

ENERGISE

EUROPEAN NETWORK FOR RESEARCH, GOOD PRACTICE
AND INNOVATION FOR SUSTAINABLE ENERGY 

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SPAIN

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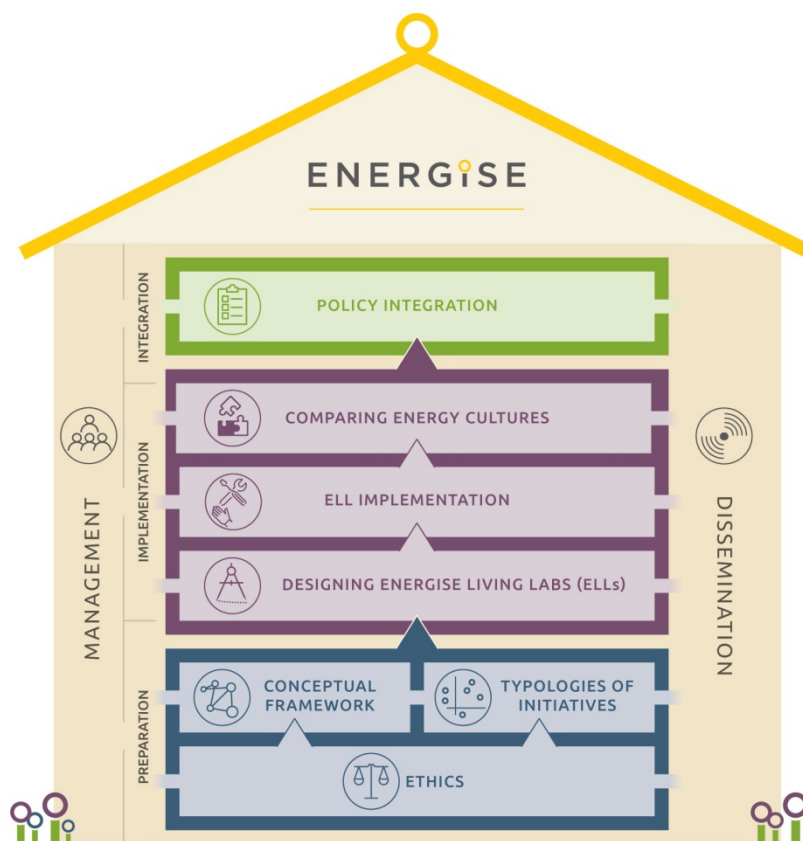
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ENERGISE PROJECT

ENERGISE is an innovative pan-European research initiative to achieve a greater scientific understanding of the social and cultural influences on energy consumption. Funded under the EU Horizon 2020 programme for three years (2016-2019), ENERGISE develops, tests and assesses options for a bottom-up transformation of energy use in households and communities across Europe. ENERGISE's primary objectives are to:

- **Develop an innovative framework** to evaluate energy initiatives, taking into account existing social practices and cultures that affect energy consumption.
- **Assess and compare the impact** of European energy consumption reduction initiatives.
- **Advance the use of Living Lab approaches** for researching and transforming energy-related practice cultures.
- **Produce new research-led insights** into the role of household routines and changes to those routines towards more sustainable energy.
- **Encourage positive interaction** between actors from society, the policy arena and industry.
- **Effectively transfer** project outputs towards the implementation of the European Energy Union.



INTRODUCTION

This document is one of 30 national briefs, demonstrating key aspects of national energy supply and demand dynamics. Each brief is comprised of five sections:

Section 1 summarises the energy profile of the country. The section provides basic quantitative information of demand demographics and usage profiles, market trends and energy supply profiles, as well as qualitative reflections on current national energy policy. ***For all the briefs, the quantitative information is derived from ec.europa.eu/eurostat (2015 data), eea.europa.eu (2015 data), and climate-zone.com, unless otherwise stated.***¹ The qualitative reflections are based on a literature reviews and desk-research. References for the literature review and the desk-research are provided in footnotes or in section five.

Section 2 summarises the nationally based sustainable energy consumption initiatives (SECI) that have been identified as part of ENERGISE WP2 framework (Jensen, 2017). Each SECI has been coded according to the Problem Framing Typology developed in ENERGISE WP2 (Jensen et al, 2017b).

Section 3 provides a *good practice* example of a national SECI that corresponds to category 3: “Changes in Everyday Life” or 4: “Changes in Complex Interactions” in the Problem Framing Typology. Please refer to Jensen (2017) and Jensen et al (2017b) for more information on the way the data for the good practice SECIs has been researched and documented.

Section 4 provides a brief summary of major nationally specific trends and their implication for energy consumption policies.

Section 5 provides an overview of sources used for qualitative assessments, and can be used as inspiration for further reading.

The national briefs provide contextual socio-material information for the further work to be carried out in Work Package 4, Work Package 5 and Work Package 6 in ENERGISE.

1.1 WP2: TYPOLOGIES OF ENERGY INITIATIVES

ENERGISE WP2 is a systematic criteria-guided review and classification of existing sustainable energy consumption initiatives from 30 European countries (EU-28, Switzerland, and Norway), which provides a comprehensive European database of energy initiatives involving households, and related typologies of sustainable energy consumption initiatives. This extensive synthesizing work guides the selection of Living Lab design elements for ENERGISE and future energy consumption research, policy and practice.

¹ Some piecharts will be empty, as no information is available.

This is done in order to

- Construct innovative typologies of sustainable energy consumption initiatives that can inform further research and action.
- Identify key success factors and related indicators, focusing on individual-level, collective, organizational, institutional and societal aspects of energy consumption, which will inform subsequent WP 3 (Designing Living Labs), WP 4 (ENERGISE Living Labs) and WP 5 (Capturing Energy Cultures).
- Progress the goals of the European Energy Union by creating a publicly archived open access dataset of sustainable energy initiatives across 30 countries in Europe.

Suggested further reading:

Jensen (2017) *Identification of key success factors and related indicators*. ENERGISE – European Network for Research, Good Practice and Innovation for Sustainable Energy, Grant Agreement No. 727642, Deliverable 2.2.

Jensen et al. (2017a) *Establishment of a comprehensive open access dataset of sustainable energy consumption programmes and Interventions*. ENERGISE – European Network for Research, Good Practice and Innovation for Sustainable Energy, Grant Agreement No. 727642, Deliverable 2.3.

Jensen et al. (2017b) *Constructions of typologies of sustainable energy consumption initiatives (SECIs)*. ENERGISE – European Network for Research, Good Practice and Innovation for Sustainable Energy, Grant Agreement No. 727642, Deliverable 2.4.

Sources of quantitative statistics (unless otherwise stated):

Climate data:

<http://www.climate-zone.com/continent/europe/>

Demography data:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Population_structure_and_ageing

http://ec.europa.eu/eurostat/statistics-explained/index.php/Educational_attainment_statistics

Dwelling type data:

[http://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Distribution_of_population_by_dwelling_type_2015_\(%25_of_population\)_YB_17.png](http://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Distribution_of_population_by_dwelling_type_2015_(%25_of_population)_YB_17.png)

Energy demand and supply quantitative data:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_consumption_in_households

Final energy consumption of households per capita data: <https://www.eea.europa.eu/airs/2017/resource-efficiency-and-low-carbon-economy/household-energy-consumption>

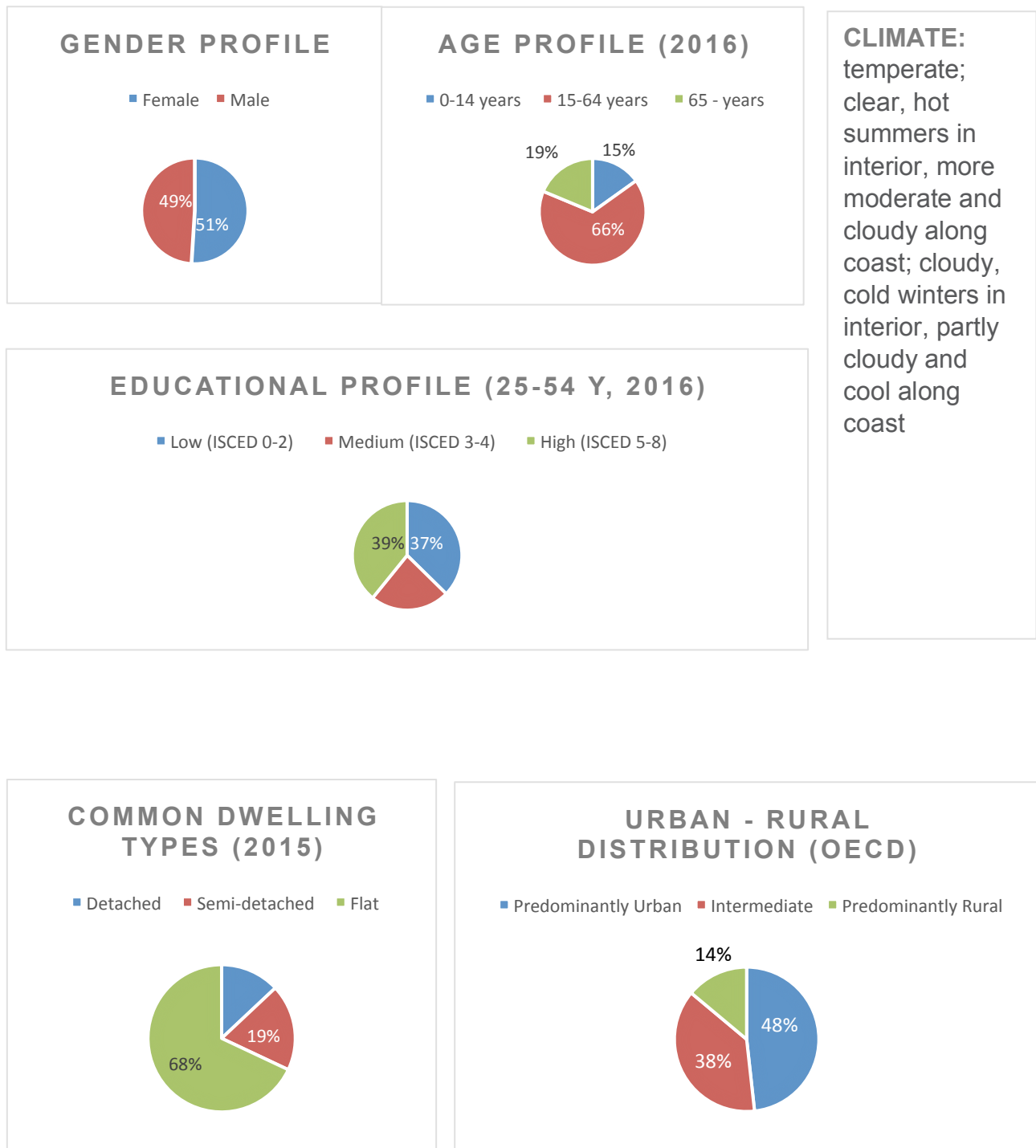
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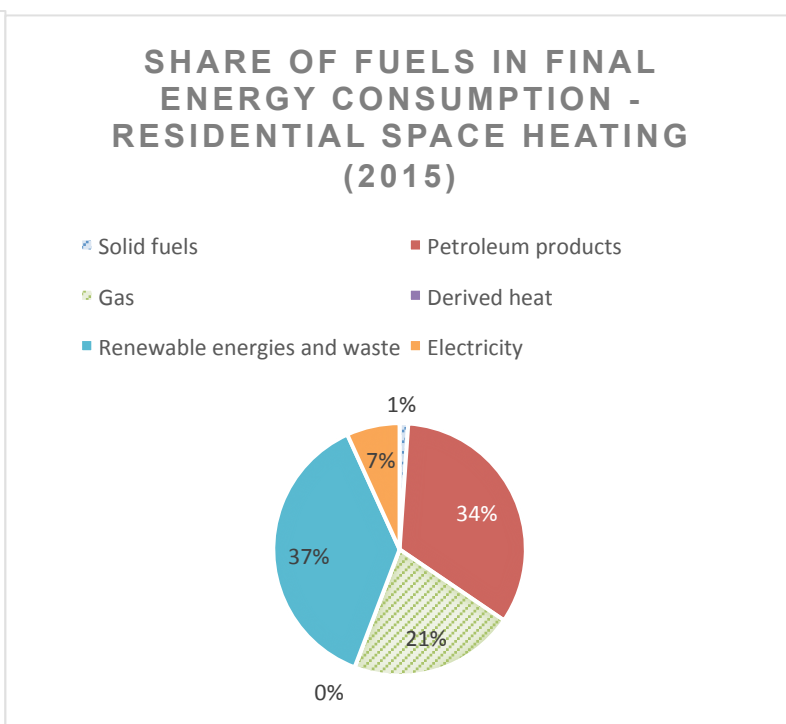
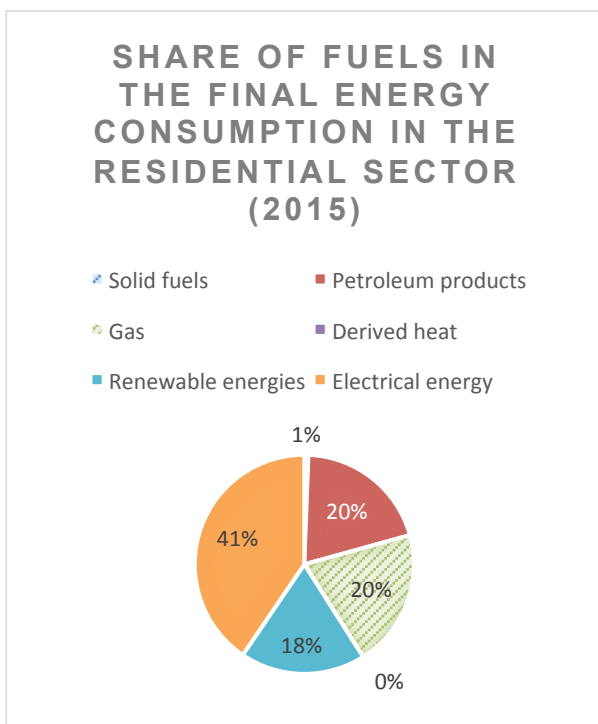
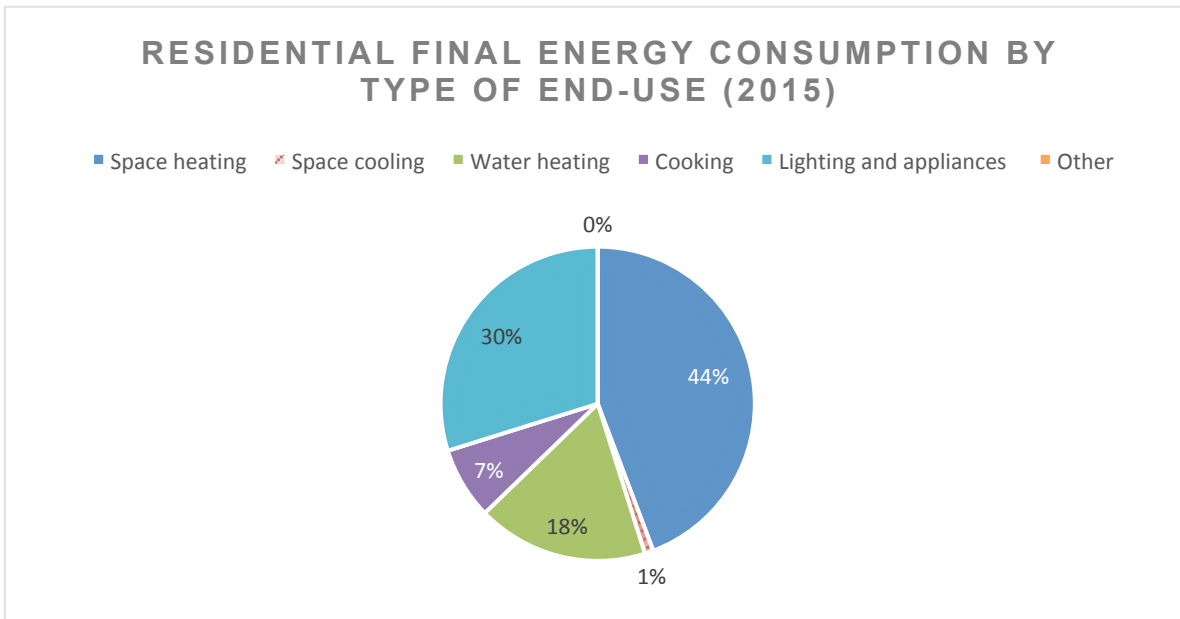
<https://www.unitjuggler.com/convert-energy-from-toe-to-MWh.html?val=893.9>

SPAIN

Authors: Marko Hajdinjak, Desislava Asenova

DEMOGRAPHY, ENERGY CONSUMPTION AND ENERGY SUPPLY





FINAL ENERGY CONSUMPTION FOR HOUSEHOLDS, PR CAPITA (2015)

3.725 MWh

ENERGY SYSTEM AND ENERGY POLICY TRENDS

Energy system

The Spanish energy sector is highly dependent on fossil fuel imports – mainly oil, coal and gas. The highest peak in this regard was in 2006 (an energy dependence of 82%), but since 2008 the percentage has been steadily decreasing. By 2012 the energy dependence was estimated to be around 73% in comparison with the European average of 50%.

In 2016, power generation in Spain was distributed as follows: renewables (39%), nuclear (22%), gas (20%), coal (14%) and oil (6%). Electricity production of renewable energy sources grew rapidly in the last decade, reaching 51GW renewable power generation capacity (39% of electricity production). The highest share of RES is for wind (18%), hydropower (13%) and solar PV (5%).

The state-run energy sector was liberalised in 1997 with the establishment of five main utilities: Endesa, Gas Natural, Iberdrola, Union Fenosa and Hidroelectrica del Cantabrico. After the deregulation, the market was integrated with the Portuguese market in 1998. The following companies hold the largest share of the electricity market (2012 data): Endesa (23.8%), Iberdrola (20.1%), Gas Natural Fenosa (11.4%), EGL (8.1%), EDP Hidrocantabrico Energia (6.0%), Acciona (4.7%), E.ON (3.0%), EVM (2.7%) and Nexus (2.2%). There are also smaller players that sell around 18% of electricity. There is only one transmission operator – Red Electrica de Espana (REE) – which is involved neither in power generation nor in supply. There are 50 distribution system operators. The main ones are owned and operated by Endesa, Iberdrola, Union Fenosa, Hidrocantabrico and E.ON.²

In 2015, Spain had an installed gas generation capacity of 106 GW, making gas generation one of the major components of the Spain's energy mix, equal in share with hydropower and wind energy. However, by 2015 gas generation has been significantly reduced and amounted to about 50% of the 2010 levels. The reason for this is the increased support for national coal production and the increased percentage of coal power generation at the expense of gas generation.³

The primary energy consumption by source in 2015: petroleum products (43% of general consumption), gas (20%), renewables (14%), nuclear power (12%) and coal (11%). The breakdown of final energy consumption by sector for the same year was: transport (42%), industry (24%), residential (18%), services (12%), agriculture (3%) and other (1%).⁴

Six nuclear power plants operate in Spain with a total of eight reactors, generating 21% of electricity output in the country in 2016.⁵

Particular socio-material aspects that influence energy consumption

Over the past decades, social and economic transformations have caused an increase of the residential energy demand in Spain. Between 1990 and 2008, residential final energy demand has increased by 73%, with the annual growth rate being four times higher than the EU average. The increase was especially notable between 2000 and 2008 – 32%. This has been one of the highest

² Deloitte (2015). *European Energy Market Reform. Country Profile: Spain*. Available at: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/gx-er-market-reform-spain.pdf>;

Wynn, G. and Julve, J. (2016). *Spain's Capacity Market: Energy Security or Subsidy?* Available at: <http://ieefa.org/wp-content/uploads/2017/11/Spains-Capacity-Market-Energy-Security-or-Subsidy-December-2016.pdf>;

International Energy Agency (2016). *Spain – Energy System Overview*. Available at: <https://www.iea.org/media/countries/Spain.pdf>

³ Wynn, G. and Julve, J. (2016). *Spain's Capacity Market: Energy Security or Subsidy?*

⁴ Ministry of Energy, Tourism and Digital Agenda (2017). *2017-2020 National Energy Efficiency Action Plan*. Available at: https://ec.europa.eu/energy/sites/ener/files/documents/es_eneap_2017_en.pdf

⁵ Deloitte (2015). *European Energy Market Reform. Country Profile: Spain*.

growth rates among European countries. The main reasons for this were:

- i) population increase (from 40.5 million in 2000 to around 46 million in 2008) and increase in the number of houses and apartments by 20% in eight years);
- ii) decreasing household size (more households with one or two members means a larger number of housing units consuming energy);
- iii) increased use of air conditioning systems, moving peak demand from the coldest days in winter to the hottest days in summer;
- (iv) climatic factors also influenced Spanish electricity demand in households.

Another aspect that influences energy consumption in Spain is that Spanish families consume primarily electricity, while gas is less prominent energy source compared to the rest of the EU. The high share of electricity consumption is a consequence of the poorly developed distant heating network in Spain and the high proportion of houses which still do not have any kind of heating system installed.⁶

In 2013, 43% of energy consumption in households in Spain were distributed to space heating, followed by household appliances (26.6%), water heating (17%), cooking (7.4%), lighting (5.1%) and air conditioning (1%).⁷

Electricity prices for households in Spain have raised from 17.28 euro cents per kWh in 2010 to 22.96 euro cents per kWh in the first half of 2017. This is above the EU average for the same period – 20.41 euro cents per kWh.⁸

Current Trends in Energy Policy

The energy and climate targets that Spain has set to achieve by 2020 include: i) a 26.4% reduction of its primary energy consumption; ii) a 20.8% share of renewables in final energy consumption; iii) and a 10% reduction of GHG emissions in the non-ETS sector and an 21% reduction of GHG emissions in the ETS sector.⁹

As set in the National Energy Efficiency Action Plan 2014-2020, 15.3% of the final energy savings target will be achieved through measures in the building and equipment sector. Savings are planned from the energy renovation of the thermal envelope of existing buildings, improvement in the energy efficiency of heating, cooling and domestic hot water systems, lighting, lifts and other transport systems and electrical installations. Restoration of existing buildings to a high rating, implementation of smart systems (home and building automation) and renovation of the stock of electrical appliances are also among the activities that are expected to contribute to generating energy savings.¹⁰

Recently, the most important efficiency actions in the building sector have been those implemented as part of the Action Plans of Energy Saving and Efficiency Strategy. These measures have mainly improved energy efficiency in buildings in general. Activity and development at legislative level is also observed. These are mainly regulatory provisions related to the transposition of Directive

⁶ Blazquez, L., Boogen, N. and Filippini, M. (2012). *Residential Electricity Demand for Spain: New Empirical Evidence Using Aggregated Data*. Available at: https://www.ethz.ch/content/dam/ethz/special-interest/mtec/cepe/cepe-dam/documents/research/cepe-wo/CEPE_WP82.pdf

⁷ IDAE (2015). *Energy Efficiency Trends and Policies in Spain*. National Report for the ODYSSEE-MURE Project. Available at: <http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-spain.pdf>

⁸ Statista (2018). *Electricity Prices for Households in Spain from 2010 to 2017*. Available at: <https://www.statista.com/statistics/418085/electricity-prices-for-households-in-spain/>

⁹ Deloitte (2015). *European Energy Market Reform. Country Profile: Spain*.

¹⁰ Trotta, G. and Lorek, S. (2015). *Consumers and Energy Efficiency – Country Report Spain. An inventory of policies, business and civil society initiatives, focusing on heating, hot water and the use of electricity*. EUFORIE – European Futures for Energy Efficiency

2002/91/EC on energy efficiency in buildings that are meant to boost the energy service market in the building sector. More recent developments are the implemented actions that follow the EC guidelines to be applied in the sector, namely Directive 2012/27/EU on energy efficiency and Directive 2010/31/EU on the energy efficiency of buildings.¹¹

In the field of renewable energy, positive developments are observed. A policy that fosters renewable and clean energies has been put in place. As a result, Spain became the second-placed country in Europe in terms of wind power generation and the fourth worldwide in terms of installed power. Some support schemes for renewables are still necessary in order to make certain energy technologies competitive. In order to avoid the negative experience with the PV capacity installed in 2008 that implied a big budget for the feed-in tariff premiums and the excessive capacity in crisis times that was too high for the demand, the government considered that support schemes for renewables should be time-limited and carefully designed. Since 2016, a new tendering system was put into force for new renewable energy capacity.¹²

Renewable energy and energy efficiency are further promoted in Spain through numerous and successful smart actions carried out in Spanish cities. Several Spanish cities are successfully carrying out pioneer smart city projects – Barcelona, Malaga, Bilbao, San Sebastian, etc. Projects are implemented in the field of energy, mobility, ICT, environment and transport. An example of a project is PRICE “Smart Grid Project in Henares Region” which involved about 500,000 inhabitants. Among its main objectives were monitoring and automatization of the power network, improving its operation and maintenance, contributing to a new power management system and improving the integration of already existing distributed generation.¹³

Trends in national campaigns

Various initiatives targeting household behaviour in the field of energy have been implemented. For example, the Energy Diversification and Saving (IDAE) promotes and facilitates an efficient use of energy by SMEs and households through communication campaigns and information and training programmes. The awareness-raising campaigns have contributed to tracking the evolution of the Spanish consumer profile in the last ten years and to better direct actions aimed at achieving quantifiable energy saving results.

Another example is the institutional communication and publicity campaign about the new electricity billing and energy saving system that have been carried out recently by the Ministry of Industry, Energy and Tourism and IDAE. The campaign aimed to provide the public with understandable information about the changes that have taken place in the electricity price calculation system and the rights of consumers with regard to power supplied to homes.

Additional examples from Spain are different websites, online newsletters, citizen information services, free e-learning courses and trainings, etc. that are all aimed at promoting energy efficiency and renewable energies, and providing tips how to save energy at home and at work.¹⁴

¹¹ IDAE (2015). *Energy Efficiency Trends and Policies in Spain*. National Report for the ODYSSEE-MURE Project.













¹² Olano, M. (2017). *Renewable Energies in Spain*. Available at: <http://www.idae.es/articulos/renewable-energies-spain>
















¹³ Mora, E. V. (2014). *Smart Cities in Spain*. Available at: http://ec.europa.eu/information_society/activities/sustainable_growth/docs/smart-cities/smart-cities-spain.pdf
















¹⁴ Trotta, G. and Lorek, S. (2015). *Consumers and Energy Efficiency – Country Report Spain*.














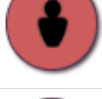

OVERVIEW OF NATIONAL SECIS





Below please find a list of Spanish SECIs that have been researched and documented through WP2 of ENERGISE. The SECIs are researched, selected and documented based on a set of requirements and research interests (please see Jensen 2017 for details). The list should not be regarded as exhaustive or representative of all kinds of energy initiatives carried out in the country.

El Valle de Sensaciones		Changes in Complex Interactions
Amigos de la Tierra: Energía comunitaria		Changes in Individuals' Behaviour
Huerta Solar		Changes in Technology
Auditorías energéticas		Changes in Individuals' Behaviour
EOLPOP		Changes in Complex Interactions
No Más Cortes De Luz platform		Changes in Complex Interactions
Liberar al Sol		Changes in Individuals' Behaviour
Cocinar al sol		Changes in Everyday Life Situations
El Hierro wind farm		Changes in Technology
EURONET 50/50		Changes in Individuals' Behaviour
EndeF hybrid solar installation (St. Sara Maynar, Zaragoza)		Changes in Technology
Piscinas Solares		Changes in Technology

GoiEner		Changes in Complex Interactions
Luz en Casa Oaxaca		Changes in Technology
Madrid 100% Sostenible		Changes in Individuals' Behaviour
Enerzuul		Changes in Technology
Energía con conciencia		Changes in Individuals' Behaviour
Som Energia		Changes in Technology
8th Life EcoVillage Project		Changes in Complex Interactions
O Couso		Changes in Complex Interactions
La Borda cohousing		Changes in Complex Interactions
Finca Luz Serena		Changes in Complex Interactions
Hogares Verdes		Changes in Individuals' Behaviour
Actúa con energía		Changes in Individuals' Behaviour
Sol sin límites, energía sin límites		Changes in Technology
Granada en transición (GET)		Changes in Complex Interactions
La Flor de la Vida transition town		Changes in Complex Interactions

Noctisolar Ecolight: luz a la esperanza		Changes in Technology
Alcolea del Río solar plant		Changes in Technology
Ecoarxa Montseny		Changes in Complex Interactions
Calafou		Changes in Complex Interactions
Pla d'Energia Participatiu		Changes in Complex Interactions
Banc d'energia		Changes in Complex Interactions
Valldaura Self-Sufficient Labs: Energy Lab		Changes in Technology
Azimut 360 SCCL		Changes in Technology
Ibiza Transition Island		Changes in Complex Interactions
Casita Verde		Changes in Complex Interactions
Cardedeu en Transició		Changes in Complex Interactions
CLEAR: Consumers to Learn about, Engage with and Adopt Renewable energy technologies		Changes in Individuals' Behaviour
TRIME: Trias Mores Energetica		Changes in Individuals' Behaviour
Smarter Together		Changes in Complex Interactions
4RinEU: Robust and Reliable technology concepts and business models for triggering deep Renovation of Residential buildings in EU		Changes in Complex Interactions

TRIBE: TRAlning Behaviours towards Energy efficiency: Play it!		Changes in Individuals' Behaviour
TOPTEN ACT: Enabling consumer action towards top energy-efficient products		Changes in Individuals' Behaviour
Smart-up project		Changes in Individuals' Behaviour
FIESTA		Changes in Technology
PROMISE: Promoting best practices to support energy efficient consumer behaviour on European islands		Changes in Technology
USMARTCONSUMER		Changes in Individuals' Behaviour
EYEMAN CHAMPIONSHIP; European Young Energy Manager Championship		Changes in Individuals' Behaviour
FLICK THE SWITCH; Instigating Simple Energy Efficient Behavioural Practices in Schools		Changes in Individuals' Behaviour
ESMA: European Smart Metering Alliance		Changes in Technology
European Solar Days II (ESD II)		Changes in Technology
PROMOTION 3E: Promotion of energy efficient appliances		Changes in Individuals' Behaviour
EPEE: European fuel Poverty and Energy Efficiency		Changes in Technology
P.E.E.S.: Pattern of Energy Efficiency in the Schools		Changes in Everyday Life Situations
KIDS4FUTURE: Creating Actions among Energy Conscious Children		Changes in Individuals' Behaviour
BEHAVE: Evaluation of Energy Behavioural Change programs		Changes in Individuals' Behaviour

The Energy Path: an e-learning platform for education of the new generations in the sustainable energy field		Changes in Individuals' Behaviour
Argelaguer en Transició (Argelaguer in Transition)		Changes in Complex Interactions
Santa Coloma en Transició (Santa Coloma in Transition)		Changes in Complex Interactions
Granollers en Transició (Granollers in Transition)		Changes in Complex Interactions

‘GOOD PRACTICE’ EXAMPLE OF SPANISH SECI



Granada en Transición – Granada in Transition

Description

Granada en Transición promotes the development of initiatives that address current challenges such as climate change, the economic and social crisis, the production and reproduction of inequalities in our society, and our dependence on fossil fuels and their derivatives. These initiatives are aimed at developing a greater capacity for self-sufficiency, resilience and creativity so that together, as a supportive and sustainable society, we can achieve a more equitable and healthy well-being.

Granada in Transition is part of the network of cities in transition – a grass-root movement of citizens committed to change their urban environment for the better (reducing dependence on oil and other fossil fuels, growing fruits and vegetables locally, repairing and reusing products and resources, and engaging in other activities protecting the environment).

Contextualization

The idea for this initiative emerged in 2012 as a common effort of a group of people from Granada. They were motivated by their realisation that the society needed to find a way towards a more sustainable physical and social environment. *Granada en Transición* is a part of a larger movement – “Red de Transición” [Transition Network] in Spain. The Spanish Transition Network uses the first transition town Totnes, located in the U.K. as a model for its development.

Granada en Transición initiators have learned from other successful transition towns, especially from representatives from Totnes and from Juan del Río (the co-founder and coordinator of the Spanish Red de Transición). They have visited Granada, giving lectures and workshops to support and encourage the growth of Granada in Transition.

Aims and objectives

Granada in Transition shares its objectives with the other cities from the Transition Network. They are trying to address in innovative and sustainable way four main challenges:

1. Climate change:
2. Oil dependency
3. Distorted economy dominated by multinational corporations
4. Myth of unlimited expansion

Instead of being overwhelmed by the gloomy forecasts for the future, people participating in the initiative try to spread the message that action is urgently needed and that every individual can in fact make a difference. They offer their help and advice to other people and their communities to develop healthy and resilient local responses to these issues, honestly admitting that they do not have all the answers and that Granada in Transition is

an ongoing experiment in which all participants are learning as they move forward. But what they had already learned, they are more than willing to share.

Methods for Intervention

Simple but effective online platforms are used to attract people to participate in the projects and to address home energy consumption. Granada in Transition has a website and a Facebook page. Both are used to disperse information about meetings and to educate the audience about energy and climate awareness.

Many activities implemented by the initiative's members, such as Debates in Transition or Movies in Transition, require no funding. For those that require minimal sums of money, such as Cooking in Transition, each participant makes an individual contribution. Some activities require a substantial start-up fee (such as Happy Chicken Coop or the Repair Café) – in such cases, crowd funding is employed, although this rarely occurs more than twice a year. Projects include:

- Aquaponics system: locally produced fish and vegetables using less chemicals, fertilizers, and water.
- Happy Chicken Coop: locally produced, free-range eggs.
- Debates in Transition: exchange of ideas and mutual learning.
- Movies in Transition: events with projection of inspirational and educational movies
- Cooking in Transition: meals are prepared and enjoyed together in order to reduce the use of energy and resources
- Urban gardens: organically grown vegetables and fruits
- Repair Café: a workshop for efficient use of resources and increasing skills and competences.

Each project has its own committee that oversees it. There are no specific indicators or thresholds that must be met, but an overhead organisational group meets periodically to discuss the projects and plan future endeavours.

Steps of implementation

The seed of the initiative was planted by several like-minded people, which were soon joined by others who were equally committed to making a change and who valued the power of a community. The first meeting of the implementing team was in 2012, marking the official start of Granada in Transition. The initiative has been growing ever since. The first project, Happy Chicken Coop, was successfully launched in 2013, to be followed by other projects over the years. Members of the initiative are also actively disseminating information – distributing flyers and leaflets, and organising debates and documentary viewings on the theme of sustainability.

Results/outcomes

It is difficult to enumerate exactly how many households have been reached and to what extent this has changed their behaviour. However, as an example, vegetarian social dinners organised in the frame of Cooking in Transition, have been attended at least once by 57 different people. Overall, projects carried out by Granada in Transition involve hundreds of people from different areas of Granada and different generations. Many people have been active since the very beginning, giving sustainability and continuity to the project, while doors remain permanently open to new ideas and new people.

The role of the households

Households are involved through participation in social events. They are also recipients of information dispersed through Granada in Transition's online presence (Facebook page and website). As it is a grassroots, bottom-up initiative, all projects within Granada in Transition have been designed by members of the community. Households are therefore engaged in all the ongoing activities (they may select those that interest them the most), including: Cooking in Transition, Debates in Transition, Movies in Transition, the community garden, Happy Chicken Coop, and the aquaponics systems. Householders may have contributed financially to the initiative in a minimal way, e.g. buying supplies for Cooking in Transition, but did not make any major financial donations.

Location

The initiative is based in Granada – a city of 234,000 (2016) in southern Spain. It was designed and implemented by a group of motivated volunteers, united in their hopes of transitioning to a post-petroleum future.

Was/is the initiative successful?

People from Granada in Transition consider themselves to be a success in social terms, with a cohesive and supportive group leading the movement. They are also successful in the sense that the initiative has been widely recognised and is well known among environmentally conscious Granada residents.

Textual and communicative aspects of the initiative

Communication and dialogue are essential components of the initiative, and workshops and meetings are regularly organised to inform and educate people about the importance of energy savings and environmental consciousness. Communication and “governance” (as a loose term) has been quite successful. As alluded to previously, each project under the umbrella of Granada in Transition has its own organising body. In addition, there is a committee that oversees all projects from an organisational perspective and that meets to discuss their development and success. Communication between all parties is fluid and successful.

The physical/technological aspects of the initiative

The technological and physical aspects are rather marginal, as the most important factor contributing to way participants rethink and change their approach to environment and sustainability is the social one.

Shared understandings related to initiative

Participants share on their website that they do not set goals, but have their attention focused on the road towards transformation of our society – making it more cooperative, supportive, associative and sustainable. The only way to achieve this goal is to travel the road as a community. Establishing a community is therefore the central objective of the initiative – people who have never met before come together and join their efforts, forming a community through common projects. They share reflections, concerns and political positions while cooking, dancing, singing in a choir, fixing appliances, cultivating a garden, collecting eggs, watching a movie. An ever-growing number of people from the city learn about Granada in Transition and decide to join it.

CONCLUDING REMARKS AND POLICY IMPLICATIONS

One of the main priorities of the Spanish energy policy is to reverse the trend of the growing energy consumption – the rate at which the energy consumption in Spain has been rising over the past decades has been much higher than in most other European countries. Along with the reduction of overall consumption, the country aims at increasing the share of renewables in the energy generation.

Like in many other countries, one of the most important measures is the energy renovation of the building stock. Many multi-apartment buildings in Spain are rather old and have a very poor thermal record. Another technological measure expected to contribute to energy savings is accelerated installation of smart systems in residential and public buildings. Another important priority are programmes supporting the development of renewable and clean energy generation. This has been quite successful, and today Spain is among the European leaders regarding solar and wind power generation. Finally, various national campaigns also try to bring about a change in the energy-consuming behaviour of Spaniards.

While it must be underlined that the mapping of Sustainable Energy Consumption Initiatives conducted by the ENERGISE project across 30 European countries cannot be considered as a comprehensive and thorough examination of all energy-saving initiatives with active participation of households, it nevertheless indicates in which countries citizens are more concerned with the protection of the environment and sustainable use of energy. Spain, with 61 identified and described SECIs, is at the very top of our list. Perhaps even more importantly, 36% (22 initiatives) have been classified as the ones trying to obtain 'Changes in Complex Interactions' – the highest-ranking category of ENERGISE typology. This percent is much higher than in most other countries – the average rate for all 30 countries is 13.5%. 3% of Spanish SECIs are pursuing 'Changes in Everyday Life Situations,' 33% are promoting 'Changes in Individuals' Behaviour, and the remaining 28% are proposing 'Changes in Technology' to achieve energy savings.

Granada en Transición is therefore quite typical for the way Spanish citizens try to contribute to the conservation of resources and protection of the environment. The initiative corresponds well with the main concern of the national energy policy – that Spain has been consuming far too much energy over the past years and needed to change the trend quickly and decisively. *Granada en Transición* is a very democratic initiative, open to all people sharing the idea and spirit of the community, and willing to contribute to the common goal.

The central lesson that can be drawn from the *Granada en Transición* is that no transition to sustainable future will be possible without the formation of an active and devoted community of people, willing to sacrifice some of their personal comfort for the greater goal. Implementation of solutions based on a positive vision of the future necessities:

- A drastic reduction, both individually and collectively, in the consumption of fossil fuels as well as of our carbon emissions.

- Consolidation of the resilience of our territories and of their capacity to absorb future shocks.
- Transition of the economy towards local food production and use of renewable energy.
- Solidarity and cooperation among all members of the community.
- Solutions that best correspond to the needs and challenges of each community, and to the available resources.

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