

The Impact of World Bank and IMF conditionality: An investigation into electricity privatisation in Nicaragua

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Executive Summary

Privatisation has increasingly become a condition of aid, new loans and debt relief. This report looks at the failure of that policy applied to the electricity sector in Nicaragua where privatisation occurred as a result of IMF and World Bank conditions and with strong support from the IDB.

The process of privatisation of electricity was started in Nicaragua in 1998 with electricity distribution operating in its fully privatised state from October 2000. Sufficient time has elapsed to allow judgement as to whether or not the privatisation process has brought the desired benefits. This report is Christian Aid's contribution to that assessment. It was research in March and April 2007 with the assistance of various local organisations and commentators, particularly the National Consumer Defence Network, who provided their own research and statistics and information directly from consumers.

One of the most important steps in the privatisation process in Nicaragua was the sale of the state's distribution companies to the Spanish multinational Unión Fenosa. Unfortunately for Nicaragua it was the only bidder for the distribution companies and it was granted a monopoly over electricity distribution. This has not led to favourable outcomes for consumers. This report finds the regulator has not been able to ensure efficiency, discipline private sector operators, nor champion the interests of consumers. In fact regulation of the sector has been practically non-existent and good practice from managing privatisation of energy sectors in developed countries has been ignored.

The report clearly shows that privatisation has led to no significant investment and no improvement in the efficiency of the service. While very little private sector investment has materialised, the Nicaraguan government has continued taking loans (of around \$23 million) to cover the necessary investments in electricity infrastructure. While the state is being saddled with debts, the benefits of this investment are passed to Unión Fenosa, as they become owner of the assets and have new clients to bill.

While being subjected to a worsening quality of service – including a severe increase in power cuts - consumers have had to pay much higher bills. Significant increases in the electricity tariff have been compounded by arbitrary charging practices resulting in customers being over-billed or paying for services - such as street lighting - which are not being provided.

As the electricity service provided has steadily worsened, impacts in society have been widespread. Christian Aid interviewed several small businesses in the writing of this report and found a list of concerns about the serious negative impacts that power cuts are having. Some small businesses have folded due to their spiralling losses.

As the blackouts have grown worse, there are serious grounds to suspect that the generators and the distributor have colluded to cause crisis-inducing power cuts to force the government to grant subsidies and to allow higher tariffs to be charged to consumers.

In the end passing on higher tariffs to consumers has taken the place of improvements in efficiency and investments which would be needed from private companies to operate a good quality – and more profitable - service.

Perhaps the key finding from this report is that the electricity system in Nicaragua simply cannot function on a commercial basis. Despite ample evidence it is a fact which is still being ignored by the international financial institutions (IFIs) who continue to ask Nicaragua to impose higher tariffs on poor consumers. This will not make the system financially viable, nor will it extend the coverage and quality of the service. The only effect it will have is to improve the bottom lines of companies operating in the sector.

Introduction

Poverty and lack of electricity are often closely correlated. Access to energy increases and diversifies poor people's choices and economic opportunities. In many developing countries providing electricity to every household is a policy priority, albeit one which many countries are far from attaining.

As a result the development of the energy sector has long been a priority sector for support by the international financial institutions (IFIs). Since the end of the 1980s their preferred energy model has also been a privatised one. As with most privatisation reforms the hypothesis is that state owned electricity companies are inefficient (and in some cases corrupt) and that the private sector will bring efficiency and transparency to the sector. This should then result in increasing coverage of electricity provision, better quality services, a reduction in tariffs and an overall benefit to all users of the service.

Privatisation has increasingly become a condition of aid, new loans and debt relief provided by the World Bank and IMF. If countries fail to comply with these conditions both multilateral and bilateral donors will withhold funds. The World Bank made clear in its Private Sector Development Strategy in April 2002 that privatisation should include a special emphasis on sectors such as water, energy, healthcare and education. The Poverty Reduction Strategy Paper (PRSP) which is formulated as part of the process of receiving debt cancellation was identified as a key vehicle for achieving this aim. World Bank staff are expected to encourage privatisation to be included in these strategies. As such privatisation has become a common condition for developing countries to access debt relief.

The privatisation model has taken hold so strongly that donor spending on infrastructure has fallen significantly. World Bank lending for infrastructure investment declined by 50% during 1993-2002 (with much of this directed towards preparing firms for privatisation).ⁱ At the same time, the World Bank has increased its support for private investment in utilities through its International Finance Corporation (IFC) and its Multilateral Investment Guarantee Agency (MIGA). While Bank lending to public electricity utilities dropped from about US\$2.9 billion in 1990 to only US\$824 million in 2001, its sector lending to private investors rose from US\$45 million to US\$687 million.ⁱⁱ

Privatisation trends have impacted many developing countries, including Nicaragua. The move towards privatising Nicaragua's electricity started in the early 1990s when several studies were financed by the Inter-American Development Bank (IDB) as part of its public utilities reform programme which was designed to support reform to the energy sector as well as in telecommunications and water and sewerage utilities. The IDB later financed the creation of a restructuring unit to take charge of restructuring the state electricity company.

Privatisation later became a condition through Nicaragua's ESAF (Enhanced Structural Adjustment Facility) lending arrangement with the IMF (from 1998 to 2000) which included the privatisation of public utilities. Once the privatisation of the energy distribution facilities had taken place the IMF and World Bank continued to demand the privatisation of the energy generation plants through the HIPC (Highly Indebted Poor Country) debt relief initiative.ⁱⁱⁱ As the HIPC decision point document states *'the privatisation of public utilities will be completed by divesting the telecommunications company (ENITEL) and selling the generation units of the electricity company (ENEL), and by leasing the management of port facilities and urban water and sewerage systems to private investors'*.^{iv} As a result the privatisation of all of the electricity generating units of ENEL was included as a specific post completion condition which could hold up Nicaragua receiving debt cancellation.

Nicaragua is by no means exceptional in the region. Most countries in Central America have seen their electricity markets liberalised and the majority of state owned enterprises operating in the sector have been sold to private investors. Guatemala, El Salvador and Nicaragua are well advanced in privatising their electricity sectors.

Although privatisation has been heavily promoted for the electricity sector there has been little attention paid to complementary reforms related to regulation and competition and the timing of these reforms. This despite the fact that there is growing evidence that privatisation alone is insufficient to stimulate improvements in performance, especially in public utilities with their natural monopoly characteristics.^v In addition while complex energy sector reforms often take many years in developed countries they have been rushed through in developing countries with no attempt to sequence and plan the reforms or to learn from mistakes made and adapt the management and organisation of the sector.

The process of privatisation of electricity was started in Nicaragua in 1998 with electricity distribution operating in its fully privatised state from October 2000. Sufficient time has elapsed to allow judgement as to whether or not the privatisation process has brought the desired benefits. This report is Christian Aid's contribution to that assessment.

There is sufficient prima facie evidence of major problems in the electricity industry to make it important to question the wisdom of the privatisation decision, the success of its implementation and the efficiency of some of the companies operating under privatisation arrangements.

The difficulties referred to are

- the major hikes in charges to the end users experienced in recent years
- the very significant periods of blackout experienced regularly in recent years which has caused considerable damage to Nicaragua's small businesses
- the lack of investment in infrastructure and consistently high losses of electricity from the system which represents a major source of inefficiency and loss of revenue, and
- the lack of transparency regarding the financial dealings with the commercial enterprises allowed to operate under privatisation conditions.

A further major issue arises regarding the choice of energy source. Governments have a choice of energy sources and can rely on traditional fossil fuels (oil, natural gas, coal) for energy or they can look to renewable energy sources (biomass, geothermal, hydropower, solar, wind). Christian Aid believes that developing countries should focus their attention on renewable energies, given oil is becoming increasingly expensive and supplies are diminishing, and because in the context of global warming it is highly inadvisable to follow a fossil-fuel development model. Renewable energy will not only fuel cleaner growth in poorer countries but will provide opportunities to the huge numbers of poor currently living 'off-grid.'

Unfortunately, however, the international financial institutions (IFIs) have traditionally lent money to fossil fuel-based energy provision and renewable energy has been neglected. Nicaragua is a case in point. It is a country with great potential for renewable energy but which has come to rely heavily on oil based electricity generation. While hydro and geothermal plants were responsible for 72% of energy generation in Nicaragua in 1966, this had declined to 58% in 1990 and 20% by 2002.^{vi} This is largely due to the fact that the IFIs consistently refused the government funding for renewable energy projects maintaining that thermal (oil dependant) generators are the most viable energy projects.

The privatisation process in Nicaragua

Electricity sector privatisations are usually organised by first splitting the power chain into three parts - generation, transmission and distribution. These parts are then sold off separately to private companies.

If more than one company is involved in each of these phases there can be argued to be competition or at least comparability to identify inefficiencies. Further the fact that there is a chain of commercial enterprises negotiating and contracting with each other is meant to ensure the whole process operates on commercial lines and supplies best value for money.

In Nicaragua's case a report by the international firm Price Waterhouse Coopers in 1998 made the recommendation that ENEL - the state electricity company - be divided into

seven companies – four for generation (Gemosá, Geosa, Gecsa and Hidrogesa), one for transmission and two for distribution. While generation and distribution were to be privatised, the transmission company – Entresa – was to stay in state hands. The Price Waterhouse Coopers scheme was implemented though a major issue arose over the distribution arrangements brought about by the process

The privatised generating arrangements

One of the first steps was to change the law to allow private generating companies to enter the sector. As a result of the change in law the IDB quickly approved a loan to Nicaragua of \$24.78 million for the construction of the Tipitapa generating plant which was to be operated by a subsidiary of Coastal Power. Other private actors were to follow in bidding for concession contracts to generate electricity from new plants.

The largest of the electricity generating companies being Corinto Power Company (Enron) and Tipitapa Power Company (Coastal Power) are private operators. The main state owned generating companies are Hidrogesa and Gecsa which each have several plants operating. Hidrogesa is a hydroelectric plant while all of the others mentioned above are thermal plants, producing electricity through the combustion of oil and/or diesel, both of which are imported.

Nicaragua also generates electricity from geothermal sources (Polaris Energy and the Ormat Momotombo Power Company), as well as from biomass. Biomass is fuel produced from sugarcane waste, such as that provided by the Pellas family's San Antonio Sugar Factory. The thermal plants operate at a much higher cost than other plants and the state owned Hidrogesa produces the cheapest electricity in the country.

The state generating plant Geosa was sold in 2001 and Gemosá was given in concession to a private operator the above mentioned Ormat Momotombo Power company. The terms of the concessions and amounts paid have never been made public.

The privatised distribution arrangements

ENEL's distribution facilities, which were split in two, became Disnorte and Dissur. The sale of the two distribution companies started with the companies being offered at \$220 million. A Nicaraguan law (128-99) – passed in 1999 – to establish sale procedures stated that the tender would automatically be declared void if there was not *at least one company bidding*. This of course seems rather unusual given if there is no bidder, a sale cannot occur! It is certainly questionable whether this article was included in the law to ensure that the state could sell off in circumstances of there being only one bidder – a situation which is clearly not in the interest of Nicaraguan consumers.

In the event Unión Fenosa was the only bidder. They offered a total of \$115 million to the Nicaraguan government for the two companies, the price which was finally accepted in October 2000.^{vii} For this price Unión Fenosa took over the whole electricity grid and all its assets and received a monopoly over electricity distribution in Nicaragua. Disnorte

supplies 52.38% of clients and Dissur 46.32% of clients.^{viii} (Bluefields which operates in the Atlantic Coast area is still a state distributor and supplies the small balance).

In 2001 Unión Fenosa sold 19% of its shares to a local consortium, made up of two local groups – the Pellas Group and the Calas Group, two of the country’s richest families.^{ix} Currently Unión Fenosa owns 79.57% of both distribution companies.^x Little information is available regarding the financial aspects of this transaction. One newspaper reported at the time that the local consortium paid US\$21.85 million for their 19% – an amount which was said to have been paid in cash.^{xi} This corresponds to exactly 19% of the purchase price paid by Unión Fenosa.

What is clear of course is that the local consortium did not enter the original bidding despite wishing to be investors in the electricity distribution industry. The absence of any competition at the bidding stage was not to the benefit of the people of Nicaragua.

Unión Fenosa is Spain’s third largest electricity company after Endesa and Iberola. It is a significant player in the Latin American electricity market, operating in Colombia, Panama, Mexico, Costa Rica, Guatemala and Nicaragua, mainly in the distribution of electricity. It has also been involved in electricity generation and distribution in the Dominican Republic, but its distribution operations there were re-nationalised in 2003.

The first major question over Nicaragua’s privatisation arises from this scenario. There is no competition involved in the distribution of electricity as the two distribution companies are under common ownership. Unión Fenosa has all the financial muscle of a major commercial enterprise operating under monopoly conditions. It would require a combination of a watertight, well defined contract at the outset, a strong regulatory regime and financial transparency to safeguard the consumers’ interest in this situation. As will be seen later it is Christian Aid’s analysis that none of these are present

Commercial arrangements post privatisation

Unión Fenosa (as majority owner of Disnorte and Dissur) distributes electricity which it buys from generating plants in Nicaragua or, when generating capacity drops, from the Central America grid

Arrangements with the generators

The purchase of electricity from the generators is organized under power purchasing agreements (PPA) with the distributor. These agreements are not public but, from interviews with analysts in Nicaragua, Christian Aid has established that there are various key principles under which they operate in Nicaragua. These include the following:

- Generators are guaranteed ‘capacity payments’. This means they are paid according to their capacity to produce and not for what they actually produce. The theory behind this is that it will encourage investment in production capacity as this investment will always see a return. However, it means that generators who

under produce for any number of reasons will always receive a certain amount of revenue. The cost of the ‘capacity payment’ is factored into the electricity tariff which is charged to consumers.

- In addition to the capacity payments the generators also benefit from the ‘take or pay’ principle. This states that the distributor must pay for all the energy that the generators produce, whether they need to use it or not. It means the generator cannot lose under any circumstances of over production.
- The PPA also states that the electricity tariff also includes an ‘energy payment’ which is the variable cost applied to the actual energy consumed. This will depend on the cost of oil imports and the dollar exchange rate of Nicaraguan currency. However, increases to the tariff are not automatic and must be approved by the regulator. Therefore electricity generators will pass on increases in prices, for example due to oil price rises, to the distributor who will then need to recoup this by higher tariffs being charged to consumers.
- In addition the PPA states that all generators are paid according to the price set by the most expensive generator. This is known as the ‘system marginal price.’ It means the most inefficient generator sets the price for all.

It is common for the IFIs to present such arrangements as common practice in energy privatisations. However, in reality there is very little agreement on these arrangements and there is a huge debate on their merits in developed countries.

The UK – where the privatised electricity model is widely considered to be a successful one - abandoned the use of capacity payments in 2001 when ‘new energy trading arrangements’ were adopted.^{xii} It is now the case in the UK that generators are only paid for the energy they produce. This is, of course, a big incentive to ensure that generators maintain consistent production levels – something which has not been achieved in Nicaragua where generators are frequently not producing and blackouts are common. The practice of offering system marginal prices was also abandoned in the UK in 2005. Now there is a competitive bidding process. This means that the generators bid to supply electricity and those offering energy at the cheapest price are taken online by the transmission company first.

The UK model shows that there has been some experimentation with a variety of arrangements. Not only has the UK tried both capacity payments and the marginal system price arrangements and reformed these, the UK regulator has also changed the market structure several times since privatisation began in 1990. A careful phase-in strategy was adopted with full competition only being adopted in 1998 when the full consumer base, including domestic consumers, was able to choose any electricity supplier. Generators are now allowed to own distribution companies as well, a change which has boosted their profit margins since the abandonment of capacity payments and the marginal system price forced them to be very competitive and accept much smaller margins.

The debates in the UK are by no means over and the market structures and regulations are likely to continue to evolve as new challenges in incentivising affordable energy generation arise. However, what is clear at this stage is that the privatisation model promoted by the IFIs in Nicaragua shows little analysis of the learning that has taken place within the industry in countries where privatisation has taken place. In the case of Nicaragua the agreements reached simply represent very favourable terms for generating companies. There is no obvious impetus for efficiency and value for money for the consumer from the generator on the basis of these contract terms.

On the contrary the costs of offering such underwritten and profitable arrangements to the private sector are, of course, ultimately passed down to consumers. In addition without market forces to discipline the private sector operators – such as in the UK – the role of the regulator becomes paramount. Unfortunately the capacity and role of the regulator has been completely neglected.

Arrangements with the distributor

The Nicaraguan government has signed a contract regarding the distribution of electricity with Unión Fenosa. According to the World Bank and IMF this contract was designed to be as attractive as possible to the investor and includes a high value added margin for the distribution company.^{xiii}

Unusually the contract with Unión Fenosa specifies that if the company that wins the concession is not a specialist in electricity distribution it can contract a “suitable operator,” which would put up 25% of the capital and receive 2% of the sales revenue. Even though Unión Fenosa is in fact a specialist in distributing electricity, it made use of this clause to insert a company - the Distribuidora de Energía de Nicaragua – into the supply chain which it then contracted as its “suitable operator.” This allows Unión Fenosa to keep profits out of its own accounts and to hold part of the investment off-balance-sheet. (It was estimated that the profit moved out amounted to over \$2 million in profits by 2003).^{xiv} This arrangement does not help the transparency of the financial picture.

The distributor is obliged to contract with the generators in advance and to provide a deposit to the Nicaraguan regulator which is held as a guarantee for payment to the generators. In addition Nicaraguan law stipulates that it should contract 12 months in advance with generators to purchase 80% of the electricity needed to meet national demand and 24 months in advance for 60% of national demand. These safeguards are in place to ensure the distributor is always able to supply the national market.

The deposit was originally made available but in 2003 Unión Fenosa requested their guarantee be liberated to cover what they claimed were their spiralling losses. (The main reasons repeatedly given for their losses are the increasing oil prices and the high electricity losses). Their request was granted by the Nicaraguan government. As a result Unión Fenosa has not been contracting in advance as it should be. Unión Fenosa

currently owes somewhere between \$22 and \$30 million to mainly the state owned generators.^{xv}

There are knock on effects from the government's agreement to variations in the contract terms. The generators, who remain unpaid, respond by cutting back on their production while Unión Fenosa then often blames the generators for the lack of electricity. Regardless of the rights and wrongs of the "who started it" argument the lack of unambiguous properly enforced contract terms and the absence of a strong regulatory environment means that whilst the privatised companies squabble the ordinary consumer suffers from blackouts.

One of the other central aspects of the contract with Unión Fenosa is the obligation for the company to invest in electricity infrastructure in Nicaragua. There is a general commitment to investment made in the contract. However the contract refers to the 'quality standards' and an annex which contains detailed information on targets. Unfortunately information on this is not publicly available however we have to assume there are specific commitments to improving the quality of the service and investing in the extremely poor electricity system in the country.

Investment should have gone to addressing one of the key problems in Nicaragua - the loss of electricity from the system. However, it is widely accepted that Unión Fenosa has made little effort to improve the efficiency of the infrastructure and address the huge problem of the losses of electricity. This fact is undisputed and was confirmed in interview with the World Bank.^{xvi} The one official, operational audit that the regulator – the Nicaragua Energy Institute (INE) - has managed to carry out found that only significant investment they have made is in installing new electricity meters.^{xvii}

Unión Fenosa is not alone with regard to their lack of investment. Apart from the initial investment in starting up new plants the generating companies are not known for their efforts to improve the efficiency of their energy generation, or to upgrade the infrastructure of the old generating plants which they bought from the state.^{xviii} They are happy to produce what they can and receive payments according to the privileged terms in the power purchasing agreements referred to above.

Unión Fenosa has also benefited from some very advantageous legal arrangements. According to the privatisation law any new infrastructure investments in electrification will pass to Unión Fenosa's ownership without payment once the request is made for the installations to be supplied with electricity from the grid. Any investment made by individual families or investments financed by donors (whether by loans or grants) will directly benefit the company which will take over the fixed assets. This means if loans are involved the state is saddled with the debt while the profits of the investment flow directly to Unión Fenosa. Nicaragua is involved in two projects for rural electrification which have been funded by loans worth \$23 million from the World Bank granted in May 2003. This is a significant amount and represents 20% of Unión Fenosa's own investment.

Electricity is by no means unique in this respect as the same provisions exist for the telecommunications sector. Again though the ‘standard terms’ argument could be raised this is another example of the balance of advantage lying with the privatised company.

The impact of privatisation

One of the central reasons given for privatisation is that it will bring in new investment to increase capacity and improve the overall service provided. In Nicaragua it is true that the amount of installed electricity capacity of the national grid has increased (going from 468 MW in 1999 to 627 MW in 2005).^{xix} This has remained comfortably ahead of peak demand – with installed capacity 30% greater than peak demand in 2005.

This positive performance is mainly due to the entrance of new generating companies – mainly Tipitapa and Corinto. These companies constructed new thermal generating plants. The increase is also, to a smaller extent, due to the entrance into the market of the sugar estates.

It is notable that the two generating companies which were already in existence and were privatized have performed poorly. Geosa’s thermal plant is an example of this. While in 1998 it was generating 717.99 Gwh (gross generation figures), this had dropped to only 450.74 Gwh in 2005.^{xx} While generation levels have fluctuated the average performance in the 1990s (598 Gwh) exceeds the average performance post privatisation (520 Gwh). The geothermal plant Gemosá which passed in a concession to a private operator (now known as the Ormat Momotombo Power Company) shows similar trends with the 1990s being – on the whole - a much more successful period than post privatisation (though the decline of its electricity generation began in 1998).

While allowing private operators to enter the generation market has had positive results – in terms of increasing the capacity of the system - selling off existing state generating plants has led to lower electricity generation as private operators invest little in maintenance, rely on generous contractual terms and sit back and wait for a return on their investment.

Electricity losses

The loss of energy is a huge problem in Nicaragua. It is caused by 2 factors. Firstly there are ‘technical losses’ of energy or leakage. This is essentially ‘natural’ leakage, in that it is a direct result of passing electrical current down copper wires. Technical losses, therefore, occur in all electricity systems and although steps can be taken to minimise these (such as using higher voltages) a certain level of losses will always occur. In Europe, in well maintained systems, technical losses from transmission and distribution would be expected to be around 8-10%.^{xxi}

Technical losses in Nicaragua, however, are predictably higher than the 8-10% in European systems. In fact technical losses are estimated at 15%.^{xxii} This is certainly due to the fact that the systems use old technology, old infrastructure and because there has been little maintenance for a long time. While you would expect Nicaragua to have higher technical losses than Europe, the systems in Nicaragua are also notably worse than in other Central American countries where technical losses sit more often than not at around 12%. Technical losses represent a major inefficiency in the system in Nicaragua for which investment in upgrading infrastructure is well overdue.

The second reason for the loss of electricity in Nicaragua is due to the theft of electricity through informal, illegal connections to the network. This is a significant problem in Nicaragua. We know that the overall loss of electricity during transmission and distribution in Nicaragua was 32% in the year 2000 (see table below). It should be noted that technical losses cannot account for more than 15% of this – even in old systems it is a scientific fact that ‘natural’ leakage cannot increase past this point. Therefore we can conclude that theft is responsible for the remaining unaccounted for losses of electricity from the system.

Theft of course can occur in a range of contexts. In Nicaragua’s case the World Bank estimates that 7% of the unaccounted for electricity is used in slum areas which have informal connections to the grid and where Unión Fenosa has no commercial set up to bill customers.^{xxiii} The rest they estimate as due to other kinds of theft. Some of this is certainly by the poor. However, there should be no assumption that richer customers – such as large businesses - are not stealing electricity. In other countries in Latin America this is a recognised problem. The Honduran electricity distributor regularly publishes list of non-paying business customers and the Bolivians found that Bechtel left an unpaid \$90,000 electricity bill in Cochabamba when the water company was renationalised there.^{xxiv}

Not only does the theft of electricity cost the distributor a lot of money it also impacts on the reliability of the system which, as a result, is more likely to fault as wires are overloaded. This also raises health and safety concerns. It is also the case that when people connect onto cables this pushes up the technical losses – as the power drawn doubles, the technical losses will quadruple.^{xxv} Theft from the network therefore has multiple impacts. Cases of theft could be reduced by efforts to police the lines (this is of course very labour intensive and may cause local tensions) or by efforts to improve infrastructure. Infrastructure improvements could make theft of electricity more difficult, for example, by using higher voltages and installing new, higher poles.

Addressing the overall problem of the losses would of course require expensive, heavy investment, for example in new transformers and new lines. Such investment has not materialised post privatisation. Instead losses have continued to be a serious problem, as the following table shows:

Table 1
Percentage of electricity lost in Nicaragua

1991-2005

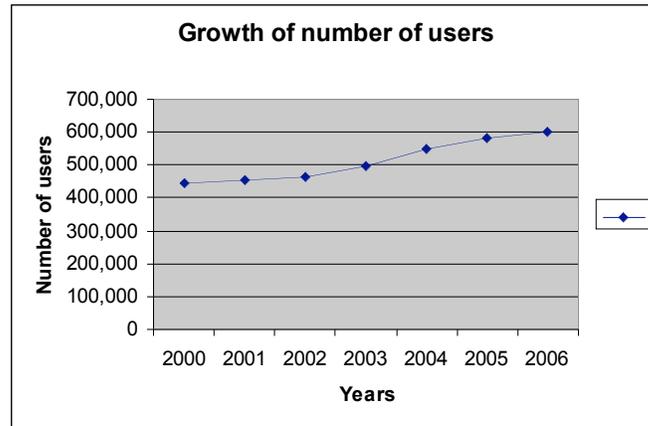
Year	Pre-privatisation									Post-privatisation					
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Average electricity loss %	22.43%			30.61%			25.49%			33.05%			29.41%		
Electricity loss %	17.2	22.14	27.95	30.5	30.83	30.5	20.63	29.70	26.13	31.88	32.07	35.19	29.58	29.87	28.78

Source: www.ine.gob.ni. Figures used refer to the national grid only, not to isolated systems. Figures for 2003 to 2005 are taken from INE's Annual Summaries and figures for earlier periods are worked out from INE figures for net electricity generated and electricity sold.

Coverage

Another area where investment in the distribution system is critically needed is with regard to coverage. At the end of 2000 the number of users connected in Nicaragua stood at 446,536. This was reported by the regulator as 599,829 users at the end of 2006. The following graph shows the growth in the number of users, which was fairly insignificant until a faster increase in 2004.

Graph 1
Growth of the number of users connected to the national grid (2000-2006)



Source: www.ine.gob.ni – figures are taken from the Annual Summaries and refer to users connected to the national grid only.

There should be no assumption that it is privatisation that has driven investment and this extension in the coverage of the grid is due to Unión Fenosa. The operational audit found that Unión Fenosa had not invested in infrastructure and that new electrification projects were mainly financed by third parties. As mentioned above the Nicaraguan government took out a large loan to cover rural electrification projects in 2003 and a number of other donors have also invested in the sector.

Investments have also been made by property developers and families themselves who will construct their own infrastructure and then request registration and connection to the grid. All of this suggests that there has been little new infrastructure investment by

Unión Fenosa to bring new users in Nicaragua into the electricity supply chain, one of the key objectives for privatisation. Even with the actual increase in connections the rate of population growth means that half of Nicaragua's population is still without electricity.

The charges for electricity

While Union Fenosa's investment in reducing electricity losses and making new connections has been low, user charges have been soaring. The increase in user charges has been a standard feature of utilities privatisation in many countries. Nicaragua is no exception to this rule, however the costs that the country, its businesses and its consumers are forced to bear illustrate the poor value for money of electricity privatisation in Nicaragua

In Nicaragua a consumer's electricity bill will include a tariff charge per kilowatt consumed (which alters depending on the consumption ranges, getting higher as consumption goes up). As explained above the basic tariff is calculated taking into account that the consumer always has to pay for the 'capacity potential' of generators.

The tariff calculation also includes a set value added for distribution – the margin which is to go to Unión Fenosa. According to the World Bank and the IMF *'the government established a high value-added margin for the electricity distribution companies to render the distribution companies attractive to foreign investors'*.^{xxvi} This margin includes a guaranteed profit and covers operating costs and a minimum level of investment costs, which are worked out according to the costs of an 'efficient operator'. In addition, the tariff also includes a charge to cover the loss of 15% of electricity, the level which was agreed with the regulator as acceptable to include in the tariff to reflect technical losses.^{xxvii}

Apart from the tariff charged on consumption, the bill will also include various other set or discretionary charges, such as the following:

- a charge to cover commercialization which is to cover Unión Fenosa's cost in billing and reading meters
- a 1% charge for the Nicaraguan Energy Institute (INE)
- a charge for street lighting
- a charge for renting the meter (if it has been newly provided by Unión Fenosa)
- a VAT charge if consumption passes a certain level
- interest charges on any late payments
- charges for non-metered energy if the company judges there has been some unregistered consumption in the past

One of the key functions of the regulator is to control the charges on the bill and how they are calculated. The fact that Unión Fenosa can add these further charges to the bills – some of which are highly questionable (as explained below) - suggests a significant failure on the part of INE to regulate Unión Fenosa's practices in this area.

A poor deal for consumers

In Nicaragua the capacity payment arrangements are supposed to facilitate investment and maintenance by the generators. Instead consumers are paying but seeing little, if any, improvements in efficiency or reliability from the generating companies and often suffering power cuts when production is unreliable.

Apart from this element the consumer is also paying a high margin to the distributor while being subject to uncontrolled and arbitrary add-on charges. These two basic factors aggravate the already high costs of electricity in Nicaragua which is significantly higher than in the rest of the region – see below:

Table 2:
Cost of electricity in Central America

Country	\$ per MWh
Nicaragua	\$123
El Salvador	\$117
Guatemala	\$113
Honduras	\$90
Costa Rica	\$69

Source: Ruth Selma Herrera Montoya, *'Crisis del sector energético: Nicaragua apagándose'*, Red Nacional de Defensa de los Consumidores, November 2005

The tariff calculations under privatisation began from a starting point which was extremely unfavourable to consumers. Since 2000 the government has also allowed several tariff increases. While, according to INE figures, the average real tariff price on energy in 2000 was 1.40206 córdobas per kWh (US\$0.11053 according to exchange rate of the period), in 2005 this had risen to 2.12250 córdobas per kWh (US\$0.12684) – an increase of 51% in local currency.^{xxviii}

Although the tariff increase alone will be difficult for poor Nicaraguans to afford, unfortunately the overall increase in bills goes far beyond the basic tariff increase due to the whole raft of other charges applied by Unión Fenosa.

The first add on is the charges applied for commercialisation (which basically refers to the billing process). These charges should not exist at all as they are already covered in the tariff as an operating cost and so are taken into account in the distribution value added margin. However, Unión Fenosa charges for it separately.

The second category where inappropriate charges appear is with regard to street lighting. There are many documented cases where Unión Fenosa has charged customers regardless of whether street lighting exists or is in working order. The company has been fined several times for this practice in Sébaco, Matagalpa, León and Chinandega.^{xxix}

A third problem has been documented by the National Consumer Defence Network. They have received a large number of complaints that customers of Unión Fenosa have been over billed. While tariffs have increased since privatisation by 51% many consumers

have seen their bills rise astronomically. This is because they are finding their energy consumption levels reported on their bills as having increased dramatically from month to month.

As mentioned earlier Unión Fenosa’s main investment has been in changing old meters to new ones. It is particularly the consumers with new meters who are seeing their consumption levels rocket. Not only does Unión Fenosa present bills with these new, much higher readings, but it also then makes an assumption that the new meter is giving the correct reading and the previous smaller readings were in fact caused by the household stealing electricity. Unión Fenosa then applies a fee on the next bill for ‘non registered energy’, however disproportionate or high that fee might be.

The following table illustrates the issue of over billing. The details are taken from the electricity bill of a poor family living in the Montoya area of Managua:

Table 3
An example of the growth of electricity bills

Electricity bill	October	November	December	% increase
Energy consumed				
	130 kWh	1497 kWh	1673 kWh	1187%
Charges (in córdobas)				
Energy consumed	239.57	5,700.50	6,793.93	2736%
Street lighting	38.00	143.56	148.58	291%
Commercialisation	12.30	149.65	150.25	1121%
Non-registered energy			22,400.84	

(Note – this bill does not include all of the charges on the bill – just the main charges).

According to Unión Fenosa the level of this family’s energy consumption has increased 1187% in two months and the amount they are charged for energy consumption alone has increased by 2736%. These are of course extraordinary hikes in consumption levels and for Unión Fenosa to maintain the new levels on the bill are correct it has to assume that the household has in the past been using electricity without it being registered. A non-registered energy charge is then applied, as was done here in December. Taking into account these retroactive payments for non-registered energy and all of the charges included on this family’s December bill the family found it owed US\$1,856. The annual per capita income in Nicaragua is around \$890.

In addition to this arbitrary charging it seems that in some cases additional charges like street lighting and commercialization are charged according to consumption. According to Nicaraguan law the street lighting charge is supposed to be a set charge - calculated based on a census which would be completed with local mayors. The census would look at the number of street lights, the energy required and the number of people living there, applying a formula approved by the regulator to work out how much each house should pay for its share. Each household would then be charged a fixed amount per house.

Similarly the commercialization charge should be a set charge. Any instances of tying both the commercialization and street lighting charges to consumption will therefore have an additional impact. For any household whose bills see extraordinary hikes in consumption levels, these complementary charges will also go up exponentially.

This family's case may be extreme in the amounts being charged but unfortunately the problem of over-billing is widely reported. The National Consumer Defence Network receives the vast majority of its complaints with regard to electricity provision. From October to December 2006 out of 1022 complaints, 934 were regarding electricity – and critically the vast majority of these – 86% - were with regard to the issue of over billing. In fact, out of the total number of complaints the network receives which cover the energy, water, telecommunications, retail and banking sector a staggering 76% of all complaints were directly related to the issue of over-billing by Unión Fenosa. The Nicaraguan Energy Institute (INE) also reported in August 2006 an increase in 86% in the complaints it received from consumers. This is certainly indicative of the seriousness of this problem.

Investigators looking at this issue have gathered samples of receipts from different neighbourhoods and found that the bills of the lowest income consumers have increased by at least 100%, those of average income consumers by 200% and those of people who consume over 500 kilowatts by 400%. Against this the official tariff had only increased by a maximum of 20% over the period the investigators were looking at. As the consumers argue there has been no significant change in their life style and level of consumption, the very high increases in billings can only reflect the add on charges and the overstatement of consumption.

There is the 'inefficiency as opposed to conspiracy' argument i.e. that Unión Fenosa's staff are simply incorrectly reading its meters, or its meters are badly calibrated. If this is the case they are charging consumers for electricity that they are not actually using. Either way the problem lies at Unión Fenosa's door. The consumer is suffering the higher charges and Unión Fenosa is benefiting from the higher revenue.

Some interviewees commented that when they make a formal complaint about over billing Unión Fenosa corrects their bills. While this may be positive it is safe to assume that many people – particularly the poor – do not have the knowledge, resources or time to make a formal complaint and that it is only the minority who get satisfaction from these channels. Unión Fenosa's responsiveness in lowering bills once complaints are made may also be indicative of their inability to make the case that their bills present the correct information.

Of course all of this is an issue for the regulator who should champion the consumer's interest and control what is on the bill and how it is calculated. To date the regulator has not looked into the issue of over billing and there is no mechanism to check the veracity of the consumption levels reported by meters. As Unión Fenosa install the new meters, read them and maintain them – and as they own the only (formerly state owned)

laboratory which has equipment to calibrate meters - there is no independent verification at any stage of this process.

In the eyes of the World Bank or IMF, of course, these would be considered small stories unworthy of much interest. In fact, the World Bank staff member interviewed, while very knowledgeable about the operational problems, said he had heard nothing about this issue.^{xxx} However, this is an illustration of the impact of a poorly designed and controlled privatisation on ordinary Nicaraguan consumers. It is also of extreme concern that evidence suggestive of arbitrary charging practices by a private monopoly is being ignored by government and the regulator.

The blackouts

Aside from the question of charges a further major issue arises post privatisation regarding the reliability of supply. In 2006 Nicaragua began to suffer from serious power shortages. For several months during the year there were a series of rolling power cuts of between 4 and 12 hours a day. The blackouts had a huge impact on consumers and businesses and led to widespread protest at the inefficiency of the privatised system. The protests led to a huge national debate on the state of electricity supply in the country.

There were many factors at work. Some electricity generating plants stopped producing or reduced production – some of this caused by unscheduled maintenance, on other occasions apparently in protest at bad debts. The state owned Hidrogesa was forced to continue production at full capacity to cover the deficit. The generators blamed Unión Fenosa for not paying them for their output and claimed they couldn't cover their costs and so they wouldn't operate. They also blamed the government for not lifting price controls on electricity as oil prices rose which seriously damaged their cash flow.

Unión Fenosa claimed it couldn't pay the generators as it was making losses and that this was mainly due to the fact that electricity tariffs were set too low by the government. The government had already released Unión Fenosa's guarantee deposit to the company in 2004 in response to Unión Fenosa's request. Under further pressure due to the escalating electricity crisis, the government authorised various tariff increases and also transferred subsidies directly to Unión Fenosa and the generators from Hidrogesa. However, none of this seemed enough to solve the problems of blackouts.

It is worth noting, as mentioned earlier, that Nicaragua has made progress with regard to increasing its installed electricity capacity. Installed capacity was 30% greater than peak demand in 2005. This is an acceptable figure - the UK figure, for example, is currently sitting at around 20% (although this is beginning to cause some concern).^{xxxi} From this figure alone generation capacity looks adequate. There are, of course, other industry benchmarks to analyse installed capacity, however, we don't have enough data on plant capacity, investment and maintenance to apply these formulas. We can assume that given the lack of investment and attention to maintenance generators will run into problems at some point. However, there are no strong indications from the current generation capacity that the system should expect a consistent, serious problem with blackouts.

Given the good level of installed capacity and the consistency and seriousness of the blackouts many commentators and consumer groups in Nicaragua have come to believe that the generators and Unión Fenosa were able to collectively use their control over the market to reduce production and induce an energy crisis. This serves to pressure the government to allow an increase in tariffs and to provide generous subsidies.

If these suspicions are well founded, this points to a major failure in the area of regulation. Firstly there should be a system in place which makes it impossible for generators to simply shut off production and to exercise this kind of market power. In the UK market forces ensure this does not happen as generators are not paid unless they produce. However, even if the capacity payment system is in place – and generators are paid regardless – the regulator should investigate properly and withdraw the license of any generator who engages in this practice.

What is clear in all of this is that despite the failures of supply the consumers go on paying. As explained above generators are guaranteed capacity payments whether they produce or not. It has been reported by the National Consumers Network that while users would suffer long blackouts their bills would be as high (or higher) during the blackout months as before.^{xxxiii} Therefore, while consumers were paying ‘capacity payments’, regardless of the poor performance in crisis periods, they were also paying ‘energy payments’ as if they had been receiving electricity continuously throughout the month. In addition consumers were also denied the discounts which Unión Fenosa should have been providing – as mandated by Nicaraguan law – as compensation for the blackouts. The regulator has imposed fines on Unión Fenosa for not providing compensation for the blackouts but no money has as yet been repaid to consumers.

The above facts show that the consumer is in the position of paying more and getting less post privatisation and all this flows from the inappropriate balance of power in the market and a failure to properly design, control and regulate the privatisation process.

The impact on businesses

The power cuts have of course had a huge impact on all sizes of businesses, bringing losses of millions of dollars. One of the common complaints against Unión Fenosa is that it has failed to provide the public with a schedule of planned blackouts as required by law (although this practice has very recently changed).^{xxxiii} This is one of the reasons that businesses have found it hard to plan around blackouts and to adapt to the energy crisis. Again there is no evidence that the regulatory regime has made any impact on this failure.

According to the Nicaraguan Chamber of Commerce (CACONIC) national businesses have experienced a 20 - 25% reduction of sales over several months in 2006 due to the energy crisis.^{xxxiv} The Chamber of Commerce also said that the energy crisis was the main obstacle preventing Nicaraguan businesses from taking advantage of the Central American Free Trade Agreement (CAFTA).

The poor are also directly affected by impacts on small businesses. Managua's Eastern Market (*Mercado Oriental*) announced they would take legal action against Unión Fenosa for the damages caused to their, mainly meat and dairy, businesses due to power cuts.^{xxxv}

Christian Aid interviewed several small businesses in two different poor neighbourhoods of Managua to hear about their experience during the blackouts.^{xxxvi} One man saw his photocopying business fold after a power cut in September 2006 and a high voltage surge. This burnt out three of his machines, forcing him to close and lay off his young staff. He owes the bank over \$12,000 as his debt has spiralled due to high interest rates and he is struggling to make ends meet for his family. We talked to another business man who runs a small bakery employing 30 men in one of Nicaragua's poorest neighbourhoods. The owner was struggling to avoid laying off his staff after enormous problems with power cuts of 12-14 hours a day in September and October of 2006 and ongoing cuts of 5-6 hours a day in 2007. This business had suffered losses of over \$4700 in a period of 4 months.

The level of the blackouts has led to widespread protest within Nicaragua and internationally. The events of 2006 led to a national campaign being formed in Spain called '*La Ir-responsabilidad social de Unión Fenosa. Capítulo 1: Nicaragua a oscuras*'. (This roughly translates as the social irresponsibility of Union Fenosa. Chapter 1: Nicaragua in the dark. The use of the word *penosa* is a play on words – *penosa* means unpleasant. The phrase is now commonly used to describe the firm in Nicaragua). The Spanish campaign has called on Unión Fenosa to end the indiscriminate blackouts in Nicaragua, to repair the damage they have caused and to leave the country.

Further costs to the country

Other less frequently quantified costs to the country from this privatisation and fossil fuel dependant model include the cost of restructuring the sector, the high cost of oil imports and the direct costs of subsidising the private sector's activities.

Although complete data has not been compiled, Nicaragua took out several loans from the IDB to cover the cost of the privatisation process. The main one was a \$30 million loan to support the ENEL restructuring unit and to provide support to the government in the process of restructuring and privatising distribution and generation companies. These debts will not have been cancelled under the HIPC initiative and are still part of Nicaragua's debt burden.

Given the decision made by the IFIs for Nicaragua to pursue a fossil fuel dependant model, Nicaragua's dependence on oil imports has grown. This is an extremely expensive way to generate electricity. In 2004 fuel imports cost Nicaragua \$425.9 million. 35% of fuel imports are used to generate electricity.^{xxxvii} Nicaragua has a huge trade deficit with imports exceeding exports by a staggering \$1,456 million in 2004.^{xxxviii} For a developing country with such a large trade deficit the country can ill afford to use significant

amounts of its export earnings on costly fuel imports. It has been a hugely damaging miscalculation on the part of the IFIs to promote such dependence.

It is not within the realms of this report to try to quantify the cost of subsidies and investment incentives provided to the private sector operators involved in electricity generation and distribution in Nicaragua. In addition given the level of secrecy regarding the contracts, sales and subsidies it would be extremely difficult to present accurate information.

What is public knowledge is that the state has repeatedly subsidized Unión Fenosa by transferring earnings of the hydroelectric generator, Hidrogesa. A transfer of \$5.3 million was made in 2005 to subsidize Unión Fenosa and the energy stability law approved a transfer of \$30 million for Unión Fenosa and the generators.^{xxxix} Unión Fenosa's deposit was also returned to the 'ailing' company and the 2005 energy stability law also provides that Hidrogesa must sell to Unión Fenosa at preferential rates which are below the market price and which represent an ongoing subsidy.

Many believe this granting of subsidies is like 'throwing money into a bottomless pit'.^{xl} When the \$30 million subsidy was announced the Corinto Power generator admitted in a press conference that they had already spent the amount they were going to receive and this solution would only last a few months at which point there would be more power cuts if they didn't receive more subsidies.

The World Bank has tracked the level of subsidy provided – though this data is not public so we were unable to have access to these figures. Their response to the question about the fiscal impact of these subsidies was to classify them as 'not significant' and not large enough to be a 'drag on public funds'.^{xli} In a country as indebted and cash strapped as Nicaragua, with so little investment in basic service provision, this seems a remarkably relaxed position to take.

Unión Fenosa's response

The debate about the failure of electricity privatisation in Nicaragua has raged throughout 2006 with the government and Unión Fenosa battling it out often publicly in the Nicaraguan media. The role of the generators in this public relations war has tended to get less coverage although this seems misguided given the generators and Unión Fenosa together control the whole process in circumstances of a weak regulatory environment.

When attacked for its role in the failure of the whole system Unión Fenosa has generally defended itself by pointing to the problems they are facing – that the network suffers a high percentage of electricity losses; that the electricity tariff has a built in costly subsidy for poor consumers; that the tariffs are not rising to reflect rising oil prices and that they are making a loss in their operations in Nicaragua. The question of losses being made by a distributor known to be applying spiralling charges to the consumers raises major issues which are explored further below.

Unión Fenosa's losses

The investigation of whether Unión Fenosa actually do make losses would be considerably easier to conduct if they made full disclosure of all the relevant financial information but in fact the process is considerably hampered by the absence any significant amount of financial data.

As transnational companies are not obliged to present country-by-country financial reports – despite NGO campaigning on this^{xlii} - there is little detailed information publicly available regarding Unión Fenosa's finances in Nicaragua. The company's Annual Reports from 2000 and 2001 provide no information on profit or loss in Nicaragua. However, the financial statements from 2002 onwards do publish both the percentage of the minority shareholding in each country, as well as the profits or losses of all the minority shareholders. From these we can work out the overall losses of the distribution companies in Nicaragua:

Table 4
Union Fenosa's profit (loss) in Nicaragua
In thousands of euros and dollars

	2002	2003	2004	2005
Minority interests Profit (loss) in thousands of euro	(1,216)	(1,812)	(965)	(2,318)
Minority interests Profit (loss) in \$	(1.65 million)	(2.46 million)	(1.31 million)	(3.15 million)
Profit (loss) of electricity distributors' operations in Nicaragua in thousands of euro	(5,943)	(8,856)	(4,716)	(11,346)
Profit (loss) of electricity distributors' operations in Nicaragua in dollars	(6.06 million)	(10.89 million)	(6.32 million)	(13.50 million)

Note: Minority interests were 20.46% in 2002, 2003 and 2004, and 20.43% in 2005.

Note: Exchange rates used for each period are: 1 euro = \$1.02 (2002), 1 euro = \$1.23 (2003), 1 euro = \$1.34 (2004), 1 euro = \$1.19 (2005)

Source: Unión Fenosa Consolidated Financial Statements

From these statements – which are audited each year by Deloitte Touche – we can see that the company has consistently reported a loss. The most recent statement shows that losses are now reaching over US\$13 million and losses over this four year period come to \$36.77 million. This level of loss would of course barely register for this transnational company which made a profit of US\$952 million (800 million euros) in 2005.^{xliii}

But what is the reason for such losses? It is important to put this into the perspective of the Nicaraguan population. For many Nicaraguans it is difficult to understand how the company is making a loss, given the following:

- they have a high profit margin guaranteed in the tariff,
- the company has invested in new meters to ensure an increase in their revenue,
- the company has an increased customer base, with around 150,000 new users being added since 2000,
- the company receives payments from consumers for additional charges they include on the bill, bringing in revenue over and above this guaranteed profit margin,
- they receive subsidies from the state, and
- the company has not incurred any major costs as it has not made any significant investments.

For this reason it is important to investigate the reasons put forward by the company. With the limited information we have the most that can be assessed is whether the explanations are consistent with the patterns of losses.

Firstly, with regard to the excuse that they are providing costly subsidies to poor consumers, it would be incorrect to accept that this creates a financial burden for Unión Fenosa. Nicaragua operates a cross subsidy system so the subsidy is built into the tariff ranges with a low tariff rate for small consumers and a high tariff rate for high consumers. It is not Unión Fenosa which pays the subsidy for poor consumers- it is covered by higher consuming individuals. It is impossible that subsidies for consumers are impacting on Unión Fenosa's profit.

The two other major factors which the company regularly refers to in its public responses are the rising oil price – which they say the government has not reflected sufficiently in the tariff – and the cost of electricity losses from the system.

Rising oil prices

It is true oil prices are rising significantly and this has created problems for many developing countries who have to rely on oil imports. The following table shows the average annual oil prices that Nicaragua will have had to pay for its imports since the year 2000:

**Table 5:
Increasing oil prices**

Year	Price (\$ per barrel)
2000	\$32.65
2001	\$28.06
2002	\$28.10
2003	\$31.60
2004	\$38.9
2005	\$61.3

Source: 2003-2005: Nicaraguan Central Bank; 2000-2002 ECLAC, 'Istmo Centroamericano: Informe sobre abastecimiento de hidrocarburos 2002', 29 September 2003

This shows that oil prices have seen a rise of 87.7%. This is of course taking prices from the spot market which may not be the most accurate measure for Nicaragua. It is quite possible that generators have fuel hedging policies, buying their fuel months or years forward to lock in potential benefits. We have no information on their fuel purchasing strategy but there is no question that there should be some strategy in place to stabilise prices over the long term. In the absence of this information we shall use the spot market prices for our analysis, though it should be noted that generators are likely to be getting a better deal than these prices convey.

According to the formula applied in Nicaragua this rise should be factored into the electricity tariff charged to customers. However, tariff rises are not automatic and depend on the government's approval. INE figures show that tariffs have been allowed to rise 51% between 2000 and 2005, the period when the oil price rose by 87.7%. The key question is whether this has been enough to cover the oil price rises. Unión Fenosa's public position has always been that it has not.

In the UK a reasonable measure would be that oil costs account for 35-40% of the cost of electricity.^{xliv} If we are generous therefore in our calculation for Nicaragua we can say that oil costs account for 50% of the cost of electricity. If this is the case a rise of 88% in the oil price would necessitate a 44% increase in the tariff. In fact the government has authorised more than this.

Of course this analysis should not even be necessary. There should be complete transparency around the role of fuel costs in electricity generation. In the UK the regulator ensures that fuel costs are always separated out. There is complete transparency to ensure fuel cost adjustments are properly calculated and that no operator makes money out of these tariff increases.^{xlv} This is clearly not the case in Nicaragua where the financial transparency of the companies is a huge problem and the regulator is extremely weak.

The role of electricity losses

Electricity leakage and theft are major sources of inefficiency and revenue loss for the electricity distributor. Electricity losses are consistently around 30%. As the price mechanism assumes that such losses will be contained at 15% the distributor is generally losing around 15% of revenue due.

During the operational audit conducted in 2004 – of which some of the main findings have been leaked - it was reported that Unión Fenosa had not addressed the issue of leakage at all. The auditors also calculated that the company had lost out on \$173 million in income through its failure to meet its electricity loss reduction targets between 2001 and 2003.^{xlvi}

Without detailed information on targets and detailed financial information we cannot replicate this analysis of the auditor. However, using the INE statistics we can at least estimate a ballpark figure of the cost of the electricity losses – over and above what is already factored into the electricity tariff - during the period 2001 to 2005. The following

table shows the net electricity generated, electricity sold and the income from electricity sales:

Table 6
The regulator's figures for electricity generated, sold and income for the sector

	2001	2002	2003	2004	2005
Net electricity generation (Gwh)	2,300.11	2,424.96	2,561.11	2,647.35	2,738.39
Electricity sold (Gwh)	1,561.35	1,655.70	1,746.79	1,843.59	1,945.78
Income from electricity sales (US\$ million)	US\$169 million	US\$182 million	US\$201 million	US\$215 million	US\$230 million

Source: www.ine.gob.ni

Note – these figures only refer to the national grid not the isolated systems which produce and distribute much smaller amounts.

This information gives us a basis to estimate the cost of the losses. If we assume an average figure of 15% of electricity is unaccounted for each year, we can work out the loss in 2005 for example. The overall revenue that year was US\$230 million. As we know the electricity tariff includes 15% for loss we can assume this income figure corresponds to the value of 85% of the electricity generated. An approximate value for the unaccounted for losses (theft) in 2005 is therefore \$40.6.

Similarly we can estimate the value of an average 15% of electricity unaccounted for each year – shown in the table below:

Table 7
Calculating the value of electricity theft

	2001	2002	2003	2004	2005
Income from electricity sold (US\$ million) – 85%	US\$169 million	US\$182 million	US\$201 million	US\$215 million	US\$230 million
Value of losses – 15%	US\$29.8 million	US\$32.1 million	US\$35.5 million	US\$38 million	US\$ 40.6 million

This shows the overall value of 15% of electricity being stolen each year for five years at \$176 million. Certainly the losses reported by the company (eg. in 2005 of US\$13.5 million) pale into insignificance when we see the cost of the losses of electricity.

We have to remember that it is up to Unión Fenosa to address the overall losses from the system – that is to reduce both the technical losses and the theft. However the percentage

losses have remained high making a serious dent in the profitability of the company. We now know that oil price rises have been more than covered by the tariff rises. It is without question that it is the electricity losses which are driving the company's inability to make a profit.

Unión Fenosa's business strategy

Unión Fenosa would have been fully aware of the many problems with the electricity system in Nicaragua when it invested and presumably the company still felt it was feasible to make a profit. Clearly it has not taken the route of heavy investment to address the huge infrastructure challenges and, at least, reduce the technical losses by some percentage points. What the company has done is take the simpler route of trying to increase its revenue and reduce its costs.

The company's strategy to increase its revenue has included several approaches. Firstly it has looked at revenue collection from existing customers, putting in new metering systems. Ostensibly this should ensure they are getting what they are due, although, as explained earlier, there is great controversy in Nicaragua over how the new meters are functioning and the company may well be getting more than it is due. Secondly Unión Fenosa has taken some measures to address theft – installing meters in marginal areas which had relied in the past on informal connections – and encouraging the adoption of a new law which criminalises electricity theft.

It is not clear is whether Unión Fenosa has targeted the big users in their revenue protection strategy. No information is available on this though, of course, it would be a much more sensible business strategy to start checking the meters of the big industry users and ensuring they are paying their dues.

In addition the company has increased its revenue by taking on new users - just over 150,000 between 2000 and 2006.^{xlvii} Finally Unión Fenosa has consistently tried to ensure increasing revenue by lobbying for tariff increases. These efforts have, of course, been bolstered by the growing crisis in the system and the huge pressure on the government to approve tariff increases. The company has been successful in winning tariff increases – which have gone above and beyond the oil price rises.

All in all the company has been fairly successful in increasing its revenue. It is also reported to have reduced costs by out-sourcing a variety of activities and keeping wages low.

Clearly none of this has been enough to make the company profitable. The bottom line is that people simply cannot pay the prices demanded for electricity. By raising tariffs Unión Fenosa hopes to increase its revenue, but as consumers see rising electricity bills and are cut off, they end up resorting to stealing and theft remains high costing the company money in the long run. Perhaps Unión Fenosa originally thought benefits from increasing tariffs and new users being connected would compensate for the high cost of theft. If this is true they have made serious miscalculation.

It is the electricity losses which are driving the company's inability to make a profit. Reducing technical losses would require a multimillion dollar investment – which Unión Fenosa has not made to date. However, addressing losses of electricity due to informal connections is much more complicated than even that. There is no easy answer to the issue of electricity theft in Nicaragua.

Efforts to police the system or investing in new infrastructure (at higher voltages with higher poles) would make theft more difficult. However, it will also just punish the poor who cannot afford electricity and deny them access to a basic service. The cost of electricity theft is basically the cost of the implicit subsidy which is needed to make energy available for poor households. In Nicaragua we can see this subsidy cost around \$40.6 million in 2005. While stopping theft is complicated and penalises the poor, it is also that case that Unión Fenosa's business strategy of seeking tariff increases and pushing up bills encourages theft by poor users who simply can no longer pay. This of course becomes a vicious circle – it is simply not viable to actually raise the tariff enough - and get Nicaraguan users to pay it - to cover the cost of the losses.

Calling Unión Fenosa to account

The findings of the operational audit certainly should have alerted the Nicaraguan government that all was not well with their arrangement with Unión Fenosa. The key findings regarding the lack of investment in improving the system's infrastructure should have been immediately addressed, with specific conditions being put on Unión Fenosa's investment and monitored closely.

Unfortunately this problem has never been properly addressed by the Nicaraguan government. What the regulator has done instead is engage in much smaller battles with Unión Fenosa applying fines for the company not providing street lighting (but charging for it) and for the company's practice of not giving discounts for blackouts.

What is clear is that at the international level Unión Fenosa is doing extremely well. It obtained the highest profits in its history in 2005 – US\$952 million - with much of this success due to the '*excellent operational performance of all its businesses*'.^{xlviii} This represented a staggering increase of 118% over its profits in 2004.

Summary of findings

It is very obvious that there were no real attempts to plan and manage this complex reform in Nicaragua. Instead it was forced on the country and rushed through in a very short time period. In the UK it took around 10 years to roll out the various stages of electricity privatisation and the rules of the sector have changed as the regulator learnt from its mistakes. Nicaragua was afforded no such opportunity.

In addition, there were no impact assessments to analyse what the results of the reform would be. Instead the government unwisely accepted a monopoly in the distribution, signed up to terms which were extremely generous for the companies (and which would be expensive for the consumers) and the issue of regulation and oversight was completely neglected.

It is also the case that significant private investment in infrastructure and maintenance has simply failed to appear. The millions needed to address the serious deficiencies in infrastructure have not been forthcoming. This has been noted at the global level where donor financing of public utility investment has declined with private investment following suit. The Nicaragua example is a further illustration of this trend. The policy of attracting investment through privatisation certainly looks extremely dubious.

Unfortunately in Nicaragua we have seen that not only has private investment in the sector failed to appear in Nicaragua, but operations have been beset by arbitrary charging practices – with operators allegedly colluding to pressure the government into raising tariffs and providing subsidies. Such practices have resulted in a serious break down in the reliability of the system at a huge cost to the government, businesses and consumers. Consumers are now paying exorbitant prices for an inefficient, poor quality service blighted by frequent power cuts and variations in voltage which damage electrical equipment and signify a serious risk to health and safety.

Nicaragua's majority poor population are faced with higher prices which inevitably reduces their choices and available income for other basic needs. This means they have been forced to cut down on spending for food or education or health. Given their much lower levels of income, the poor will have borne a much higher cost of this failed privatisation. Many of the poor have also been pressured by rising tariffs to disconnect from the network and turn to illegal connections. In effect the companies' revenue raising strategies often induce higher levels of theft – a vicious cycle which has no end in sight. Increased theft will further degrade the infrastructure of the system. It will also expose more poor people to the risk of the newly enacted criminal penalties for electricity theft.

But perhaps the most important lesson of all from the Nicaraguan experience is that the model of the IFIs simply does not make commercial sense. Their expectations of what privatisation could deliver were massively removed from the realities of the sector. The World Bank and IMF believed that it would be possible to adopt a privatised model in Nicaragua which could be run on a commercial basis serving both the interests of the private investor in making a profit and the majority poor population who need to access the service. This study shows it is not financially viable to pass on the full cost of electricity provision to Nicaraguan consumers. Such costs include the multi-million dollar investment costs necessary, the high profit margins for all the private operators who are offered very favourable terms and the spiralling production costs due to factors such as rising oil prices. It is obvious that the system in Nicaragua cannot be run on a commercial basis – an assessment which it should have been feasible to make before the reform. While the IMF and World Bank would like to believe that heavy investment by

donors and governments on infrastructure is not necessary, this study shows that the private sector will not be able to fill that gap.

The role of the international financial institutions

But who bears the responsibility for the failure of electricity privatisation in Nicaragua? Certainly it is questionable whether the Nicaraguan government should have agreed to the sale to Unión Fenosa in the first place given it was the only bidder and this was already unlikely to create the right conditions for the development of the sector. In addition the regulator has repeatedly failed to call the company to account for its failure to invest and to meet the quality standards established in Nicaragua law which the contract refers to as benchmarks for the company's performance. This is a very serious infringement of its responsibilities.

As explained above the IMF, World Bank and the IDB together promoted and financed a privatised, oil dependant model of electricity generation. Funds were not made available for state investment and Nicaragua was subject to strict privatisation conditions through its lending agreements with the IMF and World Bank. While the poverty reduction strategy agreed under the HIPC initiative was in theory signed off by civil society a lack of proper consultation plagued the process and the issue of privatisation of public utilities was kept out of the consultation completely.

Only widespread social mobilisation avoided the complete privatisation of the state's electricity generation capacity. The government was going to sell Hidrogesa to Coastal Power for \$40 million – a fraction of its worth given its annual profits. However, after pressuring for many years for the privatisation of all state run generating companies, the World Bank and the IMF finally granted a waiver at the end of the HIPC process. In the completion point document the IMF and World Bank recognise that not privatising these companies has saved Nicaragua from *'an undesirable concentration of market power and ... financial problems in the power sector'*. They then go on to say that *'the potential dangers of ownership concentration in the power sector were not fully appreciated at the decision point. The importance of having an adequate legal and regulatory framework became fully evident once the electricity distribution companies were privatised to one operator'*^{xlix}

If Nicaragua had in fact implemented all of its HIPC conditions it would have been left with an energy generation monopoly – as well as a distribution monopoly – a result which would have wiped out any chance that the energy sector would serve the wider public interest and the development of the country. While it is positive the IMF and World Bank have finally woken up to the dangers of this model it is unacceptable that privatisations of public utilities are promoted with such an obvious lack of analysis of the impact of monopolies and poor regulation.

It would also be unwise to believe that such admissions on the part of the IFIs mean they are open to allowing Nicaragua to re-evaluate the strategy for the energy sector. It is not

at all clear whether there will be any consideration of new options for the future. In its latest Joint Staff Advisory Note¹ the IMF has stated that an area which needs urgent attention in Nicaragua is the losses in the electricity sector. It calls for an increase in electricity tariffs to stem these losses – something which they feel should be addressed in Nicaragua’s second PRSP. The Nicaragua government has already responded with a 2% tariff increase on the 1st June 2007.

With even a superficial analysis of the situation of the energy sector in Nicaragua it is obvious that this remedy will fail. This study shows that the provision of this service is very far from being commercially viable and tinkering with tariff increases will not address the key problems such as the lack of investment to modernize the infrastructure, high levels of electricity theft and the dependence on expensive fossil fuels. It will simply punish the poor and increase electricity theft, further degrading the system. In addition, increasing the tariff is very likely to have a negative impact on growth and the development of the private sector, given the close correlation between growth and energy costs in developing countries. If the goal is to provide an affordable, high quality, efficient service to all Nicaraguan consumers focusing on increasing electricity prices will resolve very little. A serious re-think is necessary.

It is unlikely that the IMF is ill informed about the results of privatisation. Not only is it willing to ignore the basic lesson that the system is not commercially viable, it also seems willing to ignore a whole host of other factors - the failure to invest; the government being forced to subsidise private companies in extremely unproductive circumstances; the huge losses for the local business sector; the escalating tariffs for the poor; the evidence of arbitrary charging; the absence of effective regulation and the increasing exclusion of the poor from a basic service. This is no mean feat.

While the IFIs have played a leading role in the process of electricity privatisation it is also important for UK NGOs to think about the role of the British government in this process. The British government have made clear that they do not support conditions being applied to developing countries in relation to deregulation and privatisation. However, DFID Latin America channels the majority of its funds through the IFIs and sees its role in the region as mainly focused on influencing the agenda of the IFIs. In such a context it is certainly arguable that DFID should be doing more to ensure that the policy agenda of the IFIs is more appropriate – particularly in sensitive areas such as basic service privatisation.

However, DFID’s Latin America team have made clear that they see their ‘influencing’ role as related to a small number of projects and themes in which they are active. These do not include privatisation. Therefore, the department feels able to distance itself from the impact of the broader conditions and policies of the IFIs. While our conversations with DFID staff have certainly not revealed a positive opinion of energy privatisation in the country it is also an area in which they have failed to take a countering position to the World Bank or IMF including with regard to the latest ‘remedy’ on offer. It is unfortunate that they feel unable to speak out about such a stark example of a failed policy.

It is also relevant that DFID provides direct budget support to the Nicaraguan government. Although the direct budget support group does not formally apply conditions they have made clear that they take their signals from the IMF. This means that IMF conditions are implicitly supported by DFID and the other bilateral donors. The conditions which the IMF will impose for the energy sector in the second PRSP will therefore be implicitly endorsed by the British government.

Nicaragua's experience stands in contrast to that of Costa Rica, a country which has so far resisted pressures to adopt a wholesale privatisation model for its electricity sector. Costa Rica is the country in the region with the lowest electricity prices – it has no fixed charges and the price per unit of electricity consumed is lowest. Costa Rica's electricity costs just over half that of Nicaragua's. This is unsurprising given Costa Rica has managed to avoid a dependence on fossil fuels which have generated less than 10% of Costa Rica's electricity since the 1970s.^{li} With oil based generation accounting for around 50% of the final price of electricity, renewable energy should be around half the price. Costa Rica is also the country with the greatest electricity coverage – 97% of households in 2003.^{lii}

There are some obvious **recommendations** for the IFIs to take into account based on these lessons learned:

- Privatisations – particularly of basic services - must be approached with caution. They require complex reforms which must be planned and managed carefully over time – not rushed (or forced) through in 2-3 year periods.
- There must be proper debate on the arrangements under a privatised model. An approach which focuses on being 'as attractive as possible to foreign investors' will not deliver the benefits developing countries so desperately need. Instead the guiding principle of basic service privatisation must be to design an approach to ensure a good quality, affordable service is provided to the vast number of poor users, including those formerly excluded from the service.
- The commercial viability of the model must be thoroughly investigated. Can consumers afford to cover the full costs of the service – including the private operators' margins and the full investment costs needed to ensure the necessary increase in quality and coverage? If the interests of the poor are not compatible with the interests of the private sector then privatisation cannot be the only answer.
- There must be clear, enforceable targets for investment and efficiency to ensure a good quality, affordable service for consumers.
- The role of the regulator is paramount and must be given much more attention. In Nicaragua the role and the capacity of the regulator have been neglected with dire consequences.
- Oil based electricity generation is a luxury most developing countries can ill afford. Unfortunately many costly mistakes have already been made by encouraging developing countries to pursue this model of electricity generation. New investments must urgently look at cheaper and cleaner modes of electricity generation.

Going forward

Unfortunately Nicaragua has a long way to go to solve its energy crisis. Currently there is a huge debate around whether Unión Fenosa's position in the country is tenable. This, of course, raises a whole set of other challenges for the future as Unión Fenosa's investment is guaranteed by the Multilateral Insurance Guarantee Agency (MIGA) of the World Bank, an agency which guarantees the investment of companies in developing countries against political risk.

MIGA is funded by contributions from member states, with the UK government being the 3rd biggest shareholder in the institution.^{liii} MIGA insures companies against political risks, one of which is defined as expropriation by host governments. Expropriation includes government actions to end investor's control over investment, that is, nationalization, confiscation or creeping expropriation. Moves by the Nicaragua government to renationalize a public utility would therefore be classified as an expropriation, meaning MIGA would pay out on the insurance.

Once MIGA has paid out, it is standard policy that developing countries have to reimburse them on the claim. This occurred with MIGA's first claim in 2000 when it paid out \$15 million to Enron for a power plant project in Indonesia which was postponed. After MIGA paid out on the claim it stopped providing political risk insurance for Indonesia until February 2001 when the Indonesian government agreed to reimburse MIGA.^{liv} In Nicaragua's case it is made clear by the World Bank in their strategy documents for the country that MIGA will not provide new political risk insurance cover *'should any dispute escalate to the point where MIGA would have an unresolved claim against the country'*.^{lv}

The World Bank clearly expects therefore that if MIGA has to pay an investor then Nicaragua will feel obliged to repay any claim. However there is no clear legal obligation between Nicaragua and the World Bank on this, a fact which the Nicaraguan electricity regulator INE has pointed out publicly, saying Nicaragua will not have to repay MIGA.^{lvi} However, it remains to be seen how such a situation would be resolved in this case. Generally developing countries which are highly dependant on World Bank financing are not able to resist pressure to pay for very long.

There are circumstances under which MIGA can refuse to pay the guarantee. MIGA can cancel a guarantee if the investor breaches the obligations outlined in its contract. This is likely to be the only option for Nicaragua – to prove that Unión Fenosa did not comply with the terms of its contract. The World Bank has stated publicly that it will not charge Nicaragua for supposed expropriation if the company's claim rests on its on in compliance with its contract.^{lvii}

In the case of Nicaragua there is already a widespread assumption that Unión Fenosa's position in the country is untenable and what they are now really interested in is ensuring they get their multimillion dollar payout from MIGA. The World Bank has stated that MIGA's overall exposure in Nicaragua is \$107.3 million and that 99% of this

corresponds to the power sector.^{lviii} The Economist reports that the amount of Unión Fenosa's guarantee with MIGA is \$80 million.^{lix} If Unión Fenosa is successful in claiming this insurance the Nicaraguan government may well end up having to reimburse MIGA a very hefty amount. MIGA's role, in this case, seems to boil down to subsidizing the bad business decisions and poor performance of a highly profitable European company.

Tense relations between the government and Unión Fenosa are coming to a head. Unión Fenosa announced in January of 2007 that it was invoking the insurance agreement with MIGA and was seeking \$53 million in compensation for damage done to its investment. On March 23 of this year the Nicaraguan Energy Institute (INE) invoked an arbitration process under the Nicaragua Chamber of Commerce with Unión Fenosa. The government is arguing that Unión Fenosa has not complied with its concession contract to distribute electricity and, among other things, is asking that Unión Fenosa:

- Issue a full refund to customers who were illegally charged for electric services that did not exist
- Return all expired deposits to the companies that generate electricity and cancel all debts in order to put an end to energy rationing
- Apply discount rates for the poor quality of service rendered in 2005, a cost of almost US\$2.5 million
- Repay US\$2.5 million for energy rations during April and May of 2006
- Provide maintenance to the power grid, something it has not done, resulting in many accidents, some of which have been fatal.

At the time of writing the arbitration panel was still pending issuing a judgment. It is expected that the Multilateral Investment Guarantee Agency (MIGA) will not take any action until the arbitration has been completed.

It is not clear whether the Nicaraguan government has any chance of winning this case. Even if Unión Fenosa has not complied with its contract it is possible they could still win the case if the court finds that the Nicaraguan government has not done enough to try to correct Unión Fenosa's practices. INE's behaviour as the regulator has certainly not been of a high standard and it is only recently that they are putting more effort into documenting abuses and rectifying the situation.

The privatisation of electricity has proved to be a monumental failure in Nicaragua. The losses incurred over the last six years are impossible to quantify and the risk remains that the Nicaraguan government will have to pay out a significant amount of 'compensation' to Unión Fenosa. At the same time half of the population remain without access to electricity and many of those who do have access are now struggling to pay for that privilege. Unfortunately it is still far from certain that this result will force a rethink on the commercial viability of the electricity privatisation model in Nicaragua or in other developing countries.

Endnotes

- ⁱ UNDP, 'Privatising Basic Utilities in Sub-Saharan Africa: The MDG Impact', Policy Research Brief No. 3, January 2007
- ⁱⁱ UNDP, 'Privatising Basic Utilities in Sub-Saharan Africa: The MDG Impact', Policy Research Brief No. 3, January 2007
- ⁱⁱⁱ See IMF, World Bank, 'Nicaragua: Decision Point Document for the Enhanced Heavily Indebted Poor Countries Initiative', December 7th 2000
- ^{iv} See page 13 of IMF, World Bank, 'Nicaragua: Decision Point Document for the Enhanced Heavily Indebted Poor Countries Initiative', December 7th 2000
- ^v For a review of the literature see, Zhang, Parker and Kirkpatrick, 'Competition, Regulation and Privatisation of Electricity Generation in Developing Countries: Does the sequencing of the reforms matter?', September 2004
- ^{vi} Ruth Selma Herrera Montoya, 'Crisis del sector energético: Nicaragua apagándose', Red Nacional de Defensa de los Consumidores, November 2005
- ^{vii} See World Bank Privatisation Database
- ^{viii} Randall Wood, 'The Nicaraguan Energy Sector: Characteristics and Policy Recommendations', Johns Hopkins SAIS, May 2005
- ^{ix} Unión Fenosa 2001 Annual Report
- ^x Unión Fenosa 2005 Annual Report
- ^{xi} La Prensa, 'Fenosa vendió acciones al "cash"', 20 November 2001
- ^{xii} The information on the UK model was provided by industry experts Phillip King and Richard Bujko from the Manx Electricity Authority in interviews on the 4th and 12th June 2007
- ^{xiii} See page 20 of IMF, World Bank, 'Nicaragua: Enhanced Initiative for Heavily Indebted Poor Countries – Completion Point Document', March 2004
- ^{xiv} *Envio*, 'Our Electricity System is one of our Political Class' Great Failures', October 2005
- ^{xv} *Confidencial*, Edición 526, 11-17 March 2007
- ^{xvi} Interview with Fernando Lecaros, Energy Cluster, World Bank, 18th July 2007
- ^{xvii} The audits findings have not been made public, a result many commentators feel of its dire findings. Some of its content however had been leaked and a summary of the audit's findings can be found in Ruth Selma Herrera Montoya, 'Crisis del sector energético: Nicaragua apagándose', Red Nacional de Defensa de los Consumidores, November 2005
- ^{xviii} *Envio*, 'Our Electricity System is one of our Political Class' Great Failures', October 2005
- ^{xix} See www.ine.gob.ni for figures on installed capacity. These figures relate to effective installed capacity.
- ^{xx} See www.ine.gob.ni for figures on gross electricity generation per plant per year
- ^{xxi} Information provided in interviews with industry experts Phillip King and Richard Bujko, Manx Electricity Authority, 4th and 12th June 2007
- ^{xxii} See page 20 of IMF, World Bank, 'Nicaragua: Enhanced Initiative for Heavily Indebted Poor Countries – Completion Point Document', March 2004
- ^{xxiii} Interview with Fernando Lecaros, Energy Cluster, World Bank, 18th July 2007
- ^{xxiv} Jim Schultz, 'Water in Cochabamba After the Water Revolt: A legend with mixed results', The Democracy Centre, July 2007
- ^{xxv} Information provided in interviews with industry experts Phillip King and Richard Bujko, Manx Electricity Authority, 4th and 12th June 2007
- ^{xxvi} See page 20 of IMF, World Bank, 'Nicaragua: Enhanced Initiative for Heavily Indebted Poor Countries – Completion Point Document', March 2004
- ^{xxvii} *Envio*, 'Our Electricity System is one of our Political Class' Great Failures', October 2005
- ^{xxviii} See www.ine.gob.ni for detailed information on tariff levels.
- ^{xxix} See INE resolution 101-INE-DGE-2006 and 88-INE-DGE-2006 for examples.
- ^{xxx} Interview with Fernando Lecaros, Energy Cluster, World Bank, 18th July 2007
- ^{xxxi} Interviews with industry experts Phillip King and Richard Bujko, Manx Electricity Authority, 4th and 12th June 2007

^{xxxii} According to the National Consumers Network Unión Fenosa has explained the reason for bills staying the same during blackout periods is because ‘when the power comes back on people overcompensate for the loss of power by using all their appliances at once, for example doing their ironing while watching the TV etc.’.

^{xxxiii} Given the transmission operator coordinates between generators and the distributor, they have a key role in managing blackouts when there is insufficient capacity in the system. The transmission company should keep the distributor updated as to how this will be managed. We have no information as to how this was managed between Entresa and Unión Fenosa.

^{xxxiv} *Nicaragua Network Hotline*, 6 July 2006

^{xxxv} *Nicaragua Network Hotline*, 30 May 2006

^{xxxvi} The interviews took place in Managua on the 12 March 2007. Transcripts can be requested from Christian Aid.

^{xxxvii} Ruth Selma Herrera Montoya, ‘*Crisis del sector energético: Nicaragua apagándose*’, Red Nacional de Defensa de los Consumidores, November 2005

^{xxxviii} World Bank

^{xxxix} *Envio*, ‘Our Electricity System is one of our Political Class’ Great Failures’, October 2005

^{xl} *Envio*, ‘Our Electricity System is one of our Political Class’ Great Failures’, October 2005

^{xli} Interview with Fernando Lecaros, Energy Cluster, World Bank, 18th July 2007

^{xlii} See www.taxjustice.net

^{xliii} Unión Fenosa, 2005 Annual Report

^{xliv} Information provide in interviews with industry experts Phillip King and Richard Bujko, Manx Electricity Authority, 4th and 12th June 2007

^{xlv} Information provide in interviews with industry experts Phillip King and Richard Bujko, Manx Electricity Authority, 4th and 12th June 2007

^{xlvi} Audit findings reported in Ruth Selma Herrera Montoya, ‘*Crisis del sector energético: Nicaragua apagándose*’, Red Nacional de Defensa de los Consumidores, November 2005

^{xlvii} See www.ine.gob.ni for annual information on the number of users connected to the national grid.

^{xlviii} See Unión Fenosa’s 2005 Annual Report

^{lix} See page 20 - IMF, World Bank, ‘*Nicaragua: Decision Point Document for the Enhanced Heavily Indebted Poor Countries Initiative*’, December 7th 2000

ⁱ IMF Joint Staff Advisory Note, ‘*Nicaragua: Poverty Reduction Strategy Paper*’, Country Report, No.06/172, May 2006

ⁱⁱ René Castro and Sarah Cordero, ‘*Global Trade for Local Benefit: Financing energy for all in Costa Rica*’, 2003

ⁱⁱⁱ Ruth Selma Herrera Montoya, ‘*Crisis del sector energético: Nicaragua apagándose*’, Red Nacional de Defensa de los Consumidores, November 2005

^{liii} Friends of the Earth, Campaign for the Reform of the World Bank, Urgewald, ‘*Risky Business: How the World Bank’s insurance arm fails the poor and harms the environment*’, July 2001

^{liv} For a discussion of the Indonesia case see: Friends of the Earth, Campaign for the Reform of the World Bank, Urgewald, ‘*Risky Business: How the World Bank’s insurance arm fails the poor and harms the environment*’, July 2001

^{lv} See page 20 of World Bank, *IDA/IFA Interim Strategy Note for The Republic of Nicaragua*, July 6 2005, Report no: 32570-NI

^{lvi} Erika González, ‘*El riesgo (de mentira) de las inversiones de Unión Fenosa en Nicaragua*’, 4 February 2007, article published at www.unionfenosa.org

^{lvii} Radio la Primerísima, ‘*Banco Mundial quiere arreglo entre Fenosa y el gobierno*’, 3 March 2007

^{lviii} World Bank, *IDA/IFA Interim Strategy Note for The Republic of Nicaragua*, July 6 2005, Report no: 32570-NI

^{lix} See page 37, EIU, *Country Report Nicaragua*, 5th April 2007