

BUILD2LC Project

**Boosting Low Carbon Innovative Building
Rehabilitation in European Regions**

Annex 1. SWOT analysis and
identification of needs

- V8 -

Sevilla, 29 September 2016

Region: Andalusia

1	STATE OF ART OF ENERGY REHABILITATION IN BUILDINGS.....	3
1.1	Brief Picture of the Region	3
1.2	State of Play.....	4
1.3	Link to the S3 – European Smart Specialization Strategy.....	6
1.4	Policy Instruments. Regional and National Plans and Policies on Energy Rehabilitation of Buildings	7
1.5	Legislation, Regulation	10
1.6	Financial Support and Instruments.....	13
1.7	Construction and Buildings Market Brief Description	20
	Professional Characterization (Labour).....	22
1.8	References	25
2	SWOT Analysis.....	26
2.1	Strengths.....	27
2.2	Weaknesses.....	28
2.3	Opportunities.....	30
2.4	Threats.....	32
	Annex.....	33

1 STATE OF ART OF ENERGY REHABILITATION IN BUILDINGS

1.1 Brief Picture of the Region

The Autonomous Community of Andalusia is an extensive territory of 87.597 Km² in Southern Spain that counts on Mediterranean climate and vegetation. The region includes 8 provinces and 770 municipalities, being the most populated region in Spain with more than 8.4 million people. Andalusia is a region of services. In fact, 64,7% of the total productive activity belongs to the service sector, with a huge importance placed on the tourism subsector (more than 25 million tourists visited the Autonomous Community of Andalusia in 2015, half of them from foreign countries); the industrial sector represents 15.4% of GDP, with emphasis on the growth of the agro-food and energy industries; the building sector is also of great importance in Andalusia representing 12,3% of the total economy; the primary sector, yet very important to the Andalusian culture, represents 7.6% (agriculture, stock-farming and forestry, fishing in a lesser regard). Andalusia is a region of high potential in renewable energy sources, consisting of biomass (17% of the Andalusia territory is protected area under a legal figure), solar energy (the Andalusian territory has the greatest solar irradiation index in Europe), and wind energy; however, its potential for hydraulic energy is more limited than in other European regions.

1,2% of primary energy consumption and 1,3% of final energy in the EU is consumed in Andalusia.

Construction has always been a pillar of the Andalusian regional economy, but has been particularly affected by the economic crisis from 2008, halving its weight in the regional GDP up to now.



The region	Andalusia
Number of inhabitants(*)	7.606.848
Size (in km²)	87.597
Capital	Seville
Provinces	Almería, Cádiz, Córdoba, Granada, Huelva, Jaén, Málaga, Sevilla

1.2 State of Play

The Andalusian Autonomous Community is facing profound changes in its productive system. The economic crisis and its consequences in terms of employment and economic activity make it unavoidable to move towards a new more sustainable productive model.

The construction industry has moved from 14.4% of the regional GDP in 2007 to 7.6% in 2013, and has reduced from 15.2% to 5.2% in 2013 its weight in employment in the Autonomous Community that suffers the highest unemployment rate in Spain. Since 2007 more than 350.000 construction-related employees has been destroyed in Andalusia, 1 up to 2 in total. The construction sector alone is responsible of the 80% of the recession of GDP from 2007ⁱ. Also, public tenders for public buildings (educational, sanitary, administrative...) decreased from 1.371 in 2007 to 143 in 2005, a 90% reduction. In particular, the demand of social housing promoted by public administrations is anemic, from 291 buildings in 2007 to only 9 in 2015 [almost one building per million people], a 97% reductionⁱⁱ.

Half of the current Andalusian buildings were designed with no energy requirements. Whereas, 45% of the existing buildings regional stock is between 6 and 30 years-old, which means that the regulation that applied then had only minimal energy requirements. Only 5% of the current buildings stock accomplishes with a modern regulation in energy efficiency and solar energy.

As a result, almost two million buildings in Andalusia are susceptible to substantial improvements and, therefore, energy rehabilitation becomes a clear opportunity and a suitable alternative to boost the economy for the sector and for the creation of employment, as well as having beneficial effects on energy consumption, the environment, a rational use of energy and the occupancy of existing buildings.

It is estimated that, in oldest buildings, energy savings of more than 70% could be achieved in homes or 50% in tertiary sector buildings, besides a notable improvement in the comfort of the people who use themⁱⁱⁱ.

In addition, the participation of the construction sector in the scope of rehabilitation in Spain only reaches 28% of the total of the sector, compared to 41% in Europe and 56% in Germany. It is noticeable that the activity of building rehabilitation triples the required workforce generated in the construction of a new building.

In energy terms, the building sector represents the main sector of energy consumption in the European Union and one of the main consumer sectors of Andalusia (23% of the final energy consumption). In turn, it is characterized for its great potential of energy saving and use of renewable energy, estimated at 40%.

Andalusia is defining and advancing in this new model from all sectors, especially from the construction sector. The improvement of the competitiveness of the sector, the promotion of innovation, the generation of specialized and quality employment, and the society's change of culture towards more efficient practices, will be necessary to achieve the energy

and environmental objectives proposed and for this, the policy instrument must be reoriented on the basis of these parameters.

The cornerstone to achieve a change of model is the **Sustainable Construction Programme in Andalusia**, framed in the European Union's 2020 energy objectives (Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency), and more specifically, embedded in these two main regional strategies of Andalusia:

- Energy Strategy of Andalusia 2014-2020
- Smart Specialization Strategy in Andalusia (RIS3)

Regarding the profile of energy consumption in Andalusian buildings, it should be highlighted that, as it is normal along the EU, most of the buildings energy demand is driven by HVAC requirements. But in the case of Andalusia, building cooling needs usually overcome heating consumption in large Andalusian areas. In fact, 41% of regional average HVAC consumption is dedicated to cooling needs (only 31% nationwide). Cooling needs and shades design to block solar irradiance are very important.

For a full accomplishment of the EU 2050 indicative energetic and emissions targets, 1.5% of Spanish of existing buildings stock should be rehabilitated every year *by a sensible strategy based on good cost-benefit analysis thorough retrofitting, looking for a target of lowering 75% the energy demand of the building^{iv}*.

Regarding tertiary buildings, there are potential energy savings from 20% to more than 50%. The potential to obtain energy and economic savings in different public centres is in many cases superior to 40%, through a specific, coordinated and effective management of the energy billing.

This is the reason for which the Andalusian Regional Government promoted the creation of the **Energy Management Network of the Andalusian Regional Government (REDEJA)**, a tool designed to promote the principles of energy saving and diversification in the Andalusian administration, as well as implement renewable energies in buildings of the Andalusian Regional Government. The network is formed of centres of consumption of the General Administration of the Andalusian Regional Government and other organisms, administrations and public entities, reaching a current total of 62, integrating the 13 regional ministries and 49 public entities.

1.3 Link to the S3 – European Smart Specialization Strategy

The sustainable construction sector is one of the priorities of RIS3 of Andalusia. Its strategy in this field passes through the redefinition of sustainable construction in terms of energy rehabilitation of buildings, the physical, social, economical and environmental recovery of urban environments, the reuse of consolidated urban lands and the rehabilitation of cities. The detected opportunities are based on the development of new designs and materials for construction and the sustainable processes.

Regarding the interregional dimension of the Plan, it should be highlighted that Andalusia is currently involved in the development of a European Regions Network together with other regions having sustainable construction as a priority in their RIS3, in order to exchange with these regions experiences and good practices in the field of sustainable construction and rehabilitation, all under the prism of energy saving and efficiency and the use of renewable energy sources.

The detected opportunities directly related to sustainable construction and buildings are:

1. High energy performance equipment and energy rehabilitation of buildings.
2. New and efficient building materials.
3. Low cost prefabricated buildings.
4. Efficient energy performance in industries and services.

1.4 Policy Instruments. Regional and National Plans and Policies on Energy Rehabilitation of Buildings

Sustainable Construction Programme in Andalusia

The Sustainable Construction Programme in Andalusia is a combination of economic measures (subsidies and incentives) and other actions such as regulatory, training and fiscal measures, that seek, through energy saving and energy and renewable energy deployment, to promote the energy rehabilitation of buildings, urban rehabilitation, to improve the competitiveness of companies of the construction sector, to create skilled employment and to reduce energy poverty.

Specifically, the programme seeks in the short term *to boost the construction sector, through incentives and improve financing for companies, and to popularise the use of energy saving measures in the construction sector for citizens.*

In the long term, the programme seeks to *re-model the construction sector and make it more sustainable in terms of economy, energy, environment and employment, strengthen the value chain of the sector, improve its competitiveness with innovation as the driving force and lastly, to specialise the local industry associated with the construction sector, making it a real opportunity for growth.*

The programme was among the winners of the **RegioStars 2015 awards**, through which, the European Commission highlights the most innovative European projects co-financed by European Union cohesion funds.



It was the first time that Andalusia had been nominated as winner of these awards, whose objective is to identify good practices in regional development and to highlight original and innovative projects which could be attractive and inspiring to other regions. Of the 4 categories that comprise the award, Andalusia is winner in the "Sustainable growth: mobilizing investments in energy efficiency for the benefits of citizens and society" category.

The Programme has three main pillars:

1. Incentive scheme for sustainable construction in Andalusia, managed by the Andalusian Energy Agency.

See chapter "Financial Support and Instruments".

2. Financing line through revolving funds for companies.

See chapter "Financial Support and Instruments".

3. Creation of the "Sustainable Construction Roundtable"

The Development Plan for the Sustainable Construction and Rehabilitation Sector of Andalusia, Horizon 2020, has been established on participation, rigor and consensus.

For that, together with the experts which initially formed the Round Table, the participative process was open to administration companies, workers, professionals, economic and social agents, technological institutions, universities and consumer organizations, who have defined together the strategies that accelerate the transition from the current construction model towards a new more sustainable model.

During more than 9 months, 110 strategic documents and more than 428 contributions have been received, analyzed and considered. The result is a Plan that is divided in 5 basic principles, 6 objectives, 13 areas of intervention and 91 lines of actions. More than 70 experts from different disciplines actively worked together by pooling knowledge and experience around six different themes related to construction: competitiveness, supply and demand, efficiency and renewable energy, innovation, employment and legislation, with the objective to elaborate the Development Plan

In addition to the building sector, the Plan also affects urban regeneration and the recovery of public space, including actions for the recovery of the architectural heritage of Andalusia, as well as the construction of civil works.

Key objectives of the Sustainable Construction Programme in Andalusia

- ✓ Promote energy rehabilitation of buildings and urban rehabilitation as an essential element of XXI century urbanism, paying special attention to energy efficiency.
- ✓ Strengthen the competitive position of the Andalusian business network, that is, stronger and more competitive companies: reformulating business models, defining new processes and products, integrating all actors in the value chain.
- ✓ Increase employment and professional qualifications in the sector with professional accreditation procedures, aimed at new market niches of rehabilitation and sustainable construction, which avoids negative impact of the black economy.
- ✓ Encourage the demand in the sector and promotion of investments; that is, facilitate that citizens and companies undertake rehabilitation activities.
- ✓ Convert the sector in an international reference in the field of innovation and technological development, by providing innovative solutions in the value chain, the use of new materials, boosting public procurement, the cooperation between companies and agents of knowledge.
- ✓ And finally, develop a regulatory framework to ensure the functioning of the sector as transparent, agile, effective and attractive to productive and not speculative investment.

The programme is especially sensitive to the vulnerable groups of society, in which the impact of the energy expense with measures of sustainable construction can have a major impact, SMEs and companies in the social economy.

It is also based on innovation and technological development, with a strong alignment to the “Smart Specialization Strategy” in Andalusia (RIS3) where the innovative actions are especially supported. Video (Summary): <http://youtu.be/Ng9qIf8cqGQ>

1.5 Legislation, Regulation

National regulation

→ Spanish Technical Building Code (Royal Decree 314/2006 of 17 March 2006)

The Spanish Technical Building Code (TBC) is the normative framework that establishes the safety and habitability requirements of buildings set out in the Building Act (LOE).

To promote innovation and technological development, the TBC has adopted the most modern international approach to building norms: Performance-Based Codes or objectives.

The use of these new regulations based on performance calls for the configuration of a more flexible environment, easily updated in accordance with the development of techniques and the demands of society, and based on the experience of traditional norms.

The TBC is divided into two parts, both of regulatory nature. Part I contains general provisions (scope, structure, classification of uses, etc.) and the requirements that buildings must meet in order to comply with safety and habitability regulations. Part II consists of Basic Documents (BD), the appropriate use of which guarantees compliance with the basic requirements. These documents contain procedures, technical rules and examples of solutions for determining whether a building complies with the stipulated performance levels. Said Documents are not exclusive. Recognized Documents, external from and independent of the Code, are created to complement the BD for the application of the Code. They are used to facilitate compliance with specific requirements and help to promote the quality of construction. To make these Recognized Documents optimally operable, a General Register of the Technical Building Code shall be created, in which said documents will be entered and made public, together with quality standards and other technical evaluations of a voluntary nature that contribute to compliance with the Code.

Other technical evaluations of products, equipment of systems pertaining to their proper implementation or final performance, environmental certificates of product lifecycle analyses and other environmental assessments that promote superior quality in construction could also be entered in this Register.

- Among the various BD is the **Basic Energy Saving Document**, which aims to obtain a **rational use of energy required for buildings**, reducing their consumption to sustainable limits, and ensuring that part of this consumption comes from renewable sources of energy, thanks to their design, construction, usage and maintenance characteristics.

This BD comprises the following sections:

- ✓ HE.1: Limiting energy demand (heating and air conditioning).
- ✓ HE.2: Efficiency of heating/air-conditioning systems.

- ✓ HE.3: Energy efficiency of lighting systems.
- ✓ HE.4: Minimum solar contribution to the hot water supply.
- ✓ HE.5: Minimum photovoltaic contribution to the electrical power supply.

The TBC contributes to the transposition of the Directive 2002/91/EC on the energy performance of buildings, in terms of the minimum energy requirements that must be met. This Regulation also contributes to the fulfillment of the targets established by the policies in the field of sustainability, in particular the Energy Saving and Efficiency Plan.

The BD HE.4, “Minimum solar contribution to the hot water supply” applies to newly constructed or renovated buildings, irrespective of their use, in which there is a demand for domestic hot water and/or the conditioning of a covered swimming pool. Spain was the first European country to make the implementation of solar thermal energy obligatory in new and refurbished buildings. The minimum solar contribution to the hot water supply requires every hot water consumer building in Spain (living houses, gyms, schools, hospitals, etc.) incorporate sanitary hot water solar devices -or an equivalent measure as biomass heating- depending on the irradiation index. For Southern areas, 70% of the annual hot water needs shall be covered by solar energy.

➔ **Ministry Order FOM/1635/2013, 10th September 2013**

This Order is the update of the basic document DB-I «Energy saving» of the Spanish Technical Building Code. It concerns energy savings and partially transposes the following directives to the Spanish legal order:

- Directive 2002/91/EC and Directive 2010/31/EU of the European Parliament and of the Council of 19th May 2010, as regards the requirements for the energy efficiency of buildings, set out in articles 3, 4, 5, 6 and 7, as well as:
- Directive 2009/28/EC of the European Parliament and of the Council of 23rd April 2009, as regards the requirement of minimum levels of energy from renewable sources in buildings, established in article 13.

➔ **Royal Decree 233/2013, 5th April 2013**

This rule regulates the National Plan to Foster Housing Renting, the renovation and energy rehabilitation of buildings and the urban regeneration 2013-2016. It includes the programme of sustainable cities boost.

➔ **Royal Decree 235/2013, 5th April**

This Decrees validates the basic procedure for the energy efficiency Energy Performance Certification of Buildings.

➔ **Royal Decree 56/2016, 12th February**

Transposition of the 2012/27/UE Directive on energy efficiency regarding energy efficiency in general and its promotion, the qualification, accreditation and certification schemes from providers of energy services and energy auditors.

→ **Law 8/2013, 26th June**

National Law on urban rehabilitation, regeneration and renovation.

→ **Law 18/2014, 15th October and Royal Decree-Law 8/2014, 4th July**

Setting of a National System of energy efficiency certificates and the Energy Efficiency National Fund.

→ **Royal Decree-Law 8/2011, 1st July**

It rules the technical evaluation of buildings.

Regional regulation

→ **Regional Decree-Law 1/2014, 18th March**

It sets the Sustainable Construction Programme in Andalusia and the call for the Incentives scheme for sustainable construction in Andalusia for 2014 and 2015. Creation of the "Sustainable Construction Roundtable"

→ **Regional Law 2/2007, 15th October and Regional Decree 169/2011**

This Law seeks the boost of renewable energies and energy efficiency in Andalusia, developed by the Decree that regulates, among other topics, the energy performance certificate in the region.

→ **Regional Decree 141/2016, 2nd August**

This Decree rules over the Andalusian Rehabilitation and Housing Plan 2016-2020.

→ **Regional Decree-Law 8/2014, 10th June**

Urgent and extraordinary rule that includes measures regarding energy poverty.

1.6 Financial Support and Instruments

Programme for the Sustainable Energy Development of Andalusia, "Andalucía A+"

Subsidies

The Regional Ministry of Economy, Innovation, Science and Employment of the Andalusian Government promotes energy saving and the use of renewable energy in Andalusian homes through the Andalusian Energy Agency. A successful subsidies programme, managed by the Agency was established with the aims to include a wide range of users in the development of its energy project: enterprises, citizens and public institutions.

Since 2009 more than 117 million Euros (54 million for citizens and 64 for 4.500 projects for enterprises) were assigned in subsidies under the **Programme for the Sustainable Energy Development of Andalusia, "Andalucía A+"**, co-financed by own funds of the Andalusian Regional Government and by ERDF European Regional Development Fund. The aim is helping the citizens who contribute towards Andalusia being energetically more sustainable, through initiatives of energy saving or using renewable energy sources, which are so abundant in Andalusia.

The main topics covered by the Programme dedicated to citizens were Energy saving and Renewable energy at home, energy efficient vehicles and neighbourhood communities. On the other hand, business specialties are energy audits to identify opportunities for energy improvement and invest in the best options for energy efficiency and the use of renewable energy, industrial facilities energy performance improvement, energy improvement of existing buildings and transports (fleets or by new mobility measures) and biomass treatment, production and logistics.

Applications are submitted only on-line through the Andalusian Energy Agency Website. The Programme finished in November 2014 and it is expected to be re-opened with fresh funding along 2016.

Also, the "Andalucía A+" programme subsidises projects that are carried out in Andalusia by public entities belonging to these administrative levels (please, notice the absence of regional government):

- Central Government.
- Local Government.
- Consortia mostly made up of the above-mentioned administrations and the public entities dependent on them.

Subsidies can be requested for energy audits, energy investments, transport and mobility (improving urban mobility, optimising the public vehicle fleet, replacing vehicles with other more efficient ones...) and dissemination actions as well: carrying out awareness campaigns to disseminate energy saving and efficiency among Andalusian citizens.



European Union

European Regional Development Fund

The “Andalucía A+” subsidy programme also funds investments by **energy service companies (ESCO)**, using the model of energy service contracts for carrying out projects of energy saving and use of renewable energy, both in the public and private fields, counting on investment subsidies for the energy improvement.

Loans

Likewise, the Andalusian Regional Government grants ordinary loans, participative loans and issues guarantees, in market conditions and on a refundable basis, through the Fund for the Stimulation of Renewable Energy and Energy Efficiency.

Both the incentive scheme and the financing line have had an important positive impact on the implementation of the EU 2020 energy objectives. In addition, they have also had very important benefits in socio-economic terms of employment creation and economic activity regarding energy saving and efficiency and renewable energy, especially among SMEs.

Incentives Schemes and financing lines dedicated to sustainable construction

Under the umbrella of above mentioned Sustainable Construction Programme in Andalusia, it was launched is a combination of economic measures (subsidies and incentives) and other actions such as regulatory, training and fiscal, that sought to boost the construction sector through incentives and improve financing for companies and to popularise the use of energy saving measures in the construction sector for citizens.

The financial tools of the Programme were:

1) Incentive Scheme for Sustainable Construction in Andalusia

Managed by the Andalusian Energy Agency and totally online, the aim of the scheme was to facilitate the rehabilitation of existing buildings through energy saving and efficiency and renewable energy measures in order to exploit the energy saving potential, exceeding even 70% in very inefficient buildings, and to promote a culture based on the sustainable energy rehabilitation of buildings.

The scheme was fully developed with the participation of private companies (“collaborating partner companies”) liaising in Integrative public-private collaboration with the Agency in the management and processing of incentives, which facilitates the administrative procedures for final users to request incentives. Most of the collaborating partner companies were SMEs, which contributes to generating economic activity in the weaker business environment. The Agency’s website included an interactive map showing the geographical location of the collaborating companies, which made easier for citizens to find a company close to their place.

Initially funded with 116 million Euros, up to 170 million Euros and covering 48 possible kind of actions, the minimum initial investment sum the beneficiaries had to pay upfront was low, around 400 Euros. The subsidized rate was, depending on the energy efficiency level, between 40 and 90 per cent of the cost of the energy-saving action (the higher the efficiency, the better the subsidy rate).

Citizens’ awareness: to ensure the success of this scheme, the Agency put in place a set of accompanying measures, aimed at the following points:

1. Informing all interested economic agents, through informative meetings for companies, and dedicated meetings in the eight Andalusian provinces.
2. Stimulating the supply and demand, through wide media coverage on the radio, TV, internet, and publications. It was released an interactive guide where citizens could identify what is included in the Programme, the procedure to apply for the incentives and also the result achieved.
3. Strengthening the quality and expertise of the service, in order to fulfil the expectations of the interested parties.
4. And, lastly, ensuring the correct administration of public funds. 18,000 visits have been made, both to beneficiaries of the actions implemented in the Programme, as well as to all of the collaborating companies that have processed applications

The response from citizens and businesses was overwhelming. In three months the budget was completely depleted.

PROVISIONAL RESULTS FROM THE EVALUATION OF THE PROGRAMME

The quantitative impacts that have resulted from this incentive scheme have been the following:

- 26.000 toe/year saved and/or diversified through low-carbon energy sources and 62.000 tons of CO₂ emissions avoided. Saving is equivalent to the energy consumed by 1.7 million incandescent light bulbs, or 100 million washing machine cycles.
- Almost 40.000 energy improvement actions have been carried out, from the renovation of windows, mobile roof decks, bioclimatic solutions, the use of energy in different applications of hot water, the use of photovoltaic energy for auto consumption through insulated buildings, among others. Benefitted groups included 60.000 citizens, 600 neighborhood communities and 2.500 companies, many of them SMEs. Most of the beneficiaries were private citizens, who represent 91.62% of the actions, 72.84% of the investment and almost 73% of the incentive. Also, almost 15% of the incentives have been used to improve the housing quality of 7.000 low-income families.
- The 8.000 collaborating companies have mobilised almost 258 million Euros in investments in the region.
- Andalusian households and companies have seen how their energy bills have been reduced in more than 320 million Euros.
- On employment terms, 20.000 direct jobs have been created and/or maintained.

Regarding entrepreneurial opportunities:

- More than 1.600 companies and self-employed professionals joined the Programme as collaborating partners.
- The interest shown by 2.500 companies, most of them SMEs, and more than 600 neighbourhood communities, highlights the demand for the development of energy rehabilitation.
- 22% of the companies stated that they worked in collaboration with other companies participating in the Programme as well.
- 43% of the collaborating companies carry out other economic activities types of actions that are different to the 48 included in the Programme (not covered by the scheme).

It is important to point out the wide dissemination that the programme has had through the region:

- Most of the 770 Andalusian municipalities (86%) were benefitted.

- The economic improvement of municipalities is highlighted due to the increase in revenues from fees and taxes associated with urban development licenses, which are estimated at 5,6 million €.

PROVISIONAL RESULTS FROM THE EVALUATION OF THE PROGRAMME

The provisional results show the huge impact that the Programme had on companies and citizens.

With regard to collaborating companies:

- More than 70% indicate that the most positive elements of the Programme are its contribution to the development and/or maintenance of the companies of the sector, as well as the creation/maintenance of employment.
- 75% say that the Programme had an “excellent, very good or good” impact on their company.

With regard to the beneficiaries:

- Almost 85% say that the Programme has contributed to raising their awareness of the energy consumption of their households/buildings, and the need to adopt energy improvement measures.
- 97% have recommended or would recommend to other users the need to undertake improvement measures in their households and/or buildings and admit that the action implemented has affected in the degree of comfort or quality of life.
- 91% of beneficiaries value the Programme as very satisfactory.



Programa de impulso a la
**CONSTRUCCIÓN
SOSTENIBLE**
en Andalucía



European Union
European Regional Development Fund

2) Incentive Scheme for Sustainable Construction in Andalusia: 2020

To keep the path of these good results that have been achieved to date, the **Plan for the Sustainable Construction and Rehabilitation of Andalusia, Horizon 2020**, will have an even more positive impact on the construction sector and buildings (80.000 new jobs in the next 5 years). The Plan will be provided with 529 million eEros until 2020, funded by the EU (ERDF) and the Andalusian Regional Government, mainly focused on the opportunities

linked to building retrofitting and rehabilitation and, in particular, regarding the building envelope.

Other financial tools at Regional level

Financing line through revolving funds for companies - JEREMIE

Managed by the Agency IDEA (Agency for the Innovation and Development of Andalusia), this tool facilitates the access to financing by a revolving fund of 50 million Euros from the JEREMIE community initiative (“Joint European Resources for Micro to Medium Enterprises”) as well as with the mobilization of as many financial resources as possible towards that sector to improve access to finance for SMEs via Structural Funds interventions.

Aimed at the companies liaising with the Agency in the management and processing of incentives, not exceeding 70% of the financing needs of the company, including capital expenditures, operating expenses and working capital, with a maximum of 2 million Euros per beneficiary. This is carried out through financial institutions selected by a public tender process, contribute with the remaining amount up to 100% of the funding requirements.

This initiative supports:

- Creation of new business or expansion of existing ones.
- Access to investment capital by enterprises (particularly SMEs) to modernize and diversify their activities, develop new products, secure and expand market access.
- Business oriented research and development, technology transfer, innovation and entrepreneurship.
- Technological modernization of productive structures to help reach low carbon economy targets.
- Investments which create sustainable jobs.

Grants and loans from the Technology Corporation of Andalusia (CTA)

The Technology Corporation of Andalusia is a private foundation promoted by the Regional Government to encourage collaboration between the scientific and commercial communities in Andalusia. It facilitates the development of initiatives to improve scientific infrastructure-technology, promoting research excellence, enhanced support for innovation, and strengthen strategic sectors such as aeronautics, agro-industry, tourism, **environment, renewable energy**, biotechnology, **building and civil engineering**, and information technology and communication.

CTA offers financial aid consisting of a 25% grant and a 75% loan (0% interest / 3 year grace period) to business projects.

Up to 2015, CTA has approved 600 research and development projects with incentives adding up to over 150 million €. The total accumulated investment amount in the projects is over 450 million €, from which 84 million € (17%) was dedicated to public R&D centres.

1.7 Construction and Buildings Market Brief Description

The Andalusian Autonomous Community faced a profound crisis in its productive system when the economic crisis appeared in 2008. Then, the construction sector was one of the pillars of its economy, contributing notably to the economic growth and the employment, specially for SMEs. However, the pro-cyclical character of this economic sector made possible that 1 up to 2 employments that vanished from 2007 belonged to the construction activity. The construction industry has moved from 14.4% of the regional GDP in 2007 to 7.6% in 2013, and has reduced from 15.2% to 5.2% in 2013 its weight in employment in the Autonomous Community that suffers the highest unemployment rate in Spain. The construction sector alone is responsible of the 80% of the recession of GDP from 2007^v.

According to the official data from the Statistics National Institute (INE), there were 92.702 enterprises performing some construction activity in Andalusia in 2014, lowering notably the 135.017 accounted in 2008^{vi}, -31.3%.

Número de empresas del sector de la construcción en Andalucía (Número)

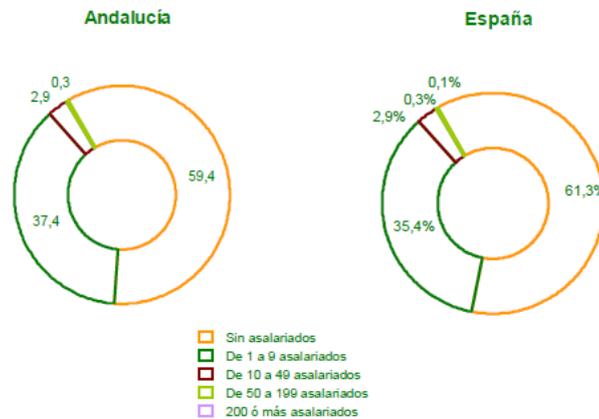


Fuente: Directorio Central de Empresas (INE). Datos a 1 de enero de cada año.

Construction enterprises in Andalusia from 2008 to 2014. Annual evolution. Source: Sustainable Construction Programme in Andalusia, from INE data.

Regarding the typical size of this surviving companies, 96.8% are micro-SMEs, this is, up to 10 employees, including freelance professionals (59.4%), similar to the Spanish rate (96.7% and 61.3% respectively). There are only a 0.3% of companies over 50 employees (medium and large enterprise)

Tamaño de las empresas de la construcción según el número de personas asalariadas (Porcentajes sobre el total)



Fuente: Elaboración propia a partir de la información del Directorio Central de Empresas, INE.

Construction enterprises size in Andalusia (left) and Spain (right) in 2014. Source: Sustainable Construction Programme in Andalusia, from INE data.

Regarding the intrinsic profile of the Andalusian companies, the dependence on external financing is still a heavy weight since the commercial financing costs are high despite the ultra low interest rates policy of the European Central Bank. Also, the R&D investment load is still too low compared to other sectors, as industry, and also when compared to the national sector average. In addition, the Andalusian enterprises are still very intensive in workforce.

Tentative recovering

However, national data are showing a tentative recovering of the sector since the 2014 lows. For instance, the number of companies in Spain grew in 2015 for first time in seven years. Also, the GDP exclusively on construction activities is growing according to the general reanimation of the National economy, mainly fueled by a discrete increase in the demand of buildings. On the Andalusian ground, the new domestic buildings offer increased 56% in 2015 compared to the previous year

Although the promising numbers, rehabilitated building works double new buildings permits, meaning that the rehabilitation and retrofitting activities are still much more important than providing new buildings to the National catalogue.

Clusters, professional associations and technological centres

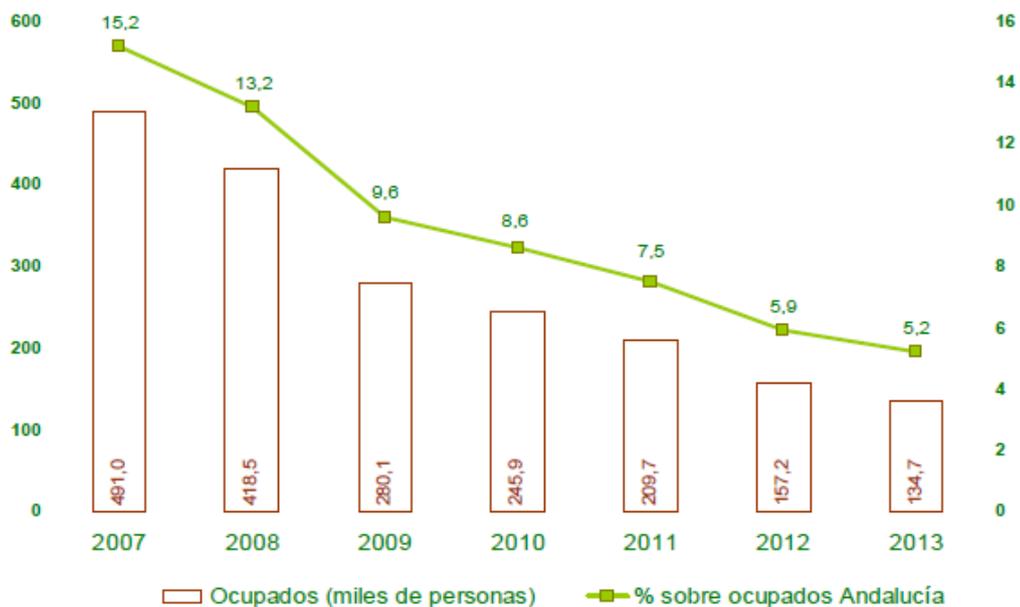
See Annex.

Professional Characterization (Labour)

Employment

The construction industry has moved from 14.4% of the regional GDP in 2007 to 7.6% in 2013, and has reduced from 15.2% in 2007 to 5.2% in 2013 its weight in employment in the Autonomous Community that suffers the highest unemployment rate in Spain – 491.000 employed people in 2007 to only 134.700 in 2013, more than 350.000 construction-related employees has been destroyed in Andalusia, 1 up to 2 in total. The construction sector alone is responsible of the 80% of the recession of GDP from 2007. Unemployment rate within the sector rose from 10.1% in 2007 to 38.4% in 2013.

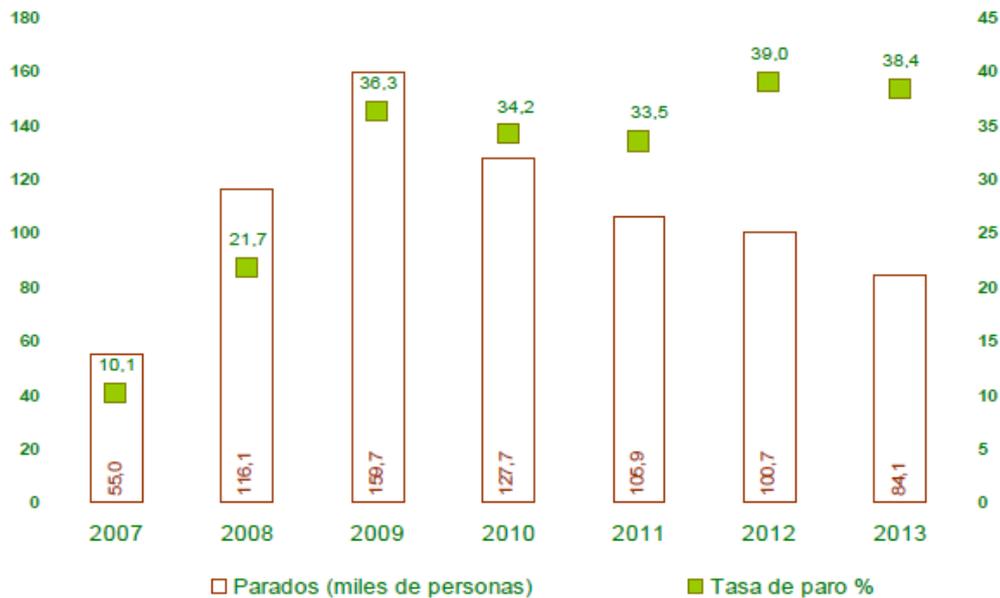
Población ocupada del sector construcción en Andalucía (Miles de personas y porcentajes sobre el total de Andalucía)



Fuente: Elaboración propia a partir de la información de la Encuesta de Población Activa, INE.

Employees at the construction sector in Andalusia (thousands) and weight over total (%), from 2007 to 2013. Source: Sustainable Construction Programme in Andalusia, from INE data.

Población en paro del sector construcción en Andalucía (Miles de personas y tasa de paro en porcentaje)



Fuente: Elaboración propia a partir de la información de la Encuesta de Población Activa, INE.

Unemployed people at the construction sector in Andalusia (thousands, %) 2007 to 2013. Source: Sustainable Construction Programme in Andalusia, from INE data.

This means that the workforce dramatically decreased in 327.000 workers. Total active work force in the region were 2.5 million then.

Education and training

Educational level in the sector is, by far, lower than the average. Basic or primary studies profiles account to 54,3% compared to 33,7% on average, whereas universitaire degrees are found only in 11,8% of professionals against 30% on average. Nevertheless, the specialization range is similar to the average

Población activa: personas ocupadas y en paro en la construcción en Andalucía (Miles de personas)



Fuente: Elaboración propia a partir de la información de la Encuesta de Población Activa, INE.

Employed ("ocupados") and unemployed (parados") workforce at the construction sector in Andalusia (thousands) 2007 to 2013. Source: Sustainable Construction Programme in Andalusia, from INE data.

1.8 References

http://www.eldiario.es/andalucia/construccion-Susana-Diaz-reactivar-empresas_0_222928534.html

“EL PAPEL DEL SECTOR DE LA CONSTRUCCIÓN EN EL CRECIMIENTO ECONÓMICO: COMPETITIVIDAD, COHESIÓN Y CALIDAD DE VIDA” Consejo Económico y Social. Febrero de 2016.

http://seopan.es/wp-content/uploads/2016/05/Construcci%C3%B3n-e-Infraestructuras_Estad%C3%ADsticas-2015-y-Previsiones-para-2016-1.pdf

Exposición de Motivos del Decreto-ley 1/2014, de 18 de marzo

WWF Spain 2012, Retos y oportunidades de financiación para la rehabilitación energética de viviendas en España. [Challenges and opportunities of existing buildings energy retrofit]

National Institute of Statistics Website (INE) www.ine.es

2 SWOT Analysis

2.1 Strengths

- S1. Large, well-positioned and coherent business sector, companies gather in correctly organized business associations and clusters.** The high grade of syndication among private companies creates rapid information networks and great potential to respond to market specialization requirements, both domestic and foreign markets.
- S2. Large institutional consensus on the need of transitioning from the current building sector to a more sustainable and energy efficient model.** The Andalusian Social Agreement among public administration, labor unions and private companies sets as a priority “going towards more sustainable building activity based on building energy retrofitting, as well as transport and communication infrastructures renovation”. This large agreement will enable financing flows for the need of a change of productive economic model
- S3. Large influence of energy rehabilitation of buildings over other important economic sectors** as tourism, industry, specialized services, etc.
- S4. Highly skilled and internationally competitive Andalusian companies,** especially on ITC, sustainable construction and retrofitting and renewable energies. The companies that overcame the economic crisis are more resilient and count on experience and enhanced adaptation and management capacities to respond to the market needs and develop R&D as well as act as leaders of consortia in foreign markets.
- S5. Remarkable experience in renewable and energy efficiency and saving, as well as building retrofitting and urban regeneration.** “Spain” as a lighthouse trademark on infrastructures, waterworks and energy
- S6. High quality and international impact of scientific results in some areas,** especially on energy, stone, lime and sustainable building.
- S7. Very similar climate to foreign sustainable building demanding areas** (as Chile, California, South Africa, Australia, MED zone...) The concurrence of climate, raw materials, technology availability and R&D makes Andalusia a potential hub for exporting sustainable building and retrofitting to climate-similar areas, as it recently happened regarding solar energy.
- S8. Housing foreign demand.** Andalusia is one of the most attractive touristic markets for foreigners looking for leisure properties.

S9. Environmental awareness among citizens on the need to improve knowledge in money saving, better quality of life, health and welfare.

S10. Economies of scale to create employment as well as training programmes as a consequence of a large number of medium and large cities in Andalusia.

2.2 Weaknesses

W1. Small and micro business prominence. Most of the sector companies are very small sized that find harder to diversify business and the access to new opportunities, as large tenders, foreign markets offers, innovation access and talent acquisition.

W2. Poor industrialization among companies, especially small and micro business. These companies keep basically artisans work schemes based on obsolete techniques which make them less productive and competitive.

W3. Excess of bureaucracy and administrative barriers to start projects up, especially for innovative initiatives. Delays and excessively long timeframes to get permits and grants.

W4. Unlicensed or uncertified professional practice, black economy and unfair competition. Hiring HR without social security enlisting, lack of legal invoice delivering and poor occupational health and safety measures are quite normal practices which endanger the sustainability of those companies that fulfill the legal responsibilities.

W5. Important lack of specialized training in employees, as marketing, business management, taxes, etc. There is an important under-qualification and jobs are highly temporal.

W6. Difficult access to granted training for entrepreneurs and micro business which disables competences achievement and competitiveness increasing

W7. Bureaucratic and administrative barriers to provide professional licenses.

W8. Lack of investment in R&D&I in the private sector.

W9. Low communication between public research and private companies.

W10. Poor landlords awareness on the importance of energy consumption in buildings, the duty of keeping good maintenance and conservation standards,

retrofitting needs, “lyfe cycle” and “carbon footprint” concepts and innovative solutions. Benefits of lowering energy consumption in buildings are not well-known.

W11. Buildings are normally bad maintained, especially regarding condominiums and blocks. The energy performance is quite poor and it is difficult to reach community agreements between many landlords in large housing buildings.

W12. Weak Andalusian lobby activity in Brussels to influence in European policies.

W13. Poor energy metering in buildings, especially in houses and residential sector.
No metering, no knowledge.

2.3 Opportunities

- O1. Retrofitting and urban regeneration will be a cornerstone of the policies on housing and urbanism the following years.** Public boost by dedicated policies, planning and ad-hoc regulation is fostering the surge of new services and specialized companies.
- O2. High potential for modernization of private companies.** The lack of new technologies, materials and process enables the private sector the massive adoption of innovation.
- O3. Building sector is procyclical,** so an economic improvement will boost the demand of activity. Rise of awareness on energy and environment will relocate a higher demand on sustainable retrofitting and energy rehabilitation.
- O4. Reasonable pay-back period** for energy rehabilitation projects that will boost the enterprises competitiveness.
- O5. Real need of rehabilitation of old city centers and integral regeneration of whole neighborhoods,** especially where vulnerable collectives live. Opportunity of health and urban environment improvement.
- O6. Change of social preference pattern,** from buying properties to renting and from new to rehabilitated buildings.
- O7. Maintenance of civil infrastructure is needed** since there is a in important lack of new investments since 2008.
- O8. New demand of rehabilitated buildings for touristic needs.** Urban tourism in Andalusia is progressively increasing and attracts especially foreign tourists looking for the Andalusian heritage and historic buildings and monuments.
- O9. Tailwind from the specific UE support on retrofitting,** especially on innovation through Horizon 2020.
- O10. Innovative public procurement** as a tool to reinforce the support to innovative solutions on sustainable building.
- O11. New investment opportunities** on sustainable building and retrofitting, ideally suitable for venture capital allocation.

O12. Source of new employs. Qualified personnel required for a correct energy management in buildings.

2.4 Threats

- T1. Difficult access to standard finance sources among citizens, companies and public administrations.** A lack of credit availability as a consequence of harder financial markets could endanger the demand of sustainable building due to its capital intensive nature.
- T2. Insufficient public support in social housing and civil infrastructure.** Dedicated public budget has been decreased along last years.
- T3. Regulatory uncertainty regarding electric renewable sources,** not only on legal status but the retribution scheme. It endangers directly the investment possibilities in solar energy and other renewable sources optimal for buildings.
- T4. Rise of energy poverty,** mainly driven by increasing electric power prices.
- T5. Central government ignorance of the energy efficiency and renewable energies EU Directives.** Legal UE mandates to promote energy saving and a higher use of renewable sources are not seen by Madrid as a priority.
- T6. Lack of entrepreneurial recognizance of the researcher figure.** Scientists and researchers are not the best-valued profiles for the companies.
- T7. Adoption of successful solutions and technologies from Northern regions** that rarely are adequate for the typical Mediterranean climate.
- T8. Traditional dependency of subsidies on energy rehabilitation.** Users and investors expect always lump sums subsidies and large public financial aid. Retrofitting is not generally seen as an opportunity to run a profitable investment.
- T9. Energy rehab and retrofitting is not seen as a priority by public “bad banks” and private investment funds** that own a large portion of social housing after the bubbles housing crunch in 2008.

Annex

Clusters, professional associations and private technological centres regarding sustainable construction and building in Andalusia

The following organizations operate as regional or national actors promoting private interests, technological research or clustering efforts regarding sustainable construction and building in Andalusia.

Name	Type of organization	Field of activity
ANESE – National Association of ESCOs	Business private association	ESCOs – energy efficiency
A3E – Association of Energy Efficiency Enterprises	Business private association	Energy efficiency business
CIAC – Andalusian Center for Sustainable Innovation in Construction	Private Foundation - Technology Centre	Sustainable construction RDI
CTA – Technological Corporation of Andalusia	Private Foundation - Technology Centre	RDI and technology transfer promotion
CTAER – Advanced Technological Centre in Renewable Energies	Private Foundation - Technology Centre	Renewable energies R&D
CTAP – Andalusian Stone Technology Center	Private Foundation - Technology Centre	Stone RDI
APREAN Renovables – Cluster EnergINNOVACIÓN	Cluster	Renewable energies business
FADECO Andalusian Federation of Construction Companies (Andalusian Confederation of Construction Enterprises)	Business private association	General construction – civil works and buildings
FADECO Andalusian Federation of Promotion Companies (Andalusian Confederation of Promoters)	Business private association	General construction – civil works and buildings
HABITEC – Technological Centre of Sustainable Building	Private Foundation - Technology Centre	Sustainable building – energy efficiency
INNOVARCILLA – Andalusian Ceramics Technology Center	Private Foundation - Technology Centre	Ceramics RDI

Spanish ESCOs Association (ANESE)

The Spanish ESCOs Association (ANESE) is a non-profit business association of Energy Services Companies. ANESE was born in November 2009. ANESE has today 97 members that, independently of their core activities, are Energy Services Companies according to definition of Directive 2006/32/EC.



The ANESE key objectives are:

- To promote and develop the ESCO market.
- To influence in national public bodies, energy agencies and other agents and associations.



ANESE objectives are focused on the development and promotion of Energy Services Market:

- To participate in the consolidation and development of Energy Services Market.
- To represent the Spanish Energy Services Companies and defend their interests.
- To act as a key industry contact with public administration bodies.
- To disseminate concepts of energy efficiency and energy savings to boost the correct use of energy and create a more informed and conscious market.
- To encourage synergies between associate companies to create business opportunities.
- To promote sustainability principles.

ANESE representation in Andalusia is particularly important.

Association of Energy Efficiency Enterprises (A3e)



The Energy Efficiency Companies Association (A3e) assembles more than 70 members working in the field of energy efficiency in Spain: consulting firms, ESCOs, equipment and component manufacturers, energy services companies, etc.

The goal of the association is to promote energy efficiency sector improving competitiveness within the A3e members:

- Promotes technical knowledge about energy efficiency.
- Fosters research, training and innovation activities.
- Facilitates business opportunities.
- Promotes the development of synergies among A3e members.

A3e is a technical point of reference in energy efficiency sector in Spain looking for constant feed-back of their associates in order to provide the best possible service.

Center for Sustainable Innovation in Construction (CIAC)

The Center for Sustainable Innovation in Construction stems from the initiative of a group of companies and entities involved in construction, architecture and engineering of national, regional and provincial levels, interested in promoting research activities, Development, Innovation and Sustainability (Research + Development + Innovation + Sustainability) in its scope.



The main services offered by this technology center focused on sustainable construction are:

- RDI projects development on advanced material, raw materials, products and systems.
- Applied RDI on occupational health and safety
- Laboratory tests on characterization, identification and measure.
- Consulting, strategic and technical assistance
- Dissemination of results and technology transfer.
- Training

Technological Corporation of Andalusia (CTA)

Established in 2005 with the support of the Regional Ministry of Economy, Innovation and Science, the Technological Corporation of Andalusia is a private foundation and a strategic alliance of companies and research groups or research centres that promote RDI and technology transfer in Andalusia.



CTA promotes applied research, generates innovative business projects and link companies with similar technological objectives. The CTA funds company RDI projects in seven strategic sectors: aerospace and production processes, agro-food, biotechnology, **building and civil engineering, energy and the environment**, leisure and tourism and ICT.

CTA is considered to be the largest public-private partnership in Spain linking scientific and industrial innovation. At least 15% of the project funding must be invested through a research group from the Andalusian Research, Development and Innovation Plan (Plan Andaluz de Investigación Desarrollo e Innovación - PAIDI).

CTA has more than 150 member companies in three membership categories within a period of four years:

- The leading members contribute EUR 1 million.
- The collaborating members, EUR 240.000.
- The associate members, EUR 60.000.

The collaborating and associated member categories were created to increase the engagement of SMEs that today make up more than 60% of the CTA members.

Member companies have access to financing from the CTA and other sources of regional, national and European funding. The companies receive strategic guidance in RDI projects and have access to of research groups. Research groups have the opportunity of upgrading their scientific resources and improve their infrastructure through participation in RDI projects.

They also benefit from the close proximity with the leading companies and can increase their technical and human resources. The technical officers of the CTA provide advice on how to manage and plan RDI activities to obtain strategic benefits in the medium and long term. Companies of all sizes and sectors can participate in the CTA including financial bodies that contribute to the improvement of the competitiveness of companies. Likewise, different groups from universities and research centres are also part of the CTA.

The CTA funds projects that are profitable in economic or social terms: the project evaluation, that takes two months, takes into account the degree of innovation, commercial exploitation potential and co-operation between companies.

Advanced Technology Center for Renewable Energies (CTAER)

The Advanced Technology Center for Renewable Energies is a Technology Centre for Renewable Energies oriented as a driven-research cluster. Since its beginnings at the end of 2007 as a private foundation promoted by the Regional Authority (Regional Ministry of Economy, Innovation and Science), is devoted to fostering RES technologies R&D and transferability among private companies and related organizations. CTAER has devised and executed research projects aimed at developing new technologies, testing already existing ones and providing the necessary scientific tools to optimize the exploitation of renewable energy resources.



Its objective is supporting the development of the best-potential RES in Andalusia. The projects carried out by the CTAER focus mainly on performance optimisation, environmental impact reduction, and cost efficiency for technologies related to the basic renewable energy resources; solar radiation, wind, biomass and marine.

- Solar: Solar projects aim at developing new concepts for Solar Thermolectric Plants (CSP) in order to improve the overall performance of commercial plants.
- Biomass: Biomass includes physic-chemical and well equipped energy laboratories. It also has a bench of biomass boilers which will be increased from 50 KW to 500 KW. These facilities turn CTAER into a national reference for the companies of this sector.
- Wind and Marine: Planning experiment facilities, onshore and offshore measures.



Variable geometry CSP plant concept at the CTAER solar research facilities (Tabernas, Almería)

Based in Andalusia, CTAER is intended to spread its activities nationwide. It coordinates from first time in Spain the research on different renewable energy sources.

CTAER was granted with 12 M€ from the Regional Ministry to start up and goes on on fundraising in order to ensure their activities. Among the foundation partners there are three public bodies including the Andalusian Energy Agency, four Andalusian universities and 17 relevant companies regarding the energy sector in Andalusia and Spain (i.e. Iberdrola, Acciona Energia, Gas Natural, Schott, Endesa, Enel, Sener). The executive board of this private foundation is composed of leading companies in the corresponding sector, national and regional public administrations, Andalusia universities of Almeria, Cadiz, Jaen and Seville, and the Research Centre for Energy, Environment and Technology (CIEMAT) from the Spanish Ministry of Economy and Competitiveness.



CTAER board composition

CTAER works with the European Commission as a research centre in international projects. In 2013 it is managing over ten national and international projects, among them:

- EU SOLARIS - recently joined the European Strategy Forum on Research Infrastructures (ESFRI) as the CSP Roadmap. The ESFRI Roadmap identifies new Research Infrastructure of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas. EU SOLARIS goal is developing the needed R&D capacities for CSP technologies thru the integration of all related R&D European excellence groups.
- SOLAR CONCENTRA - CSP Technological Platform. A network broad linking up to 90 different actors and 117 members from the CSP knowledge bodies to strengthen the R&D activities on CSP.

Andalusian Stone Technology Center (CTAP)

The Andalusian Stone Technology Center for Renewable Energies is a Technology Centre located in Andalusia oriented as an applied research cluster. Since its beginnings in 2002 as a private foundation promoted by the Regional Authority (Regional Ministry of Economy, Innovation and Science), is devoted to offer technology support and RDI transferability among private companies and related organizations regarding the stone industry (processed stone, craftsmanship, the exploitation of calcium carbonate, the mineral of which marble is constituted), along with auxiliary companies and technological organisations, which is particularly important in Almeria, eastern Andalusia.



The objective of CTAP is to develop the innovation aspects of the traditional Andalusian stone sector. The CTAP works closely with businesses, providing them with the modern technologies required by the evolution of markets whilst promoting concepts from Andalusian craft heritage in these same markets. Activities range from laboratory tests to the development of quality programmes and certification, via a whole array of services to SMEs: design, technological development, respect for the environment, training and marketing.

The CTAP is also actively involved in transferring and disseminating the good practices to other sectors of the Andalusian economy.

APREAN Renovables – EnergINNOVACIÓN

APREAN Renovables

The Andalusian Association of Promoters and Producers of Renewable Energy (APREAN Renovables) was created in 2003.



The association is a non-profit organization born as a necessity to coordinate the action of promoters and production companies of wind power, solar photovoltaic, solar thermoelectric and bio-mass energy.

APREAN Renewable works as a negotiator/speaker with the Autonomic, Central and Local Administration and with any public or private organization. Its main objective is to represent, coordinate and defend the common professional, economic and business interests of its members and to work as an instrument to participate in the development of the general policy and especially energy and environmental policies.

APREAN is a member and takes an active role in the Wind Power Companies Association (AEE) and in the Andalusian Business Confederation (CEA). Moreover, it has arranged a collaboration agreement with the Renewable Energies Promoters Association (APPA) to strengthen the representation of promoters of renewable energy in Andalusia and Spain.

Currently, the Association is composed of a hundred regional, national and international companies representing more than 95% of the activity in this field.

Cluster AEI EnergINNOVACIÓN

The Andalusian Cluster of Renewable Energies (Cluster EnergINNOVACIÓN), founded in 2012, is driven-innovation cluster as an initiative of APREAN



Renovables. The Cluster is devoted to promote the creation, integration and strengthening of institutions and companies operating in the energy value chain, through entrepreneurial cooperation and innovation, with the goal of ensuring a high level of competitiveness.

The Cluster has currently 95 members, is intended to create a European Clusters Network devoted to innovation and research on renewable energies.

Andalusian Federation of Construction Companies (FADECO)

FADECO CONTRACTORS is an entity that brings together companies in the construction of Andalusia sector. Incorporated as a private non-profit business association, with legal personality and full capacity to act, its territorial scope is the Autonomous Community of Andalusia.



FADECO ensure the competitiveness of enterprises in equality and free competition, ensure legal certainty, and encourage private initiative.

The main objectives of FADECO CONTRACTORS, according to its statutes, are:

- Represent their associations / member associations.
- Promote unity and business integration.
- Defend general and common interests of Andalusian construction companies in the area of Andalusia industry

FADECO CONTRACTORS is integrated into the following territorial and inter-sectoral organizations:

- The Confederation of Employers of Andalusia, CEA.
- The National Confederation of Construction, CNC.
- The Spanish Confederation of Business Organizations, CEOE.
- The European Confederation of Employers, BUSINESS IN EUROPE.

Its members are the associations / province federations, that have access to a complete network of general services including training services both for managers and workers, support to internationalization (especially for SMEs), occupational health and safety assistance and support on bidding processes and contracting with the public sector.



**FADECO Andalusian Federation of
Promotion Companies (Andalusian
Confederation of Promoters)**



Fadeco Promotores is the professional association of Construction Entrepreneurs of Andalusia.

Technology Center in Energy and Construction for the Habitat - HABITEC

HABITEC is a private non-profit foundation constituted in 2009 by important entities working in the field of energy, technology, and construction, which contributes to the development and technological innovation of the Andalusian companies involved in sustainable construction and to the improvement of their competitiveness.



The general objective of our Technological Centre is to transform the habitat into a global environment. The specific objectives coming from this general objective are the following:

- Promote the R&D&i and the transfer of technology to the companies of the habitat field.
- Disseminate the importance of an R&D&i Policy among the companies of the habitat field.
- Stimulate the participation of the companies in R&D&i activities.
- Act as an intermediate organization identifying the needs of the companies, new technology and market trends.
- Provide information and advices about new niche markets, new technologies, new managements systems to the companies of the habitat field.
- Contribute actively to the economical and business development of the Andalusian companies in the habitat sector.
- Organize training activities, technical conferences and seminars for professionals and stakeholders actors in the sector of technology, energy, and construction.

With the collaboration of HABITEC, companies can transform their innovative ideas into reality by contracting different services, participating in R&D projects, in trainings or info-days organized by our center.

Andalusian Ceramics Technology Center (Innovarcilla)

Fundación Innovarcilla is a non-profit private foundation, gathering some of the most important ceramic manufacturers in Andalusia, specialized at innovation and services for ceramic industries of both structural and decorative, mainly based on fired clay. It promotes the exchange of knowledge, innovation and technology between research centres and industry and displays a high level of consulting skills in quality control of materials, design, environment protection and research on materials.



Innovarcilla counts on experienced professionals that try to find solutions to the issues that most concern professionals and entrepreneurs of this sector, as well as to generate a continuous information and research aimed at developing the industry at all levels, promoting innovation for the industry development and profiting from creativity and enterprising nature of the Andalusian ceramic companies.

The ultimate goal is to increase the competitiveness of the Andalusian ceramic companies through the promotion of quality, innovation, research, training and internationalization in the ceramic sector, with the inherent benefices to the environment, the society and the economy.

Innovarcilla developed a strong knowhow in different topics:

- Quality control of materials
- Environmental protection
- Technical assistance
- Design
- Research on new materials
- Control of production, yield, costs and preventive maintenance
- Research and development of new technologies and industrial processes
- Assessment during implementation of Quality Management Systems

ⁱ http://www.eldiario.es/andalucia/construccion-Susana-Diaz-reactivar-empresas_0_222928534.html

ⁱⁱ “EL PAPEL DEL SECTOR DE LA CONSTRUCCIÓN EN EL CRECIMIENTO ECONÓMICO: COMPETITIVIDAD, COHESIÓN Y CALIDAD DE VIDA”
Consejo Económico y Social. Febrero de 2016. http://seopan.es/wp-content/uploads/2016/05/Construcci%C3%B3n-e-Infraestructuras_Estad%C3%ADsticas-2015-y-Previsiones-para-2016-1.pdf

ⁱⁱⁱ Exposición de Motivos del Decreto-ley 1/2014, de 18 de marzo

^{iv} WWF Spain 2012, Retos y oportunidades de financiación para la rehabilitación energética de viviendas en España. [Challenges and opportunities of existing buildings energy retrofit]

^v http://www.eldiario.es/andalucia/construccion-Susana-Diaz-reactivar-empresas_0_222928534.html

^{vi} Instituto Nacional de Estadística (INE) www.ine.es