

Analysing the Influence of the Energy Model on Fuel Poverty and the Role of Citizenship Mobilisation: A Case Study of the Platform for a New Energy Model in Spain

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Fuel Poverty (FP) is increasing throughout Spain. This growth has been caused not only by the general economic crisis, but also by the current national energy model. Examples of this include: the domination of the energy market by an oligopoly; the complexity and limited competitiveness of energy regulations; the restriction of renewable energies and the revolving door between the Government and energy companies. The current national energy model has also contributed to the strong negative impact on FP through the creation of tariff increases; an absence of public plans to reduce energy poverty; a lack of access to credits to improve energy efficiency; heavy usage of environmentally unsound fuels and devices and social illiteracy regarding energy issues. In this context, as a result of social mobilisation, the Platform for a New Energy Model (PNEM) was created, aimed at establishing networks to construct an informed and critical society, and to influence the Spanish Government to change its energy model. Since the creation of PNEM, FP has been increasingly analysed and debated in the media and hundreds of actions have been performed. This article reflects upon the influence of the Spanish Energy Model over FP and the role of citizenship to change it.

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Introduction

At present, fuel poverty (FP) is not addressed by the Spanish Government in its laws or policies. For the purposes of this article FP is understood to be the inability of households to maintain a comfortable temperature. It refers to those households which need to spend more than 10% of their income on maintaining an adequate level of energy services (heat, light and appliances) in the home (Tirado et al 2014). This article will argue that FP should be recognised and addressed by the Spanish Government as it has both human and environmental impacts. These include negative impacts on physical and mental health, excess winter deaths and increased CO₂ emissions (Liddell and Morris 2010; GFA 2013).

Despite the Spanish Government's failure to acknowledge FP, there are statistics to suggest that FP is increasing throughout the Spanish state (Tirado et al 2012). The first full analysis of statistics concerning FP in Spain show that during 2012, more than seven million people spent more than 10% of their monthly income on energy expenses; and, approximately four million people affirmed that they could not maintain their households at a comfortable temperature (Tirado et al 2014: 9). This represented increases of 34% and 19% of the population respectively, who are concerned about these two issues since 2010 (Tirado et al 2012: 40). Consequently, this article questions the Spanish Government's failure to recognise FP as a specific problem, including the failure of the state to introduce laws or policies aimed at addressing this issue.

One of the main challenges, which has resulted in the high levels of FP, is the constant energy price increases (See Figures 3 and 4). As a result, social mobilisation has emerged and a large number of citizens and institutions are demanding an urgent shift towards a more just and democratic energy model. Among these stakeholders, the Platform for a New Energy Model (PNEM)² can be considered as one of the most important, as it has had great success in this process. The PNEM understands FP as a violation of the rights of citizens; and it argues that the main cause of this phenomenon lies in the increase in energy prices, thus directly pointing to the Spanish Government

² See 'The PNEM: A Critical View from Citizenship' sub-section below.

and large companies as responsible for this problem. These ideas can be reflected in statements such as:

"[n]ow we cry together because FP freezes our consciousness, because energy is a fundamental right, because this winter millions of families cannot turn the heating, cooking or lights on, because oligopoly's greed has increased and so did the electricity bill, because unemployment is rampant, wages decrease and their desire to take everything and everyone over responds to an unlimited and irrational bulimia... Everybody against FP and its originators: energy oligopoly and the Spanish Government" (PNEM, 2014a)

FP is a complex issue. This article aims to contribute to the ongoing discussion by analysing the major relationship between the Spanish Energy Model (SEM) and FP, with a view to understanding the reasons why social mobilisation has recently increased and to identify the main issues that should be addressed to reduce FP in Spain.

Spanish Background

FP is widely understood as a consequence of three main causes. These are low income, poor energy efficiency and high energy prices (BERR 2001: 6; Boardman 1991: 291). The subsections below present the general data regarding these three causes at the national level in Spain.

Incomes

Figures 1 and 2 show the evolution of the Gross Domestic Product (GDP) per capita and the Gini coefficient³ in the selected countries. Spain's GDP per capita decreased by 7.2% between 2008 and 2012, and the Gini coefficient increased by 9.7% in the same period (becoming the second highest in the European Union in 2012). Taking into account these two parameters, it can be affirmed that the economic crisis has had a greater negative impact on working and lower-middle class people in Spain, who are

³ This coefficient is a measure of statistical dispersion intended to represent the income distribution of a nation's residents. A higher Gini coefficient equates to a less equal society in terms of income.

the most vulnerable to FP (*See for example* Ruel et al 2010; Marmot Review Team 2011: 19).

Figure 1: GDP per capita in purchasing power standards (PPS) with respect to the EU28 average. **Source:** World Bank 2014.

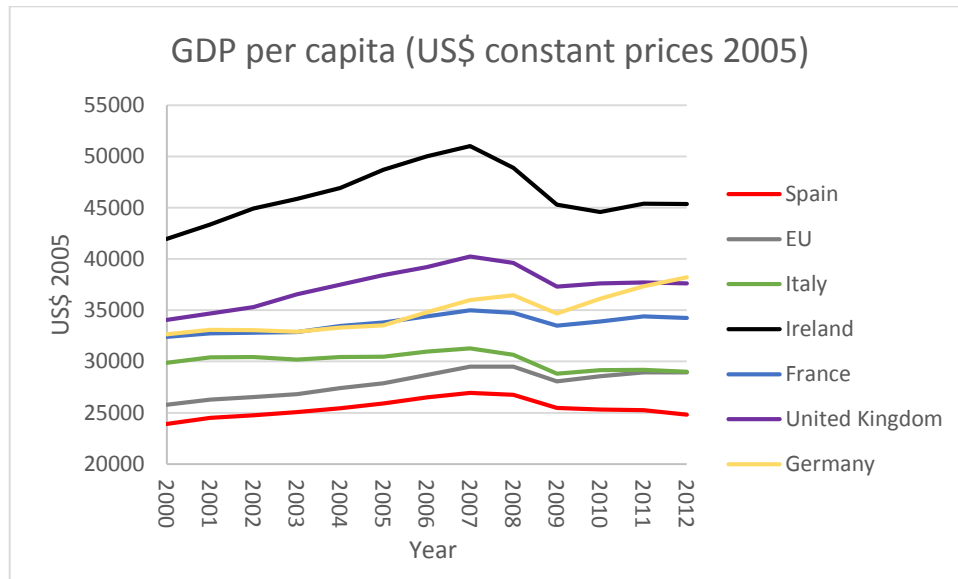
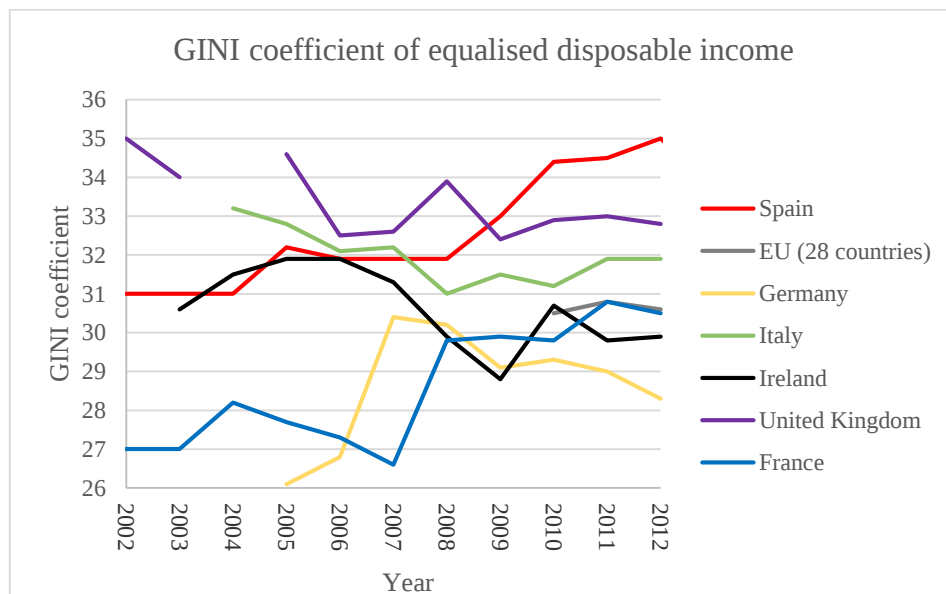


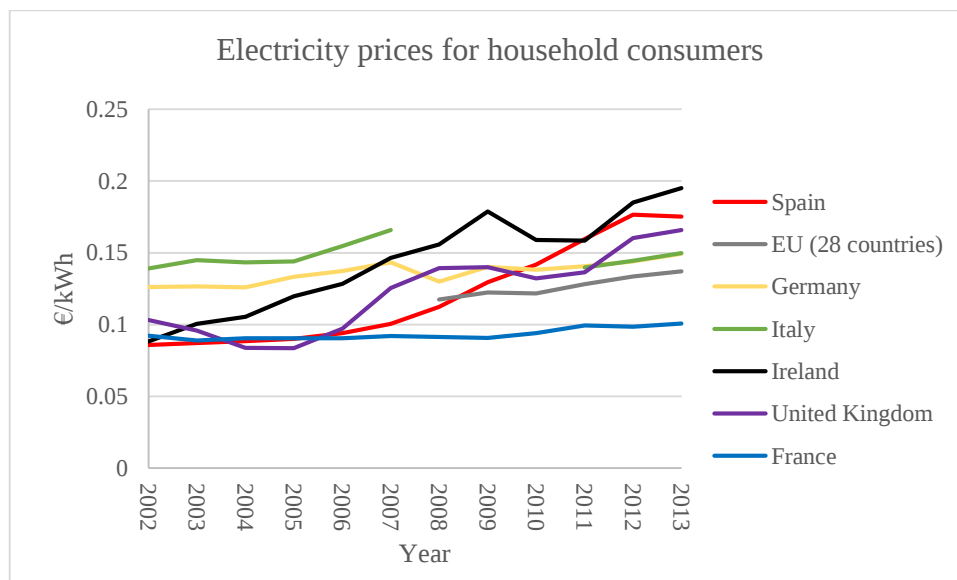
Figure 2: Gini coefficient of equalised disposable income. **Source:** Eurostat 2014.



Energy Prices

The price of energy has substantially increased in the last decade, as is shown in Figures 3 and 4.⁴ The Spanish Energy Sector was liberalised in 1997 when Law 54/1997⁵ was passed, and since then prices have been set by the market. This means that the Energy National Commission (ENC) stopped monitoring the costs of energy production because it was thought that a liberalised market would set efficient prices; however, this has not been the case.

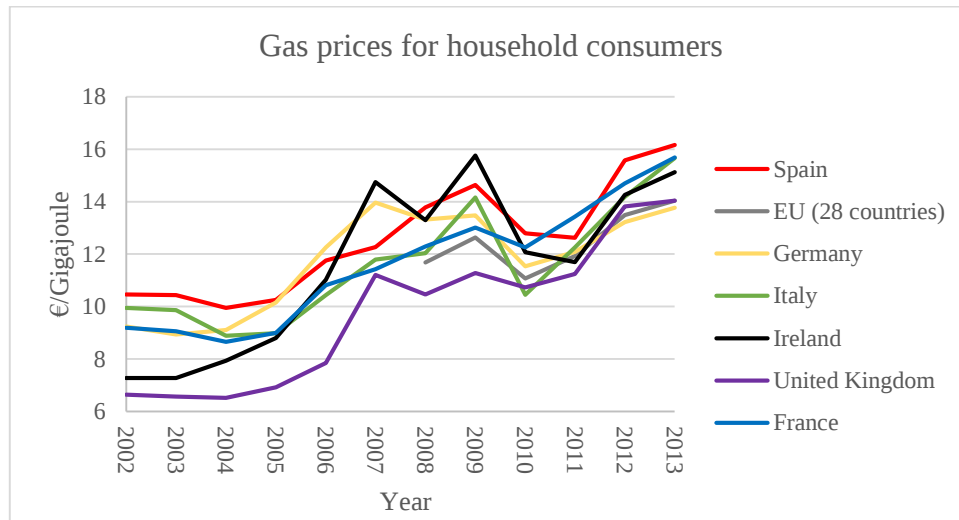
Figure 3: Electricity prices for household consumers in the European Union. **Source:** Eurostat 2014.



⁴Germany, Italy, Ireland, United Kingdom, France and the EU28 average data are presented to allow a comparison with Spain.

⁵ Law 54/1997, 27th November, 'Del Sector Eléctrico' (Published on the Official Spanish Bulletin no. 285, on 28th November 1997).

Figure 4: Gas prices for household consumers in the European Union. **Source:** Eurostat 2014.



In 2005 Spanish electricity prices for household consumers were the sixteenth cheapest in the EU, but by 2013 were the third most expensive, after Cyprus and Ireland; and gas prices for household consumers in 2013 were the second most expensive. The most significant change has been to Spanish electricity prices. These have increased by 55.9% since 2008, which is an increase of more than three times the EU average. Therefore, although electricity consumption has decreased by 6.1% and the economy has declined since 2008, individuals' energy expenses have greatly increased.

Energy Efficiency

As explained by Tirado et al (2012: 81), although Spanish dwellings are not very old, 53% of them were built before the first regulation regarding energy efficiency in new buildings was introduced in 1979.⁶ Moreover, only a small percentage of buildings were built in line with the stricter regulations which were introduced in 2006⁷ (WWF 2012). This means that the majority of Spanish dwellings do not satisfy the standards set by state policy; consequently, more needs to be done within the residential sector

⁶ Real Decreto 2429/1979, 6th July, in order to approve basic norm of constructions NBE-CT-79, about thermic conditions of buildings.

⁷ Real Decreto 314/2006, 17th March, in order to approve the Technical Code of Construction.

to assist with energy saving and the reduction of emissions (Dalle et al 2010: 125; WWF 2010: 52; Cuchí and Sweatman 2011: 6).

The Spanish Energy Model and its Impact on Fuel Poverty

According to data released in May 2013 by the Association of Renewable Energy Producers (APPA); 95% of Spain's electricity, 99.7% of the distribution and 79.5% of the commercialisation is generated by five companies (AEA 2013). This means that the Spanish energy sector is an oligopoly.⁸ This situation gives these companies great power to control prices, either to push the prices up to increase benefits or to pull them down to throw out competitors. Furthermore, these five companies were fined 61 million euros by the Competence National Commission (CNC) in 2011 for impeding users from a free change of energy distributor and fixing energy prices (Carcar 2011).

In addition to this, energy regulations are extremely complex. It might be suggested that this is an instrument in and of itself to limit competitiveness: it is very difficult and expensive for new companies to enter the Spanish energy market, and challenging for users to perfectly understand this market and make decisions regarding the best energy provider. In assessing the available information it can be deduced that, since competitiveness is very weak and the market's capacity to fix prices is inefficient, differences between prices and costs can be huge. This is especially controversial as the tariff deficit⁹ has been increasing since 2002, when the Real Decreto 1432/2002¹⁰ was approved, establishing that the energy prices could not increase more than inflation. This meant that any larger increase in energy prices would be considered a debt and, as energy prices have greatly increased, this debt increased to over €28 billion by the end of 2012 (Fabra and Fabra 2012: 1). Since the interests of this debt are being added to the electricity tariff in the race for economic sustainability in the electricity system, this is having a big impact on the energy tariff increase. However, as energy

⁸An oligopoly is a market form in which a market or industry is dominated by a small number of sellers.

⁹ The debt the Government assumes with energy companies because domestic tariffs are lower than real market tariff, as imposed by the Government in 2002.

¹⁰ Real Decreto 1432/2002, 27th December, in order to establish the methodology for the approval or modification of electricity tariffs.

costs are not audited and energy prices are not efficiently established, many experts claim that this debt is unfair (Barcia 2014).

Furthermore, Spanish civil society claims that the five companies constitute a lobby that has great influence on the Spanish Government's laws and regulations (Amigos de la Tierra n.d.; Carcar 2014; Ortiz 2014). The revolving door between energy companies and the Government is common practice. The newspaper, *El Mundo*, reported in February 2014 that forty-three senior politicians were hired by energy companies after leaving politics (Gonzalo 2014). This provides an example of how the entrenchment of companies' power to influence Government decisions for their own benefits stiffens the energy system against transformations that might negatively affect energy companies.

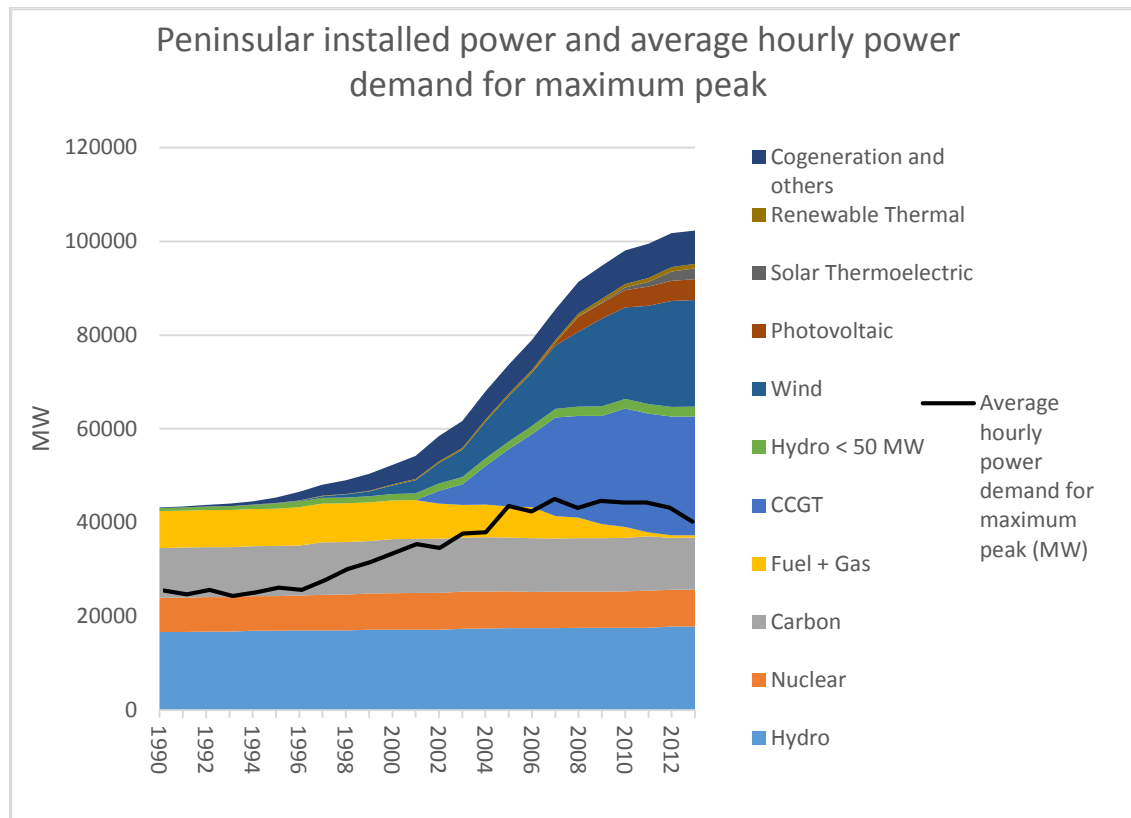
The Spanish electricity system is also oversized. While the demand for electricity decreased by 1.1% between 2005 and 2012, the peninsular installed capacity has increased by 38.1%; and 46.9% of that growth is due to Combined Cycle Gas Turbines (CCGT). In fact, the Spanish CCGTs worked at an average load factor of 0.13 in 2013 (Sedagas 2014) because of the excess of installed generation capacity in the country.

Figure 5 shows the evolution of peninsular installed capacity and the evolution of electrical energy consumption. As shown, Spain has relied on fossil fuels to increase installed capacity, which is concerning considering that the peak¹¹ in oil and gas extraction is about to be reached (Legget and Ball 2012: 611; García-Olivares and Ballabrera-Poy 2014: 4); and, fossil fuel prices are expected to increase in the coming years (Solé 2014). Moreover, as there is a surplus of installed generating capacity, the CCGT are generating at low load factors, which means a huge decrease in corporations' incomes. However, a new tax called 'payment for capacity' was introduced in 2013 to pay power plants to be ready to generate electricity if needed. The Government has earmarked €7.5 billion (which amounts to approximately €750 per family for the next

¹¹ The peak is the moment when the maximum rate of petroleum or gas extraction is reached.

decade) for this purpose. It is contended that the statistics show this expense might not be necessary as the installed capacity is very high and the supply is safe.

Figure 5: Peninsular installed power and average hourly power demand for maximum peak. **Source:** Red Eléctrica Española 2014.



Promoting renewable energy (RE) is a good strategy for transforming this situation as they are appropriate for decentralised systems and allow users to be energy producers. This transforms the corporative energy market and introduces thousands of new competitors. Thus, it reduces dependence on external and environmentally unsound fuels, helps reduce energy prices, even exceeding the subsidies RE receive (APPA 2012; 2014), and it is expected to create 125,625 new jobs by 2020 (Sustainlabour 2012: 32). However, while Spain formerly promoted RE, it is now restricted by several new laws that have been implemented in the last two years. For example, the Law 1/2012 declares an indefinite moratorium on new RE systems, the Law 15/2012 fixes

new taxes on the value of electricity production, and the Law 2/2013¹² removes the economic incentives of the Special Regime (RE and cogeneration). This regulatory framework has made investors stop promoting new RE systems and the result has been that, while Spain saw \$2.9 billion (approximately €2.255 billion)¹³ worth of investment in RE in 2012, this is an investment decrease of 69% with respect to 2011 levels and the lowest figure for at least eight years (BNEF 2013: 25). Consequently, as summarised in Table 1, there are a number of major issues that must be addressed and improved to reduce FP levels in Spain. These include competitiveness, regulations, tariff deficit, vulnerability against energy lobbies and the promotion of RE.

The Appearance of Social Mobilisation: The Platform for a New Energy Model

Table 1 shows the need for an urgent shift towards a more just and democratic energy model in a context of economic, financial and social crisis, since the constant energy price rises have led to very high levels of FP (BERR 2001: 6; Boardman 1991: 291). Although some European Directives (for example, 2009/72/CE¹⁴, 2009/73/CE¹⁵, 2010/31/CE¹⁶ or 2012/27/UE¹⁷) include certain obligations to tackle FP, it is still not recognised by the Spanish Government and, as the statistics show, Spanish energy policies have proven ineffective in addressing this problem.

Hence, citizenship and the so called 'third sector' (NGOs, social services, mobilised citizens, social institutions, energy cooperatives, etc.) have led the process to change the perception held by many members of the public about Spain's current energy model and to demand reform.

¹² Real Decreto Ley 2/2013, 1st February, about urgent measures in the electricity system and financial sector.

¹³ This figure uses the yearly average exchange rate in 2012.

¹⁴ Directive 2009/72/CE of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.

¹⁵ Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

¹⁶ Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings.

¹⁷ Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC Text with EEA relevance.

Table 1: Summary of the major impacts of the Spanish energy model on fuel poverty.**Source:** Personal compilation.

Characteristics of the Spanish Energy Model	Indirect impacts	Impacts on Fuel Poverty
Oligopoly/lack of competitiveness	Ineffective mechanisms to fix energy prices	Energy prices increase
Complex energy regulations	Customers' energy illiteracy	Inability to choose proper offers
	Difficulties for new companies to get into the Spanish energy market	Energy prices increase due to lack of competitiveness
Tariff deficit	Lack of financial sustainability	Energy prices increase due to debt's interests
Energy companies constitute a powerful lobby	Governments might be influenced when defining laws and regulations	Difficulties for social mass to influence the Government to define laws and regulations that mostly benefit fuel poor people
		Energy prices increase due to inefficient taxes
Renewable Energies are restricted	Dependence on fossil fuels	Energy prices increase
	Reduction of jobs	Fewer possible working opportunities
	Energy distribution costs increase	Energy prices increase

The PNEM: A Critical View from Citizenship

The most representative stakeholder in this process of mobilisation is the Platform for a New Energy Model, which currently consists of 315 institutions and 2,604 citizens, including: environmental organisations, trade unions, political parties, social organisations and mobilised citizens. It was created in 2012, aimed at establishing networks to construct an informed and critical society and to influence the Spanish Government to change the energy model.

The Platform proposes a new energy model on the basis of four main pillars (PNEM n.d.):

Savings: The main strategy to manage energy should seek to eliminate all unnecessary consumption. This has to do not only with electricity, but also with establishing plans to refurbish residential buildings, improving transport mechanisms, and reducing people's perceived needs. The economy should be structured to fight energy waste.

Renewable Energy: Renewable energy should displace environmentally unsound technologies¹⁸ as soon as possible in accordance with environmental, economic and social standards. The introduction of renewable energy must be gradual, but expansive.

Efficiency: Managing energy efficiently means readjusting consumption habits and using technologies which automatically optimise the best possible use of energy at every moment.

Sovereignty: This means favouring individual independence through self-supply, as well as giving preference to medium-sized renewable energy plants tied to local consumption. Sovereignty also means education and information, as well as democratic decision-making about which energy model to choose in local and regional spheres.

¹⁸ Environmentally unsound technologies include the use of gas, coal and nuclear as energy sources.

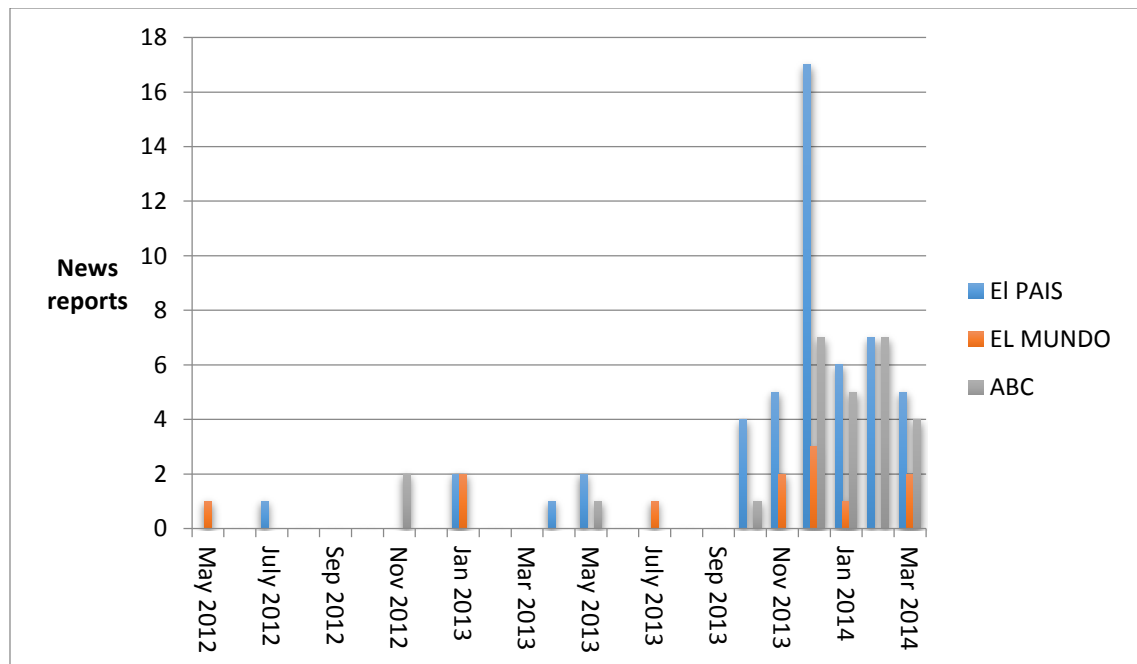
Even though FP is not mentioned explicitly in the PNEM's strategy, it is transversally considered as all the aforementioned proposals would contribute strongly to the reduction of FP in Spain.

Main Milestones Reached by the PNEM: Problem Visibility and Changes in Socio-Political Spheres

The PNEM believes that only with an informed and critical citizenry is it possible to “break the steel bonds of Government and the big power companies” (PNEM n.d.). Thus, it has focused on informing and mobilising Spanish society, as well as introducing the energy issue into the policy and media agendas. As a result, FP is no longer ignored; and, even if it is still not a priority for the Government, it is becoming a visible issue. This increase in visibility is shown by the increase of FP related news reports which have appeared in the three main national newspapers in recent years (see Figure 6).

Figure 6: Fuel Poverty related news reports in the three main national newspapers.

Source: Personal compilation.¹⁹



¹⁹ Taken from news reports that include the words ‘fuel poverty’ in the title.

While it is true that social mobilisation has not been able to change the Government's position on FP, the transformation of the social context and its critics toward the energy model has had a strong impact on political parties' values and policies. For instance, in December 2013, fourteen political parties signed a Declaration committing them, once they have governance responsibilities, to repeal the Electricity Sector Reform and implement measures against FP, including creating a new energy model (PNEM 2013). Furthermore, on 20 May 2014, twenty political parties signed a Declaration committing them, once they have governance responsibilities, to prohibit fracking (PNEM 2014b).

The PNEM has also had an impact on social culture. Public opinion and values are moving towards a more accountable and democratic model. 81% of Spaniards now think that RE should be prioritised in the next 30 years (TNS Political & Social 2013: 101). Moreover, people's attitudes are also changing as a result of an increasing awareness of energy-related issues. Due to being better informed about the energy tariffs and more aware of the benefits of RE and the need for new market stakeholders, energy cooperatives are increasing their number of customers and green energy demand is growing (MINETUR 2013).

Moreover, the PNEM has contributed to a change in Spanish political culture. In addition to the aforementioned successes regarding political parties' promises, the PNEM has successfully lobbied for new participatory processes for decision-making. One of its successes includes working with Joan Baldoví, a Deputy of the Spanish Parliament, to introduce electricity reform in October 2013. Figure 7 shows a timeline with the main milestones reached by the PNEM since its creation in 2012. Activities directly related to FP issues have been coloured orange and those related to the SEM have been coloured blue.

Future Challenges and Recommendations for the PNEM

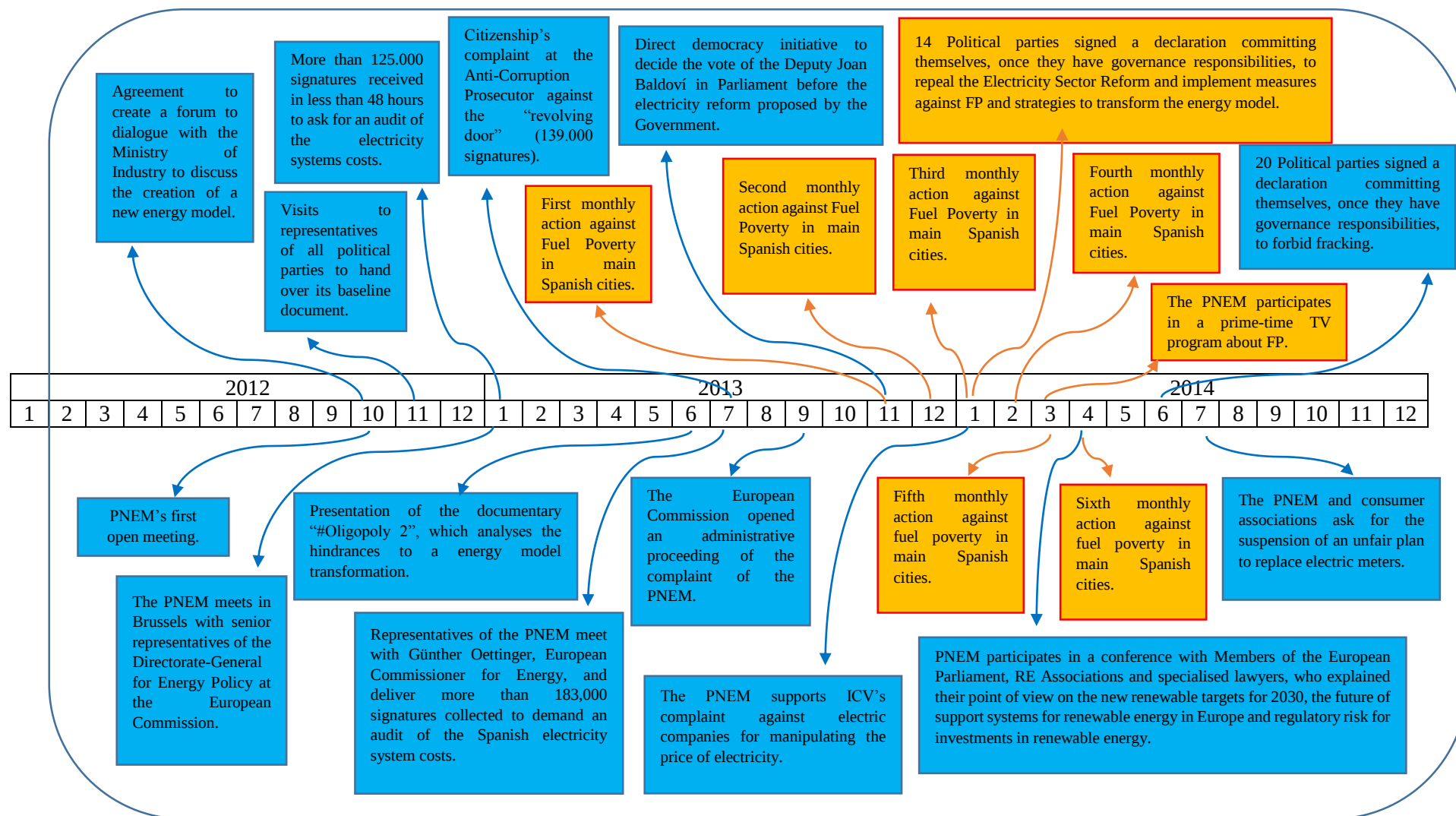
While it is true that the PNEM has achieved great success in some aspects, there is still a long way to go, and there are many hurdles and difficulties to overcome. For instance, no major changes have been reached regarding the social capacity to control political representatives, there are no plans to address energy efficiency, and there is a lack of

promotion of investment in new RE systems. As such, there has been a dramatic increase in FP in Spain.

Nevertheless, the PNEM's strategies are well defined, as they address the main issues identified regarding the impacts of the Spanish Energy Model on FP. This article advocates that the PNEM should keep focusing on making FP visible. This includes continuing to generate an informed and critical public debate that enables the population to be aware of the energy reality and to be empowered to assert their rights; and to continue lobbying for the creation of new, participatory decision-making spaces with the aim of defining a new Energy Model that addresses FP. It is predicted that as these objectives are reached over time the PNEM's demands (for example, specific plans to reduce FP, creating definitions in new laws and regulations that promote competitiveness and investment on RE, promoting improved efficiency and strengthened energy sovereignty) will have a stronger impact on public institutions and further changes will be achieved.

Conclusion

Fuel Poverty levels in Spain have increased in recent years. This has been due to the existing energy model: the lack of competitiveness, the complex energy regulation system, the tariff deficit, the powerful energy lobby, and restrictions on RE. Since the Spanish Government's laws, regulations and policies have proven inefficient to change this situation, social mobilisation aimed at addressing these issues has emerged. The most important stakeholder in this process is the PNEM, which has achieved substantial success in changing the social and political culture regarding the Spanish Energy Model in the last two years. However, the PNEM's objectives are still far from being fully realised and further work is needed. This article proposes that this work includes making FP visible, constructing a critical society and promoting participatory decision-making processes.

Figure 7: Main milestones achieved by the PNEM. Source: Personal compilation.

Bibliography

Agencia Extremeña de la Energía. (2013) *Luces y sombras de la propuesta de la OCU para comprar electricidad*. Available at: <http://www.agenex.net/44-noticias/noticias-de-otros-medios?start=396> (Accessed 2 July 2014).

Amigos de la Tierra. (n.d.) *Las puertas giratorias en el sector energético: de la corrupción a la estafa*. Available at: <http://www.tierra.org/spip/spip.php?article1720> (Accessed 10 September 2014).

Asociación de Productores de Energías Renovables. (2012) *Estudio del impacto macroeconómico de las energías renovables en España*. Available at: http://www.appa.es/descargas/Informe_2012_Web.pdf (Accessed 2 July 2014).

Asociación de Productores de Energías Renovables. (2014) *Las renovables generarán ahorros por más de 214.000 millones de euros*. Available at: http://www.appa.es/descargas/NOTA_AHORROS_EERR_vf%20B.pdf (Accessed 2 July 2014).

Barcia, J. V. (2014) 'Crisis y Soluciones al Modelo Energético' Speech, *Valencia, Spain*.

Bloomberg New Energy Finance. (2013) *Global Trends in Renewable Energy Investment*. Frankfurt School of Finance & Management.

Boardman, B. (1991) *Fuel Poverty: From Cold Homes to Affordable Warmth*. London: Belhaven Press.

Carcar, S. (2011) *Competencia multa a las eléctricas con 61 millones por ahogar el Mercado*. Available at: http://elpais.com/diario/2011/05/14/economia/1305324007_850215.html (Accessed 2 July 2014).

Carcar, S. (2014) *El Consejo de Europa critica las “puertas giratorias” entre política y empresas*. Available at:

http://www.infolibre.es/noticias/economia/2014/01/15/la_inversion_extranjera_crece_pesar_corrupcion_12324_1011.html (Accessed 10 September 2014).

Cuchí, A. and Sweatman, P. (2011) *Una Visión-país para el Sector de la Edificación en España. Hoja de Ruta para un Nuevo Sector de la Vivienda*. Green Building Council Spain and CONAMA Foundation.

Dalle, M., López, M., Arregui, G., Avilés, C., Buendía, L., Estrada, B., Marco, A., Medialdea, B., Medialdea, M. and Méndez, E. (2010) *La Generación de Empleo en la Rehabilitación y Modernización Energética de Edificios y Viviendas*. Instituto Sindical de Trabajo, Ambiente y Salud (ISTAS).

Department for Business Enterprise and Regulatory Reform. (2001) *The UK Fuel Poverty Strategy*. London: DBERR.

Eurostat (2014) *European Statistics*. Available at: <http://epp.eurostat.ec.europa.eu/> (Accessed 10 June 2014).

Fabra, N. and Fabra, J. (2012) ‘El Déficit Tarifario en el Sector Eléctrico Español’. *Papeles de Economía Española*, 134.

García-Olivares, A. and Ballabrera-Poy, J. (2014) ‘Energy and Mineral Peaks, and a Future Steady State Economy’ *Technological Forecasting and Social Change*, In press.

Gonzalo, S. (2014) ‘43 políticos “enchufados” en eléctricas’ *El Mundo*. 23 February. Available at:

<http://www.elmundo.es/cronica/2014/02/23/530881d922601da2168b456c.html> (Accessed 2 July 2014).

Guipuzkoako Foru Aldundia. (2013) *La Pobreza Energética en Gipuzkoa*. Guipuzkoa: SIIS – Centro de Documentación y Estudios.

Leggett, L. M. W. and Ball, D. A. (2012) ‘The Implication for Climate Change and Peak Fossil Fuel of the Continuation of the Current Trend in Wind and Solar Energy Production’ *Energy Policy* 41: 610–617.

Liddell, C. and Morris, C. (2010) ‘Fuel Poverty and Human Health: A Review of Recent Evidence’ *Energy Policy* 38: 2987-2997.

Marmot Review Team. (2011) *The Health Impacts of Cold Homes and Fuel Poverty*. London: Friends of the Earth & the Marmot Review Team

Ministerio de Industria, Energía y Turismo (MINETUR). (2013). *Boletín trimestral de coyuntura energética*. Available at:

<http://www.minetur.gob.es/energia/balances/Balances/Paginas/CoyunturaTrimestral.aspx> (Accessed 25 July 2014).

Ortiz, L. (2014) *Pobreza energética, estafa eléctrica y Marca España* Available at: <http://www.lamarea.com/2014/02/11/pobreza-energetica-estafa-electrica-y-marca-espana/> (Accessed 10 September 2014).

PNEM. (n.d.) *Environment, Energy Sovereignty and Employment Now!* Available at: http://www.nuevomodeloenergetico.org/pgs2/files/6213/6295/6424/20121128_Px1N_ME_DocumentoBase_v2_definitivo-3_2345_incls_1.pdf (Accessed 2 July 2014).

PNEM. (2013) *Iniciativa de democracia directa sobre la reforma del sector eléctrico*. Available at: <http://www.nuevomodeloenergetico.org/pgs2/index.php/press-release/iniciativa-de-democracia-directa-sobre-la-reforma-del-sector-electrico/> (Accessed 2 July 2014).

PNEM. (2014a) *Manifiesto against FP*. Available at: <http://www.nuevomodeloenergetico.org/pgs2/index.php/nodos/aragon/news/px1nme-aragon-convoca-una-accion-contra-la-pobreza-energetica-zaragoza-22-de-enero/> (Accessed 19 January 2014).

PNEM. (2014b) *Unión política y presión social para frenar el fracking en España*. Available at: <http://www.nuevomodeloenergetico.org/pgs2/index.php/press-release/union-politica-y-presion-social-para-frenar-el-fracking-en-espana/> (Accessed 2 July 2014).

Red Eléctrica Española (2014) *Series Estadísticas*. Available at: <http://www.ree.es/es/publicaciones/indicadores-y-datos-estadisticos/series-estadisticas> (Accessed 16 May 2014).

Ruel, M. T., Garrett, J. L., Hawkes, C. and Cohen, M.J. (2010) 'The Food, Fuel and Financial Crises Affect the Urban and Rural Poor Disproportionately: A Review of the Evidence' *The Journal of Nutrition* 40(1): 170-176.

Sedigas. (2014) *Factor Utilización Ciclos Combinados*. Available at: <http://www.sedigas.es/estadisticas.php?cod=18> (Accessed 2 July 2014).

Solé, J. (2014) 'Crisis y Soluciones al Modelo Energético Conference', *Valencia, Spain*.

Sustainlabour. (2012) *Empleos Verdes para un Desarrollo Sostenible. El Caso Español*. Paralelo Edición.

Tirado, S., López, J.L. and Martín, P. (2012) *Pobreza Energética en España, Potencial de Generación de Empleo Derivado de la Rehabilitación Energética de Viviendas*. Madrid: Asociación de Ciencias Ambientales.

Tirado, S., Jiménez, L., López, J.L., Martín, J. and Perero, E. (2014) *Pobreza Energética en España. Análisis de Tendencias*. Madrid: Asociación de Ciencias Ambientales.

TNS Political and Social. (2013) *Attitudes of Europeans Towards Air Quality*. Flash Eurobarometer 360.

World Bank (2014) *PIB per Capita*. Available at: <http://datos.bancomundial.org/indicador/NY.GDP.PCAP.CD/countries/1W?display=graph> (Accessed 19 January 2014).

WWF. (2010) *Potencial de Ahorro Energético y de Reducción de Emisiones de CO₂ del Parque Residencial Existente en España en 2020*. Madrid: European Climate Foundation.

WWF. (2012) *Retos y Oportunidades de Financiación para la Rehabilitación Energética de Viviendas en España*. Madrid: European Climate Foundation.