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A National Law as an Actor–network: How Guatemala’s General Electricity Law of 1996 Shaped the Country’s Environmental Conflicts over Hydroelectricity

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This paper uses controversy mapping to study the history of Guatemala’s General Electricity Law (GGEL, 1996). Particular attention is paid to the impact of the GGEL on social conflicts related to hydroelectricity. This article discusses how an array of actors –right–wing political parties and influencers, the ‘El Niño’ Phenomenon, the international wave of neoliberalism and a malfunctioning dam– coalesced to promote a law intended to modernize Guatemala’s energy market and expand its electrical grid.

Twenty years later, GGEL remains a relevant actor in the conflicts around new hydroelectricity projects. However, counter to the intentions of its promoters, this law has helped to fuel controversy.

First, it indirectly imposes restrictions on negotiations among project stakeholders by forbidding the sale of energy to third parties; thus, it deprives actors of their strongest bargaining asset. Second, GGEL makes territorial interdependence invisible, shifting the costs and responsibilities from the government and companies to communities. Finally, while other studies have simply portrayed GGEL as a result of neoliberalism, an Actor–network theory (ANT) approach provides a broader picture of its origin and impact by taking into account the GGEL’s role as a non–human actor.

Keywords: Actor–network theory; environmental conflicts; hydroelectricity; controversy mapping

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The Guatemalan energy contradiction

Guatemala's Human Development Index is the third lowest in Latin America (United Nations Development Programme, 2016). One overlooked cause of this low score is energy. As of 2013, more than 50% of Guatemala's energy consumption came from domestic biomass, i.e., firewood (International Energy Agency, 2016), obtained in an unsustainable manner. This consumption is an indicator of environmental degradation, lack of access to electricity or gas, and a high incidence of respiratory diseases. Reducing the use of unsustainably obtained biomass and replacing it with a sustainable source would be a good step toward improving Guatemala's human development.

Guatemala has the potential to achieve this improvement. The Guatemalan government's document *Política Energética 2013–2027* (Guatemala, Ministerio de Energía y Minas, 2013) estimates that less than 15% of the country's energy potential for hydroelectricity is being used currently. That potential supply is enough to satisfy current and future domestic demand and even export energy to neighbouring countries. This potential contrasts with the current reality that 40% of the country's electricity is generated using imported fossil fuels (Guatemala, Ministerio de Energía y Minas, 2016a), which causes higher prices and larger carbon emissions.

A common sense perspective would mean that these two situations have a common solution: exploit the underused renewable resources to make the supply of energy larger and cheaper, especially for that portion of the population with the lowest human development. This solution would allow them to abandon their unsustainable firewood use and its negative impact.

In 1996, the Guatemalan Government claimed that it would address this problem by privatizing the public electricity utilities and passed the General Electricity Law, which de-monopolized the electricity market. The idea was that the necessary expansion of the electrical grid would be fostered by competition and private investment. Now, 20 years later, there are 19 hydroelectric power plants in operation, and another 30 will start operation within the next five years. It would seem that this is a story of policy success, and of a government working to improve people's lives.

However, the expansion of hydroelectricity resulted in conflict with a significant part of the nearby communities. Orantes (2010) reported that in 2010, there were verified reports of 27 protests or conflicts in 9 departments (provinces), where a total of 18 projects were authorized or in operation. This aspect of the expansion of the electrical grid was

unexpected, and it delayed, and in some cases completely halted, the development. Something clearly was not taken into account when this endeavour started.

This article reports the partial results of a research project on this hydroelectricity expansion in Guatemala. The project consists of two parallel inquiries, one of which is a map of the controversy around hydroelectricity projects. As the cartography of the controversy advanced, one element emerged as central to the issue: Guatemala's General Electricity Law of 1996 (GGEL). Hence, a more precise account of its history is needed. That is the main purpose of this paper.

Theoretical and methodological framework

This case is analysed using Actor–network theory (ANT). ANT, according to Latour (2005), is both a theoretical and a methodological approach to social research. One of the most important contributions of ANT is the principle of symmetry (Latour, 1987) which, among other things, states that, in research, non–humans are to be treated equally as humans, i.e. studied in the same way. Therefore, non–humans can be actors (or as Latour calls them, 'actants') and are capable of agency in the face of others. This fits particularly well in this case, since the principal subject is a non–human entity, Guatemala's General Electricity Law (GGEL). The purpose here is to show the network of actors and trajectories that converged in the passing of this law, but also how those actors, and even others, were also influenced or transformed by GGEL.

The methodological dimension of ANT is usually referred to as controversy mapping (Latour, 2005). A good introduction to the subject is the article by Venturini (2012) that details how ANT's approach translates into method guidelines. As an example, this method has been applied successfully in the work of Neresini and Lorenzet (2016) to cases in the Italian context. Furthermore, dedicated software tools have been developed recently for mapping controversies, thus allowing researchers to organize, analyse and visualize information on actors and events (Sciences Po Medialab, 2016).

The narrative presented here is part of the first phase, based on document research and journalistic coverage of the events; in particular, the online archive of *Crónica* (Universidad Francisco Marroquin, 2013), a Guatemalan magazine that was published from 1987 to 1998, and was one of the most credible sources of the time. Every news story, opinion article or

small note in *Crónica* related to the Guatemalan electrical grid was registered in a spreadsheet. Then, a timeline that pointed to key actors and events was made based on that list. Additional sources were used to establish connections among them, with the aid of digital resources.

Assembling GGEL: How Chixoy Dam, neoliberalism and an armed conflict converged in a new electricity law

For the purpose of this paper, a good starting point is the development of the largest publicly-owned hydropower plant in Guatemala: Chixoy (1978–1985). This project was designed to provide more than 50% of the electricity needed in Guatemala at the time, and bring stability to the electrical grid. However, its development turned out to be a managerial nightmare: it took more than twice the projected building time, its budget quadrupled (from USD \$187 million to almost \$800 million) and when it was finally opened in 1983, a critical flaw in the tunnels delayed its operation until 1985 (Velásquez and Mazariegos, 1991). But the problem was not solely inefficiency; the plant was built within a context of a state effectively under the control of the military as a result of an armed conflict with a leftist guerrilla movement. This conflict became, around the time that Chixoy was being developed, a human rights tragedy, since the Guatemalan Army started massacring entire Mayan villages as part of its war strategy. One of the best documented episodes was the Rio Negro Massacre, in which more than 500 people were killed, including women and children. It was perpetrated in order to evict the Maya that lived in the area destined to be flooded by the Chixoy dam (Comisión de Esclarecimiento Histórico de Guatemala, 1999).

Two public utilities in a military-dominated state

Just the Rio Negro Massacre is enough to think of Chixoy as one of the most shameful episodes in modern Guatemalan history. But Chixoy also represented the inefficient management of the state in those times. In a government controlled by a military undertaking counterinsurgent operations, military commanders devised corruption networks that were so powerful that they have survived to this day. In its efforts to uproot them, Guatemala is the first country in the world to have an UN-approved foreign Prosecutorial Commission to fight them, the International Commission

against Impunity in Guatemala (CICIG) (Comisión Internacional contra la Impunidad en Guatemala, 2016).

After a coup in 1982, and a new Constitution in 1985, Vinicio Cerezo, from the left–centre party Democracia Cristiana became (in 1986) the first democratically–elected president of Guatemala in decades. The year after his election, the first crisis of the electrical grid occurred, when the water level in the Chixoy Dam descended below its functioning minimum. A report from *Crónica* at the time cited as causes the inadequate operation and maintenance of the plant and deforestation in the surrounding area. Old thermal power plants were reactivated to avoid power outages countrywide (Anahté, 1987).

The government entity in charge of the electrical grid in most of the country was the *Instituto Nacional de Electrificación* (National Institute of Electrification, INDE), except in Guatemala City and three departments, where it was the *Empresa Eléctrica de Guatemala* (Guatemalan Electrical Company, EEGSA), a mixed–capital company owned mostly by the State. The situation at the time is described in the webpage of INDE’s labour union, STINDE, as follows: ‘full of cronies and overstaffed; management engaged in labour abuse to the extreme of assault; constant sexual harassment to women, layoffs without justification; all–level corruption, and intervention by the military’ (STINDE, 2015).

Operational malfunctions and overall mismanagement continued over the years. The energy crisis reached a peak in 1991 when, in addition to all its problems, a drought caused by the climate phenomenon *El Niño* reduced the level of water in Chixoy dam to a historic low. Two months of programmed power outages were scheduled to prevent the collapse of the electrical grid (Velásquez and Mazariegos, 1991). Again, in 1994, there was another period of power outages, when *El Niño* returned (Mazariegos and Morales, 1994), this time under President Ramiro De León (1993–1996). The disastrous situation of the electrical grid was, by then, the centre of a public discussion about the reforms needed to guarantee the energy supply for the country. At this point, it is useful to change the focus onto the political and ideological debates of those decades that shaped the response to this crisis.

A turn to the right everywhere

Politically, the tide turned to the right worldwide between 1970 and 1990, in what now is called the rise of neoliberalism (Monbiot, 2016). Guatemala was no exception. A key figure in promoting neoliberalism in Guatemala was Manuel Ayau, a member of the Guatemalan elites (Casaús

Arzú, 2007, p. 138). He was a member of the classical liberal elite Mont Pelerin Society and the most vocal right-wing intellectual of the late 20th



Figure X Ad in an issue of *Crónica Magazine* (Anahté, 1997). Licensed under a Creative Commons Attribution–NonCommercial–NonDerivative license 3.0. Available at: <http://cronica.ufm.edu/index.php/DOC468.pdf>.

century in Guatemala. In 1959, he founded the first conservative think-tank in Guatemala, and Francisco Marroquín University (UFM) in 1971 (Ibargüen, 2010). UFM is an institution that, according to an article in the conservative magazine *National Review* (Nordlinger, 2016), ‘classical liberals or Reagan conservatives [call] too good to be true’.

Ayau and other people linked to the UFM promoted in the media the classic neoliberal agenda: deregulation, privatization and the downsizing of the government. As early as 1972, Ayau was arguing for the privatization of public companies (Ayau, 1972). These ideas started to permeate the thinking of mainstream political parties and government officials. According to STINDE, the first privatization attempt of the electric utilities in

Guatemala occurred in 1986 (STINDE, 2015), during the Cerezo Administration, which by reputation was a left–centre government.

Successive administrations were gradually more right–leaning and pro–neoliberal ideas. President De León, for example, was from a centrist party, but in power, his policies became conservative and business–friendly. The media at the time also advanced the neoliberal agenda; it was also championed by business associations and think tanks. Take for example the advertisement above (fig. 1) with no sponsor from 1997. It reads: ‘What did Francois Mitterrand, socialist president of France, do to modernize its economy? Privatize (...) to privatize is not ideological, to privatize is to modernize’.

President De León presented in 1995 the first GGEL bill, which was portrayed as the solution to the problems plaguing the electrical grid, but it did not make it through Congress. Alvaro Arzú, another member of the historical elite of Guatemala (Casaús Arzú, 2007, p. 92) from the Partido de Avanzada Nacional (National Advancement Party, PAN), won the next elections. His administration promoted a clear neoliberal agenda, including selling public electric utilities and opening the electricity market (García Kihn, 1996). The most important piece of legislation for these transformations was GGEL. After some opposition, their bill passed in 1996 (Morales Monzón, 1996).

Figure 2 provides a visual presentation of the array of actors that led to the GGEL. To summarize:

(a) A weak state controlled by the military in the midst of a counterinsurgency war results in the inefficient and corrupt management of the public electricity utilities.

(b) The climate phenomenon *El Niño* repeatedly led to droughts that affected the capacity of Chixoy, the largest hydroelectric power plant in Guatemala, creating a power crisis.

(c) The inadequate government response of a series of programmed power cuts and a return to importing fuel for power generation makes energy policy a national matter with public pressure to restructure the electricity sector.

(d) An international political turn toward neoliberalism Guatemala manifests as progressively more right–wing administrations inclined to neoliberal ideas.

(e) The advancement of the neoliberal agenda by think tanks, traditional elite members and ‘Reagan conservative’ academics in Guatemala led to privatization being the favoured policy response.

(f) All of which converged into a solution to the electricity problem: the GGEL of 1996.

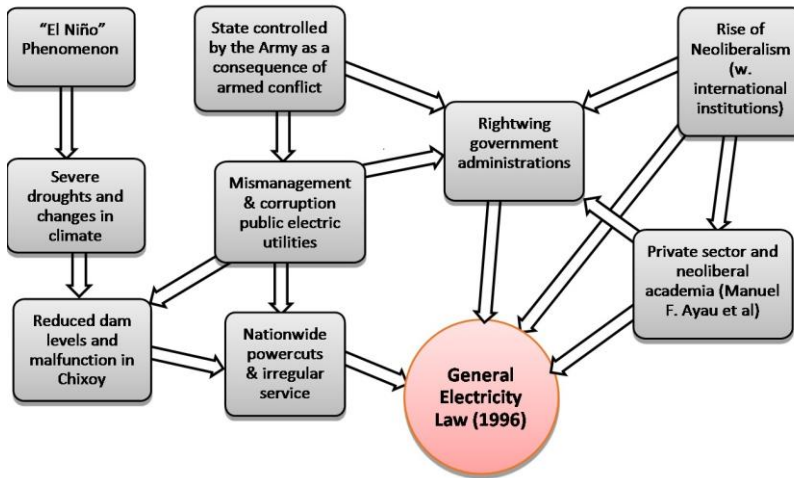


Figure 2 The network that originated GGEL (prepared by the author).

How GGEL became an influential actor on the network that originated it

The opening statement of the GGEL declares: ‘Since the supply of electricity doesn’t satisfy the needs of the Guatemalan population, it is necessary to increase its production by means of the liberalization of the market’ (Guatemala, Congreso de la República, 1996, p. 1). It assigns to the Ministry of Energy and Mines the responsibility of the electricity sector, and among other provisions, also:

1. Declares that the generation of electricity does not need special permits other than those in the Constitution and the laws of the country, unless it uses state property (such as hydroelectricity).
2. Declares that the price of electricity is determined freely between the agents of the market (generators, distributors, transportation and commercialization companies, and wholesale buyers).
3. Creates the National Electric Energy Commission (*Comisión Nacional de Energía Eléctrica*, CNEE), the authority in charge of GGEL,

overseeing prices, especially for small users and provides arbitration between agents of the market.

4. Creates the figure of the Wholesale Market Manager (Administrador del Mercado Mayorista, AMM), whose functions are coordinating the energy market and guaranteeing the safety and supply of the electrical grid.
5. Establishes that no company can operate simultaneously two or more activities of the electricity business, and gives INDE and EEGSA one year to split into different companies. [This provision was introduced to mitigate the ‘natural monopoly’ status of the electrical grid (Michaels, 1993)].

The first wave of the energy expansion: thermal power plants

The following events can be grouped as the set–up stage for the expansion of the energy market:

1. May, 1997. First National Electric Energy Commission (CNEE) is appointed (Comisión Nacional de Energía Eléctrica, 2001).
2. October, 1997. INDE is divided in three companies: EGEE (generation), ETCEE (transmission), and EDEE (distribution and commercialization). Later, EGEE would be divided in DEORSA (Electrical Distributor of the East) and DEOCSA (Electrical Distributor of the West) in preparation for its privatization (Instituto Nacional de Electrificación, 2013).
3. July, 1998. EEGSA was sold to an international group led by the Spanish company IBERDROLA, for a price of USD \$520 million (El País, 1998). Privatization was not a mandate of GGEL but a policy of the Arzú Administration.
4. December, 1998. INDE’s new distribution companies, DEORSA and DEOCSA, were sold in December, to another Spanish corporation, Union Fenosa, for USD \$101 million (Harris, 2002). INDE kept the other companies.
5. 2000. The National Association of Generators, ANG (Asociación Nacional de Generadores, [no date]) was founded as an industry association that represented the private electricity generation sector.

These measures successfully promoted the growth of electricity generation in Guatemala. Table 1 shows the increase in installed capacity per primary source from 1985 to 2001. In the 1996–2001 period, the overall

capacity grew 527 MW, while in the previous eleven years it only grew 362 MW. Most of it came from thermal plants (351 MW increase), and cogeneration (sugarcane bagasse) plants (120 MW); meanwhile, the increase for hydropower was minimal, only 22 MW. This was not a desirable situation; partly because of its environmental impact, but mostly because it augmented dependence on imported fossil fuels, and left valuable renewable resources unexploited.

Table 1 Guatemala: Electric generation installed capacity per year and source (MW). Adapted from (Paz Antolin, 2004).

Year	Total	Hydro	Geothermal	Thermal	Cogeneration
1985	783.4	488.1	—	295.3	—
1990	810.9	488.1	—	322.8	—
1996	1145.5	502.1	—	563.4	80.0
2001	1672.1	524.9	33.0	914.2	200.0

The second wave of energy expansion: hydroelectricity

In 2002, the renewable energy companies established the Association of Renewable Energy Generators, AGER (Asociación de Generadores de Energía Renovable). On its website, AGER (2016) states that its main objective is ‘to organize all private entities whose main activity is the generation of electricity from renewable sources, and to set among them a unified position in all matters affecting them’.

Then, in 2003, the Guatemalan Congress passed the Law of Incentives for the Development of Renewable Energy Projects (LIDREP) which gave tax breaks to new projects. It was an initiative from President Alfonso Portillo, of the right-wing party, Frente Republicano Guatemalteco (FRG).

After the approval of LIDREP, there was an increase in hydroelectric plants. Figure 3 shows the total number per year of large private plants (more than 5 MW capacity), either in operation or approved for construction. Compared to only one plant in 1995, there were 49 in 2016.

At the same time, the number of new thermal power plants declined, starting a shift in the energy matrix of the country and in its ownership, since not only were foreign corporations investing in hydroelectricity projects, but major Guatemalan ones were, too. The largest project to date is Renace, a complex of five plants on the Cahabón River, with a total capacity larger than Chixoy (over 300 Mw). Renace is being built by the Spanish ACS for Multi-Inversiones Corporation (ICEX España, 2014), one of

the largest in Guatemala, owned by the Gutiérrez–Bosch family, another prominent group of the Guatemalan elite (Casaús Arzú, 2007, p. 100).

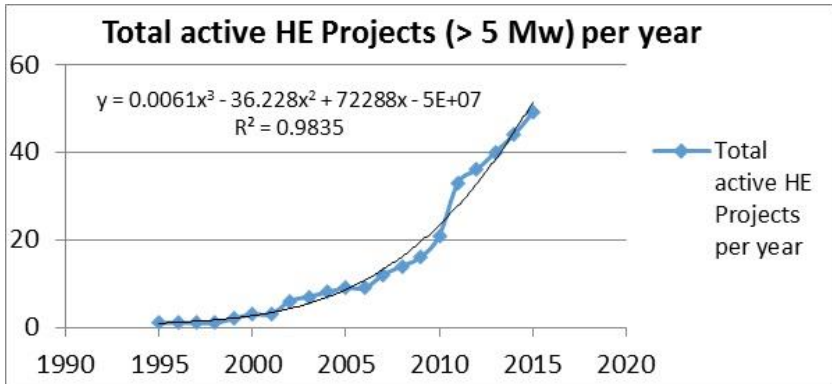


Figure 3 Total Number of HE active projects per year. Data compiled by the author from (Guatemala, Ministerio de Energía y Minas, 2016b).

The rise of conflict over hydroelectricity

The first conflict over a hydroelectric project was the Rio Negro Massacre described above. This episode is central to understanding the current conflicts, since it partially explains the mistrust that rural communities have of megaprojects (Orantes, 2010). While the Rio Negro Massacre occurred before the GGEL became law, the focus here will be those conflicts that surfaced after its approval, involving mostly private companies.

After GGEL, the first reported conflict was in the municipality of Rio Hondo, Zacapa. According to Hurtado (2006), concerns were raised after a first plant started operating in 2000; protests rose after it became public that another two projects were already in motion. After years of opposition, a public consultation vote was held in 2005, resulting in the rejection of the project by the community.

Since then, more conflicts have surfaced. Orantes (2010) reported 27 conflict situations in 9 departments as of 2010. Since 2010, there have been more conflicts, including the one that attracted national attention: the opposition of the communities of Santa Cruz Barillas, Huehuetenango, to the plant Hidro Santa Cruz (a Spanish capital project) in 2012. It escalated to such a degree that riots exploded over the murder of a community leader by company security guards; the Government responded by declaring a state of emergency and the suspension of some constitutional rights in the area (Hernández, 2013).

Recently, protests have surfaced around the Renace projects. In an article in the Spanish newspaper *El País* (Tristán, 2016), locals complained about the damages and decrease in the current they have seen in Cahabón River since the first two Renace plants were built. One person told the newspaper that the company gave away shovels and fumigators, even offered jobs and built a school, but it has not offered to supply them with electricity or potable water.

The role of GGEL in the conflicts

Today, 30 years after the Chixoy plant was finished, there are, ironically, still nearby communities that do not have electricity coverage; that is also the case with some of the new projects. Orantes (2010) found out through a survey that, for nearby communities, one of the main causes of conflict was the despoliation of natural resources by private companies that left them with no substantial benefits. GGEL failed to take into account the role of communities in the generation activity. In fact, according to its vision of a free electricity market, it forbids large generation companies to sell and distribute electricity (Article 7) or to use it as payment or as a medium of exchange for goods or services (Articles 34, 61). This prohibition makes sense, given the network that it embodies, since those measures prevent the distortion of the market. However, in the context of conflicts over resources, it is an obstacle, since the best negotiating asset for both companies and communities would be electricity access at minimum cost. Instead, GGEL contributes to creating a scenario in which the most valuable good produced in a region is taken away and used in distant, more urbanized communities; this effect links hydroelectricity to other extractive industries.

Furthermore, Martínez and Villagrán (2009) argue in their study of agrarian conflicts that the legal framework for electricity was designed to prioritize energy projects over the damages for rural communities. Orantes (2010) summarizes it by saying that the legal framework ignores a key aspect, interdependency on the use of natural resources. By doing so, it shifts the burden of the industry costs to communities, and releases the government and private companies from accountability, so they can focus on expanding the energy market with maximum efficiency.

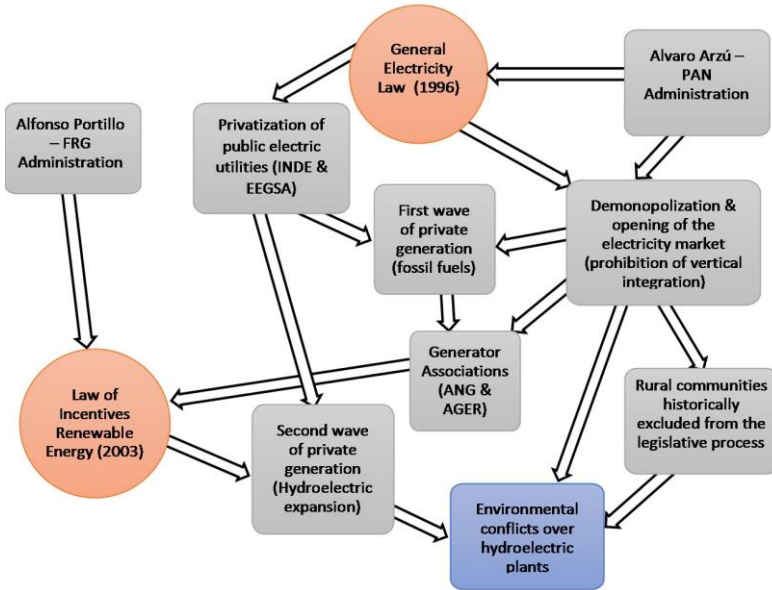


Figure 4 The network driven by GGEL and its role in the conflicts over hydroelectricity (prepared by the author).

Let us summarize the role of GGEL in this stage as detailed in figure 5:

(a) The GGEL, a law made with a vision of increasing efficiency by liberating the market, mandates de–monopolization and disintegration of the vertical structures of public electricity utilities.

(b) The Arzú administration, as part of its privatization policy, sells EEGSA and the distribution companies of INDE created by GGEL to Spanish companies.

(c) These actions cause a boom in the generation business, attracting foreign and national companies that will eventually organize in industry associations like ADG and AGER.

(d) The lobbying of AGER and ADG with the next president, Alfonso Portillo, resulted in the new law of incentives for renewable energy, LIDREP.

(e) LIDREP brought the second wave of electricity generation expansion.

(f) However, most of these new projects were met with protests and conflict with nearby communities. The latter can be attributed partly to their historical distrust of government and of foreign interventions in their territories, but also to their exclusion from the political process, exemplified in both the objectives and spirit of GGEL and LIDREP.

Conclusion

This initial account already shows some of the insights that the ANT approach has to offer. Previous studies on electricity expansion (Paz Antolín, 2004) and on hydroelectricity conflicts (Orantes, 2010) come to a similar conclusion: that the legal framework for the former was made within the neoliberal state of mind, which bet on efficiency and the free market as the solution to the urgent need to expand electricity coverage. Both studies attributed the approach of that frame to the agency of the international wave of neoliberalism of the time and its national counterparts, right-wing governments. This study shows that such a picture is incomplete, since it paints the legal frame as a mere intermediary, a vessel of the values and motives of the political elite of the period. Instead, GGEL is shown here as a mediator (Latour, 2005), an actor that not only embodies the network that created it, but also modified it. As Akrich (1994, p. 220) puts it, ‘technical objects not only define actors and the relations between them, but to continue functioning must stabilize and channel these’. The focus of GGEL on efficiency and the free market eventually destabilized the hydroelectric expansion, since the network it embodied did not include the rural communities it was supposed to benefit. In other words, GGEL failed to shift to the role of mere ‘silent intermediary’, as technical objects do.

This account also shows partially why GGEL came into law, since it takes into account the agency of other non-human actors, beyond the political and social elite and international neoliberalism: Chixoy dam, with its maintenance and structural problems that increased the risk of failure of the electrical grid, and the ‘El Niño’ phenomenon, which brought climate instability and droughts that bared the fragility of the system. These not-accounted-for actors help to explain why efficiency was a central part of the proposed solution, why the law passed with little resistance from opposing parties, and why legislation that was supposed to bring a new era of wide electricity access, ended up fuelling conflicts against the very expansion it was supposed to create.

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