optimize regional fuel deliveries by opening up new nodes of traffic and making deliveries more reliable [96,97].

The new state-owned company correlates well with the national aspirations to centralize land-based energy delivery systems. An overall goal, already mentioned in the national socio-economic development strategy of the Arctic regions of 2014 [17], is to shift from seasonal deliveries to continuous ones. In 2016, the share of roads maintained by Arctic Roads increased. The regional socioeconomic development strategy from 2016 proposes creating an all-season transport network and improving year-round accessibility to settlements in order to adapt to the increasing share of expenditure on transport. The strategy states that by 2030, 90% of the regional population should have access to continuous transport in order to meet the future demands of the Northern Sea Route. These aims require profoundly deepening the integration of municipal development and significantly extending the operating time of winter roads [69]. Several other policy documents also present the decentralization of energy deliveries as a key weakness threatening the socioeconomic development of the region (for example [64,78,98]). Therefore, aims for continuous on-land fuel deliveries also link with the national strategy of core development zones in the Arctic and the larger transport and logistics hubs involved [69,99]. Sakha’s most recent socioeconomic strategy of the Arctic zones also continues the work for a unified transport corridor between the Arctic Ocean and Yakutsk [98].

The Northern Delivery is an institution that is neither economically, socially, nor practically the best choice for the energy needs of the Arctic, yet there it is. An institution that functions poorly still offers predictability and fixed resources, so remodeling it into something more efficient would be bound to leave room for unpredictability. As the region reorganizes its fuel delivery system, some parts of the change are more, such as the actors in charge (a state-owned company instead of municipalities) and methods of transport (by road instead of river). What does not change is the overall logic of bringing fuel outside the communities, instead of, for example, supporting local micro generation from renewable energy sources or withdrawing state presence and control from the North.

The essence of the habitual disposition remains although parts of it are more subjectable to change. Aims to, as the term goes, “modernize
and optimize” the fuel delivery system also legitimize its existence by counting out the option of dismantling it, and thus reinforcing the habit of thought that the legacy of subsidized heat must remain as a core pillar of the Russian Arctic, despite the problems it causes for socioeconomic development. As this habit is reinforced, so is the legitimacy of the current rule, because succeeding in these goals justifies strong state control in the area and makes demands for change uncalled-for. Once again, the logic behind mega projects such as the new transport corridors is more about preserving old habits as about building new ones.

5. Results

The first aim of this article was to discover how and to what extent do the processes within these cases differ, and what are the core characteristics that link them together. To sum up, both projects carry both the legacy of the Northern Delivery system and the logic of mega projects within themselves and balance between new and old courses of action. For example, the regional energy company RAO ES East, a key player in the building of the Tiksi wind park, is a type of a hybrid actor because it is closely linked to the national level via its connection to the state company Rushydro, yet also formulates its own renewable energy policies. As for Arctic Roads, the national level offers the project a solid foundation by distributing resources and listing broader directions, while the practicalities and management of redesigning fuel deliveries fall under the region’s responsibility. Private energy and transport companies have remained largely absent in planning and executing both projects, underlining their role as a public (federal) project.

Russia reacts to new problems, such as the melting of permafrost and the increasing global demand for renewable energy at the expense of fossil fuel exports, by reforming its existing habitual dispositions via familiar tools, often similar to those wielded to further other national priorities such as the Arctic mega project. This approach is not characteristic only to Russia but to global action against climate change in general. In problem situations, actors mobilize their habits and capacities such as human and monetary resources in ways that have worked before [39]. Mega projects thus represent a hope that it would be possible to create a bypass from the frustratingly slow and unsteady realities of habitual change. However, also this tool is deeply embedded in established habits of thought. As such, both projects can be explored from two viewpoints: they may represent a continuation of the old habitual dispositions in a different form, or seeds of new ones gaining foothold by playing by the rules of the established institutions.

Based on these examples, the Russian regional energy systems appear to evolve first and foremost via mutual adaptation between local, regional, and national levels. Both projects refer to and are referenced in policy documents that pertain to larger national development projects, preparing them to become a part of their structures in the future. Solving the problem of heat supply is linked with several other infrastructure projects and their actors, such as building the Tiksi port and new railway lines connecting future transport hubs. Completing these ambitious infrastructure projects requires establishing unified, year-round fuel delivery, presumably with the help of Arctic Roads and the Tiksi wind park. By providing new tools for the use of national and regional decision-makers, these energy projects may help maintain the existing socio-technical system and introduce new goals, new means, and new solutions so that larger structural reforms might not be needed. As a habitual disposition is never either “on” or “off” but in flux, it may simultaneously be in crisis and work towards preserving itself. If the process of reforming the Northern Delivery with the help of these new additions is successful, it would imply that a stagnate habit has succeeded in becoming reflexive and in generating creative solutions again. This remains to be seen.

The planning stage of both projects reflects the processual nature of action and the overlapping between habitual and reflexive thought, where new goals and means mix with the old ones. The Tiksi wind park and Arctic Roads entered the policy-making context of Sakha in a situation where there already were other goals in motion, which the republic and the state had established earlier, such as the long-planned bridge across the river Lena. Projects such as the wind park and Arctic Roads represent new resources by linking existing goals to new mega projects and their resources, such as the new ‘core support zone’ (Fig. 1). In short, regions may discover new means and alter their priorities according to them while in the process of seeking to accomplish the same goal.

Does the tight relationship between national priorities and regional energy projects imply that all renewable energy installments are merely cosmetic changes? I believe this is not the whole truth of the matter, since the ruling powers must somewhat adjust their existing structures as well, since it has become apparent that the current fuel delivery system is outdated. The situation has resulted in some state-supported openings for new players, such as the including of renewable energy into national legislation and policies that link renewables with energy security and energy efficiency goals. It is therefore likely that the share of some of the less efficient, more expensive, or otherwise outdated methods of producing and transporting energy (for example, delivering coal by river) will fall, giving other solutions more space to expand. And as new solutions spread and gain ground, they become more habitualized and blend into the existing framework of problem solutions. Positive development then further binds the decision-makers to their choices, creating new types of path dependency. New practices are also born out of necessity when old habits fail to provide solutions to new problems, with larger implications to social structures along the way [40]. Even in Russia, new practices may emerge out of simply practical reasons.

The second research question concerns the future prospects of renewable energy in the Russian Arctic. As discussed above, Russia is not prepared for accommodating renewable energy as this would require a fundamentally more flexible and decentralized regulatory and market system. Instead, the national efforts regarding renewable energy are directed towards mega projects such as large wind and solar parks — Sakha is also home to one of the country’s biggest solar parks, in Bata-gay. Large renewable energy projects fit to the current habitual disposition of supporting domestic production of energy technologies, aimed for larger markets, and help create an image of modernity. Although renewable energy in the Arctic may seem like a significant change of practice for a fossil fuel producing region, the number of established actors from large national energy companies involved in the building of the wind park demonstrates that its creation required neither breaking up nor restructuring institutions.

Russia sits on two chairs as it claims to optimize its energy delivery system in the Arctic while holding on to the spirit of Northern Delivery. The way how reorganizing energy deliveries are used as a way to ensure the completion of broader priorities, such as attracting international investments and boosting national industries, resembles how the Northern Delivery originally paved the way for Soviet monowon and extractive industries a hundred years ago. Similarly, the Russian state is not prepared for the melting of the permafrost and the ensuing damages to roads and heavy infrastructure and aims to mitigate the problem by relying on familiar resources, such as target programs and increased monitoring [100–102]. These parallels remind us of the pragmatist view of action not as linear, but cyclical process.

6. Discussion

This article set out to explore what the pragmatist tradition, somewhat less known in the study of social change than some others, might have to offer for research on sustainability transitions, particularly in the Russian context. It has proven to be particularly useful in exploring the following issues. First, pragmatism helps us understand the unsteady development trajectories that any kind of transitions tend to take. If habit and reflection within action processes are understood as cyclical and overlapping, it is no longer surprising why transition may at the
same time evolve and cling into old habitual solutions. Instead of focusing on the intentions and the level of motivation of various actors in the field, pragmatism directs us to explore how the transition processes themselves progress.

This emphasis allows us to pay attention to transition processes also in situations where all actors involved have bias towards maintaining the current fossil fuel burning system. Furthermore, the pragmatist view of goals as something flexible and prone to change during action helps relieve the researcher of the pressure, often present when analyzing Russian politics, to discover what the decision-makers “really want”. While this question is certainly a part of the puzzle of energy politics, over-emphasizing initial goals prevents us from seeing and analyzing the multifaceted reality of institutional change and its unpredictable turns. If goals are understood more as an interactive and fluid element, and action as an on-going cycle of spontaneous adjustments rather than as a pre-planned affair, there is no longer need to determine when, and under which conditions, a sustainability transition “begins.”

To conclude, a pragmatist approach not only explores the structural inertia caused by habits, but also offers viewpoints on how to transcend it. A justification that is often present in both energy policy-making texts and within the reasoning of active participants argues along the lines that a new energy solution should be implemented because it ‘makes sense’ or ‘is the most reasonable’ within its context [23,28,103]. From a pragmatist point of view, it may be that this argument actually refers to the power that a certain practice has as a mediator between new and old, in a way that least disturbs the habitual order. Discovering how new energy policies could enter the field by weaving their way through existing everyday habits, instead of attempting to cut through them, helps introduce sustainable policies in a way that would meet less resistance. On the other hand, making drastic changes may also work if done in a strategic manner. Policies seeking to modify habitual actions may be more likely to succeed in situations where new practices coincide with other changes happening in the everyday environment [as suggested by 56]. Policy-makers driving for sustainable transitions could create these windows for opportunity by aligning various reforms and forming clusters for new actors in the field, so that the resulting inertia in existing habits would not have to happen repeatedly but as a controlled rupture.

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**Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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