



**Negotiating and stabilizing new governance arrangements
for international energy markets**

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Abstract

Jessica Crivelli is a PhD Student at the Institute of Political Science, Department of International Studies, University of Zurich, Switzerland. In this short piece, she examines how bringing materiality at center stage in the analysis of utility planning processes can contribute to innovative and sustainable energy policies. She takes the example of international cooperation for the construction of a hydroelectric power plant in South America.

Framing the debate on energy transitions

With the acceleration of societal and technological developments, the general interest in energy policy has gained renewed power: public media, academia and public institutions are constantly engaged in raising awareness that the current globalized lifestyle is not sustainable and that some form of energy transition is either ongoing or needed. From the vantage point of political science, the discussion is mainly framed in terms of two predominant academic discourses that emphasize either the competition over natural energy resources between states or their intention to establish some form of new international governance that will allow for a better management of these natural resources.

In both types of discussions, the development of further renewable energy resources is frequently adduced as a key factor for a successful transition and binational initiatives play a huge role in the international arena with this regard. Should a country be joining forces over technical expertise, knowledge, financing and thereby achieve a larger renewable share in their energy matrix in less time? Or is this a strategy that in the end only exacerbates the sovereignty of the national state leaving it more vulnerable to external threats? Put differently, the media ask: should the state preserve its authority over national resources or join governance initiatives to insure itself some leeway in the case of a future bottleneck of energy supply?

To answer this question productively some preliminary words are required. In fact, both the competition and the cooperation literatures work with a set of assumptions that are not innocent and which I aim to evade here. First of all, assuming a game of competition or cooperation over energy resources among states is only possible if one assumes a clear

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divide between the individual state units, i.e. between what is national and what is international. Additionally, such debates are inevitably based on two other clear divides which are the human/non-human divide on the one hand and the social/political divide on the other hand. Operating with these divides, be it either analytically or practically, means automatically ascribing power to certain entities over others, which might not lead to the most innovative outlooks for future energy production and trading.

In what follows I thus want to suggest a fresh perspective on future international energy production and trading by drawing on my case study on the cooperation of Argentina and Brazil to construct a joint hydroelectric power plant. This project is understood here as one of the many instances of energy transition in the sense that Vaclav Smil has remembered them to have taken place every day over several decades (Smil, 2010). The binational plant is not materialized yet in terms of constructive works but is nevertheless 'alive and kicking'. A vast array of project teams, documents, utilities and sites are drawn together in an attempt at successfully discussing and ultimately planning the project. This planning phase testifies how multiple simultaneous and interrelated innovations in the overall 'world' system are implicated when a change in one point of the electricity network (i.e. a new plant to be integrated) is sketched out. By drawing on this case study of the Garabi hydroelectric power plant between Argentina and Brazil (but that could be situated anywhere in the fast changing energy landscape of Europe, too), I thus aim to illustrate how power cannot be ascribed blindly to any one actor or group of actors but instead emerges out of the multiple and intricate relationships among heterogeneous actors that are not unequivocally classifiable according to the above mentioned national/international, human/non-human, social/political divides.

Bringing materiality in

While there is a general awareness both in theory and practice that there is a need for more encompassing and thus multidisciplinary approaches to contemporary energy issues, very little research has been dedicated to gather further knowledge on how exactly different areas (as planning, financing and operating energy infrastructure, the management of technological innovation and renewable energy sources, the spurring of economic growth, energy security and integration) are interconnected and dependent on each other. At present, linear and thus functionalist perspectives on how to relate existing and future energy resources to future energy policy still dominate the discussion of energy in the fields of politics, economics and engineering.

The view that I take on the general topic of new technical infrastructures for energy, and that I illustrate by means of an example from the emerging economies of the South, is that energy

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policy is characterized by a multitude of simultaneous and interconnected relationships between heterogeneous human and non-human elements from different social, political and technical areas. Coming from this conceptual angle it is possible not to frame the currently ongoing energy challenges as an unexpected transition (which includes new divides as old/new, from/to) but as a re-composition of the energy market that links together both old and new human and non-human actors from the realm of the technical, the social and the political. In a nutshell, the quality of the project that becomes ultimately realized is a singular and emergent property of the interplay between all of the (specific) actors that converge around the utility at hand and not one that can be ascribed to well-known modalities of bureaucratic cooperation. In other words, utility planning processes are better not approached from the standpoint of the involved decision-makers but around the (blunt) materiality of the planned energy utility.

Negotiating and stabilizing new governance arrangements for energy

Starting the analysis at the material entry point of a new hydroelectric power utility in South America, a myriad of material contingencies become spontaneously visible that intrinsically shape human decision-making along the process of facility planning and network expansion and which cannot be relegated to the fringe of technical-bureaucratic decision-making. Rather do these material contingencies have an organic distributional power as they endogenously enable or hinder certain project developments.

In the specialized literature on the built environment it is largely known that infrastructures can be regarded as "processes that have to be worked towards" (Graham, 2010: 9). The type of utility as well as the type of service delivery are far from being neutral but are the result of a joint effort or 'performance' of human and non-human actors who together negotiate matters of wealth distribution, cost estimates, electoral calculations, etc. In other words, integrating materiality into our analytical frameworks helps us to work toward the development of new analytical conceptualizations for the organization and governance of a political reality that has outgrown the originally developed territorial demarcations. Technical artifacts and specifically large technical infrastructures play a pivotal role in constructing and stabilizing those new collectives, they are mediators of history and time (MacKenzie, 2002: 104).

Thus, as the realms of energy and energy policy-making are currently in a phase of re-composition, a wide range of roles and relationships are in the process of being renegotiated. This negotiation takes place in a dynamic process of (non-linear) interaction among the various human and non-human actors - a process in which different windows of opportunity

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for the planned technical infrastructure emerge according to which definitions of actors, identities, interests and discourses are momentarily fixed by the participants as part of a contested road to a potential mutual agreement, and then are eventually stabilized through the implementation of the plant.

There is no such thing as a 'primitive' or 'essential definition' of a utility. Instead this object needs to be exercised in a specific event or practice in order to become visible. In this conception, meanings (and thus also plans for a specific utility) need to be perpetually applied in order to persist. Without the effort to continuously sustain the selected meaning by exercising it, it will inevitably deteriorate. This is relevant insofar as an implemented plant too, as materially fixed as it may be, can be staged and restaged as something different at different points in time by the involved actors (e.g. when inaugurated, during operation, or eventually in hindsight) or also by the future generations who will use it. The following interview extract illustrates how the meaning of a utility morphs over the years so as to transmute into several different projects with different heterogeneous actors involved depending on the time and space where it is discussed:

Conversation held on June 24th, 2011, ANEEL, SGAN 603 módulo J, Brasília, ca. 14:00h, the interviewee is the head of one of the regulatory departments at ANEEL.

I: The history of Garabi was... It started... I guess it was in 1997 because of the necessity of Brazil to buy energy from Argentina. Brazil needed energy and Argentina had an overcapacity. Thus the Brazilian government promoted a call for tenders, an international bidding procedure for an individual entrepreneur to come handle the commercialization of this energy and as a function of the commercialization would be responsible for investing into the utility. [...]

Jessica: But the plant I am talking about does not exist yet?

I: Oh, I see your talking about Garabi the power plant, on the frontier.

Jessica: Yes, the hydroelectric plant.

I: What I can talk about is about the existing Garabi, the converter station. The power plant also needed a study of course, which existed at the time already, I mean before we implemented Garabi the converter station. [...]

The complete study encompassed the generation station on the frontier of Brazil and Argentina, at the basis of this plant, and the converter station. Because, I guess that Brazil and Venezuela work their system with 60Hz but the other countries with 50Hz... Thus there was the necessity for all the connections here to be converted. [...]

But the idea that I have, the one that I know is that both were planned: the implementation of the hydroelectric power plant and of the converter station. But only one was implemented at that point in time - Argentina had overcapacity and Brazil needed capacity and thus the tender was promoted in a way for the investor to be responsible for the implementation of the utilities. [...]

Thus the problem I see [with international infrastructure planning, AN.] is this one: it's the disposition of governments to fulfill the contracts that they agree to. Something that may happen... I consider that historically the contract was signed in a specific political period, of the whole region. And then we had a change in terms of government, the new decision-makers deemed that that specific contract shouldn't have been signed and thus...

We can discover several things in the extract quoted above. Most importantly however we can recognize that the fixation of meaning regarding the hydroelectric power plant under investigation here has changed several times over the years. In a condensed way the interviewee expresses how the (hi)story of the converter station of Garabi is linked to the previously planned power plant of Garabi (first inventory studies were carried out in the

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1970s) and that a change in the material capabilities of Argentina (gas crisis in the end of the 1990s) led to the emergence of a different planning scenario between the two countries. Whereas the need had been earlier to standardize the frequency among the two countries to allow for energy trading, the focus has then shifted to allow energy trading altogether (period of gas shortage) and last to allowing joint production of trading (energy shortage in general). The shifts have emerged as a result of many interacting factors, specifically by the material proximity of the converter station and the location of the plant, the latterly accomplished and promoted friendly relations between Argentina and Brazil (compare some years before: it would not have been possible) and by some unforeseen reasons as e.g. the impossibility of discovering gas to one of the parties to the trading agreement.

The added-value of new analytical conceptualizations of energy transitions

What does this insight mean for the current debate on energy transition and the practice of international cooperation? First of all, it shows us that the planning of new energy infrastructures between two or more states is a dynamic and fragmentary issue: no matter how proficient the human actors that participate in it, the planning of a large technical utility is inevitably characterized by significant degrees of uncertainty that cannot be improved by including more documents in advance but have to be tackled (consistently) 'on the go'. Second, this finding show us how unfruitful it can be to frame the current energy debate around a 'transition' from 'national' to 'international' demarcations because the question here is rather one of a re-composition of both old and new actors across spatial and temporal divides than of an overall reformation. For example, while the cooperation at hand is still one between Argentina and Brazil, the leaders of both countries have changed over the years and so have (only) parts of their staffs (while others have remained) as the interview extract shows. Thus, while we still act on the assumption that these countries are involved in the cooperation, we must take a closer look to ascertain who represents them and how at every singular moment in time (the same is true for other involved collectives from the public and private arena). This more open conceptualization of a re-composition (vs. a transition) helps us not to fall into the trap of commonly accepted black boxes and the encompassing 101-solutions but instead invites us to really look at the contingency of cooperation for every single case, which is central to negotiating points of contention in the political arena. Third, and last, the extract vividly illustrates how technical infrastructures stabilize new social and political collectives: while the power plant Garabi was not realized during several years, the converter station of Garabi laid an essential foundation for further political collaboration between Argentina and Brazil on the topic as it got the parties used to collaborate and as it also minimized some costs for a new connection between the two

territories. Socially, the converter station has linked up the everyday life of two (otherwise) distinct national populations, as it is frequently used for the exchange of energy between the two countries during the winter months (as they display complementarities in this regard).

In short, to bring materiality at center stage of the analytical picture and to analyze utility planning processes on the basis of the interactions that take place around this materiality would thus be immensely more productive than relying on conventional and abstract categories of collective agency as it allows us to achieve those 'creative' and innovative solutions that are needed for the constitution of a sustainable energy market far better.

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