Nearly Zero Energy Buildings Action Plan
CYPRUS

September 2012

REPUBLIC OF CYPRUS
MINISTRY OF COMMERCE, INDUSTRY AND TOURISM

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

Contents

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

1. Introduction

The national plan for increasing the number of nearly zero energy buildings in Cyprus has been composed according to Article nine of the 2012/31/EU Directive, by the Energy Service of the Ministry of Commerce, Industry and Tourism (ES), the Competent Authority for the harmonization and application of the provisions of the Directive.

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

2. Context

The total dwelling stock in Cyprus[1] was in 2011, 433.212 of which, 299.275 are permanent residences and 133.937 are empty or of seasonal or temporary use. Of the 433.212 residences, 172.944 are detached houses, 59.050 are semi-detached houses, 32.893 are terraced houses and 123.557 are apartments. 32.530 are conventional dwellings in partly residential buildings

The recorded year of completion of these buildings is as follows:

3.968 were completed before 1919,
9.129 were completed between 1919 and 1945,
20.343 were completed between 1946 and 1960,
24.255 were completed between 1961and 1970,
61.247 were completed between 1971and 1980,
85.503 were completed between 1981and 1990,
70.094 were completed between 1991and 2000,
54.897 were completed between 2001and 2005,
and
74.203 were completed between 2006 and 2011.

When it comes to the size of the residential buildings in Cyprus, the mean area per dwelling there has been a decreasing trend from 184m^2 in 1998 to 153m^2 in 2005. Since 2005 the mean area per dwelling has remained approximately in the same level.

The total building stock in the tertiary sector [2] was approximately 81.000

Out of the 81.000 there is information for the following categories of buildings
1073[3] are buildings used by public authorities, mainly offices
1035[4] are schools (nursing kindergarten, primary schools, gymnasiums, lyceum and universities)
395[5] are hotels and tourist apartments.
and
60[3] are hospitals and medical centers.

[1] According to the 2011 demographical survey of the Statistical Service of Cyprus
[2] According to the Electricity Authority of Cyprus
[3] According to ES data
[4] According to the technical services of the Ministry of Education and Culture
[5] According to Cyprus Organization of Tourism

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

3. Starting Point

The first attempt to introduce energy conservation in buildings was the preparation of a voluntary CYS98:1999 Standard for the Insulation and Rational Use of Energy in Dwellings.
The Standard was suggesting that the thermal transmission (Uvalue) of the elements of the envelope of the building (except doors and windows) should be less than 1W/m^2 K. Furthermore the mean U value of the building surface with regards to the volume of the building should be between 1.22-1.55 W/m^2 K. The compliance with this Standard was set as a requirement when applying for a grant for insulation of existing buildings under the Grant Scheme for the Promotion of Energy Conservation and Renewable Energy Sources until 2008.The Grant Scheme for the insulation of existing buildings was in force from the middle of 2004 to September 2009 and 22.861 applications were received during that time. The estimated energy conservation by this measure is 6.746 toe per year.

For the transposition of the 2002/91 EPBD in Cyprus, the following legal documents have been approved by the House of Representatives and published in the Government Official Gazette:

- The Law for the Regulation of the Energy Performance of Buildings of 2006, N.142(I)/2006;
- The Amendment of the Law for the Regulation of Roads and Buildings of 2006, N.101(I)/2006;
- The Amendment of the Law for the Regulation of the Energy Performance of the Buildings of 2009, N.30(I)/2009;
- The Energy Performance of Buildings Notification in Accordance to Article 22 of 2007, Κ.Δ.Π. 437/2007
- The Energy Performance of Buildings Notification in Accordance to Article 22 of 2009, Κ.Δ.Π.275/2009
- The Roads and Buildings (Energy Performance of Buildings) Regulations of 2006, Κ.Δ.Π. 429/2006;
- The Energy Performance of Buildings (Inspection of Air-conditioning Systems) Regulations of 2009, Κ.Δ.Π. 163/2009;
- The Energy Performance of Buildings (Energy Certification for Buildings) Regulations of 2009, Κ.Δ.Π. 164/2009;
- The Energy Performance of Buildings (Methodology for calculating the Energy Performance of Buildings) Ministerial Order of 2009 Κ.Δ.Π. 414/2009;
- The Energy Performance of Buildings (Minimum requirements for the Energy Performance of Buildings) Ministerial Order of 2009, Κ.Δ.Π. 446/2009;
- The Energy Performance of Buildings (Authorized Inspectors) Ministerial Order of 2009, Κ.Δ.Π. 40/2009;
- The Energy Performance of Buildings (Examination material examination fees for Qualified Experts) Ministerial Order of 2009, Κ.Δ.Π. 260/2009;

The law and regulations, determine the minimum demand of the Energy Performance Requirements of a Building, the prerequisites for the issue of a Certificate for the Energy Performance of a Building, the exceptions of the obligation of the existence of a Certificate, the maintenance procedure and the inspection of the energy consuming units of the building,

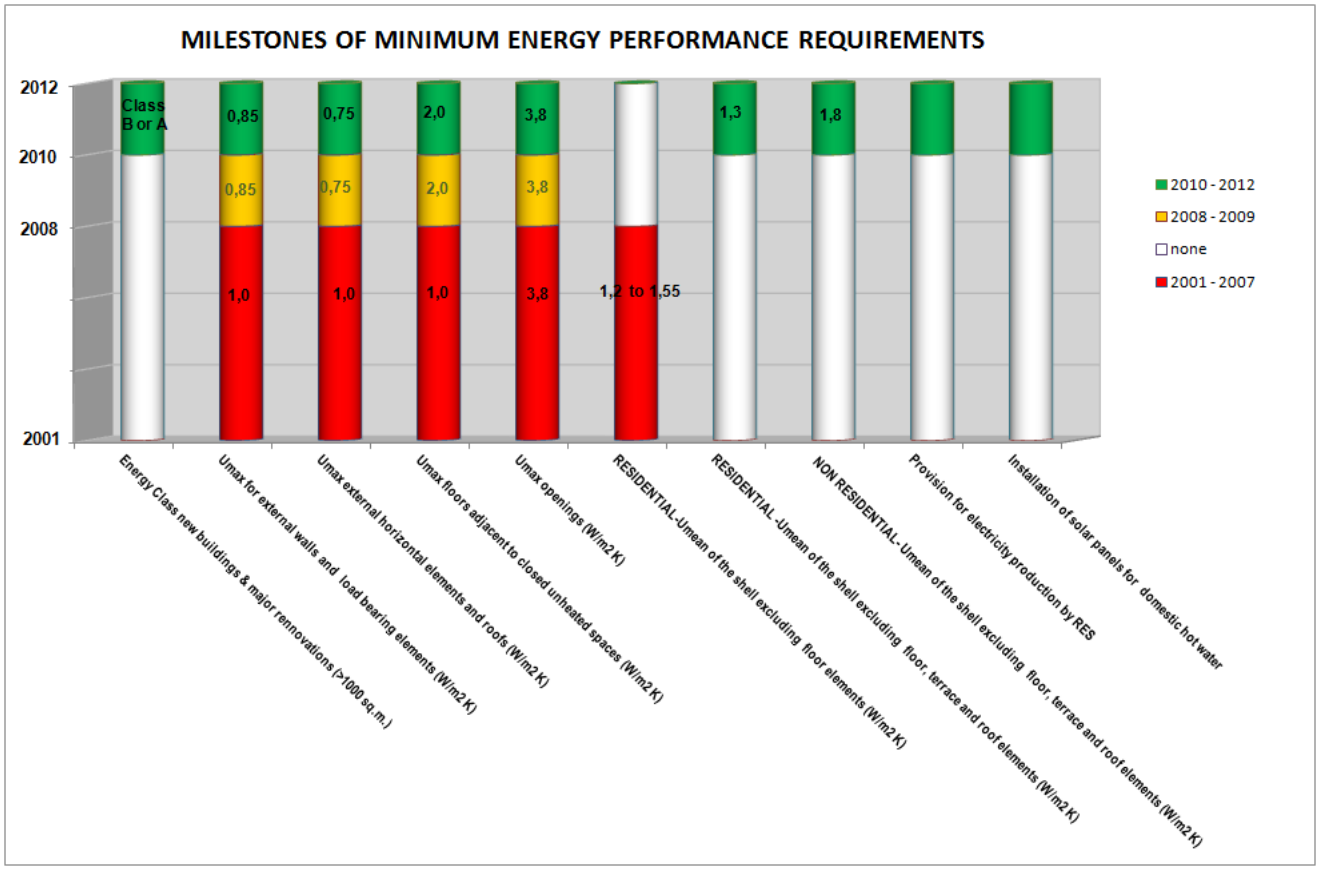
Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

the methodology for the calculation of the Energy Performance of a Building, the commendation of Advisory Committees, the authorities for inspection and auditing, the administration fines, the issuing of regulations, the offences, the lawsuit for the violation of law, the ability and the validity of the registration of Accredited Experts, the establishment and operation of the Register, the regulations and the fees.

The Law N.142(I)/2006 took effect as of 21/12/2007 by enacting the legislation concerning the minimum requirements set for the energy performance of buildings, (ΚΔΠ568/2007) which at that time were restricted to thermal insulation of the envelope for all new buildings and existing buildings exceeding 1000m^2 of effective floor area undergoing major renovation. The issue of Certificates for the Energy Performance for Buildings has taken effect as of 1st of January 2010 for residential buildings where as for non residential buildings has commenced in September 2010.

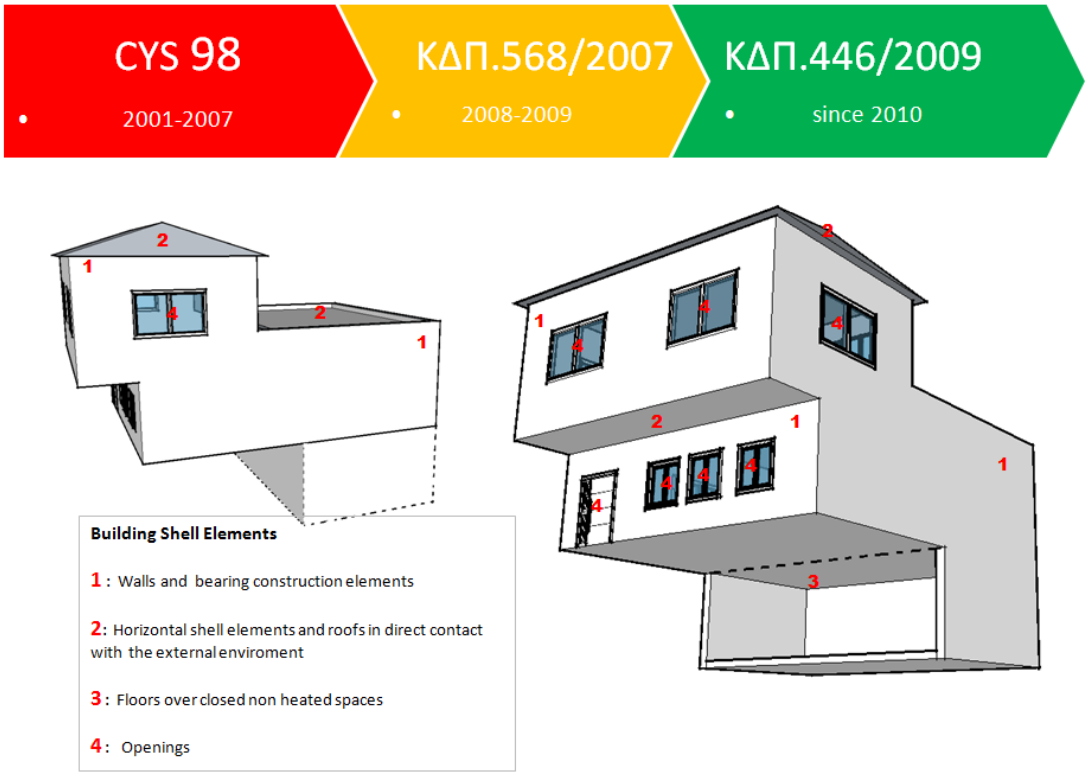
From January 2010, (Κ.Δ.Π.449/2009), the minimum requirements for the energy performance of buildings, besides the restrictions on the thermal performance of the different elements of the envelope of the building (maximum U-values), include; a mean u-value for the whole envelope excluding roof and floor, compulsory use of the domestic hot water solar systems, provision for electrical infrastructure for renewable system producing electricity. The category of the Energy Performance Certificate must be at least B (approximately 200kWh/m^2/yr on average, for residential buildings and 260 kWh/m^2 /yr on average, for non residential) for all new buildings, and all existing buildings exceeding 1000m^2 of effective floor area undergoing major renovation.

The chart below shows the milestones of the minimum requirements.



Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

Minimum Energy Performance Requirements according to CYS98, Κ.Δ.Π.568/2007 and Κ.Δ.Π.446/2009.



Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

4. Definition of NZEB for Cyprus

For the purpose of setting the definition of the NZEB in Cyprus the ES had structured the in depth study of the potential of energy saving in the identified as most commonly used 3 categories of residential buildings,

i) Detached 2 storey house

ii) terraced houses

iii) apartments on building blocks,

in the 4 climatic zones[6] of the country as defined in the national methodology for the energy performance of buildings.

The parameters identified to be analyzed in order to characterize the NZEB were:

a. Architectural Design: orientation, compactness and summer comfort control
b. Insulation of opaque surfaces: walls, roof, floor (in contact with the ground, the air and closed environment)
c. Shading strategies and applications (fins, overhangs, shutters, etc)
d. Windows and other transparent surfaces: Thermal characteristics, U-value, shading ,Tsolar, Lsolar .
e. Air permeability of the building for detached buildings and apartment buildings (high and low rising)
f. Ventilation, natural and mechanical, in order to achieve good air quality to control air humidity and to ensure the durability of the building while reducing the energy consumptions of the heating, cooling and the use of ventilators.
g. Heat recovery systems when applicable
h. Heating systems, use of conventional hybrid or only renewable heating systems (the heating system should be analysed according to the following parameters: adaptation to the building characteristics (including its use), their energy efficiency, their environmental impact (especially of the carbon footprint) and the long term availability of the resource.
i. Optimization of the solar hot water production
j. Investigation of the gains from programming that would manage the absence of the occupants
k. Natural cooling methods
l. Cooling systems, use of conventional, or hybrid and renewable systems should be analysed according to the following parameters: adaptation to the building

[6] Climatic zone 1 : Costal areas
Climatic zone 2 : Lowlands
Climatic zone 3 : Low mountainous areas (from 300m up to 600m from sea level)
Climatic zone 4 : High mountainous areas

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

characteristics (including its use), their energy efficiency, their environmental impact (especially of the carbon footprint) and the long term availability of the resource.

m. Strategies for passive heating and cooling

Consulting Services

Through an open tender procedure, ES had engaged the consulting services of EXERGIA S.A. The scope of the contract was the in depth analysis of the different aspects of the design, materials and technical systems in the 4 climatic zones of Cyprus applicable to residential buildings, and in order to advice the Competent authority on the best possible applications in terms of energy efficiency, towards achieving nearly zero energy residential buildings and an indication of the primary energy in kWhr/m2/yr .The contract had a duration of approximately one year and was completed in July 2012 and the results of the contract have been presented to all the interested parties in June 2012.

Calculation of Cost Optimal Levels

At the same time the ES is calculating the minimum energy performance requirements at the cost optimal levels. The method is based on the comparative methodology framework as it is defined in the Regulation No 244/2012 and the guidelines accompanying the regulation. For the purpose of the calculation reference buildings were defined for the following types of buildings:

- Single family buildings
- Apartment buildings
- Office buildings
- Educational buildings
- Hospitals
- Hotels
- Sports facilities
- Small retail buildings
- Large retail buildings

In all cases more than one reference building corresponds to each type of building, since the main purpose of a reference building is to represent the average and typical building stock. For the establishment of reference buildings, real and virtual buildings were used. The energy performance of the reference buildings is calculated in kWh/m^2/year of delivered and primary energy using the national methodology. The national methodology defines the pattern of use and the conversion factors of primary energy. So far they have been calculated the cost optimal levels of the energy performance requirements for

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

single family buildings and office buildings. The calculation will be completed and submitted to European Commission by March 2013.

The results of the in depth analysis of the ES, the outcomes of the contract for the consulting services and the evaluation of the measures through the cost optimal methodology are setting the definition of the NZEB for Cyprus.

The NZEB in Cyprus is defined as follows:

For Residential Buildings:

Primary Energy Use: 180kWh/m^2/yr
The numerical indication above includes primary energy use for heating, cooling, lighting and domestic hot water.
At least 25% of the 180kWh/m^2/yr of the Primary Energy must be covered by RES

The NZEB for residential buildings in climatic zones 1,2,3[6] uses a reference building with the following technical characteristics:

		U value W/m^{2}K	Construction solution
Roof		0.6	Insulation of 30mm
External walls and load bearing elements		0.7	Insulation of 40mm
Floor in contact with the ground		1.6	No insulation
Floor in contact with the external air		0.6	Insulation of 30mm
Openings	Glazing	2.8	double glazing (4-12-4)
	Frame	3.8	aluminium with no thermal break
	Window/door	3.2	frame to glass ratio 20%
Further design parameters			
Solar Protection of Openings		External shading with movable shutters with G-value for the system (shutter and glass) at least 0.3 for the summer months Shutters with thermal insulation (U value =1.1W/m^{2}K)	
Air Penetration		10m^3/(hm^2) at 50Pa	
Natural ventilation/cooling		Natural ventilation with fresh air rate as defined in the national methodology for the certification of the energy performance of buildings. Provision for fresh air for night cooling at least 1330m^3/h in living spaces and 730 m^3/h in bedrooms.	
Solar thermal for domestic hot water		Application of solar thermal panels on the roof.	

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

The NZEB for residential buildings in climatic zone 4[6] uses a reference building with the following technical characteristics:

		U value W/m^{2}K	Construction solution
Roof		0.55	Insulation of 40mm
External walls and load bearing elements		0. 65	Insulation of 50mm
Floor in contact with the ground		0.283	Insulation of 100mm
Floor in contact with the external air		0.55	Insulation of 40mm
Openings	Glazing	1.482	double glazing (4-12-4), low e
	Frame	2.80	aluminium with thermal break
	Window	1.95	frame to glass ratio 20%
Further design parameters			
Solar Protection of Openings		External shading with movable shutters with G-value for the system (shutter and glass) at least 0.3 for the summer months Shutters with thermal insulation (Uvalue =1.1W/m^{2}K)	
Air Penetration		10m^3/(hm^2) at 50Pa	
Natural ventilation/cooling		Natural ventilation with fresh air rate as defined in the national methodology for the certification of the energy performance of buildings. Provision for fresh air for night cooling at least 1330m^3/h in living spaces and 730 m^3/h in bedrooms.	
Solar thermal for domestic hot water		Application of solar thermal panels on the roof.	

<u>For non Residential Buildings (mainly offices):</u>

Primary Energy Use: 210kWh/m2/yr
The numerical indication above includes primary energy use for heating, cooling, lighting and domestic hot water.
At least 25% of the 210kWh/m^2/yr of the Primary Energy must be covered by RES

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

5. National Plan to increase the number of NZEB

In the present chapter the proposed plan of action for increasing of NZEB in Cyprus is presented.

Objective

The plan of action presents the essential measurements that will enable Cyprus to harmonise with the Directive 2010/31/EU and enforce the NZEB on new public buildings by 2018 and all new buildings by 2020.

The national plan includes short term and medium term measures as follows:

Short term measures

1. Information of the public and education of selected groups of the industry.
2. Pilot project applications and encouragement of volunteer application of the NZEB in private buildings.
3. Guidance for preparation of the industry and construction companies.
4. Gradual advancement of legal requirements (strengthening of the minimum energy performance requirements for new buildings).

Medium term measures

5. Certification of NZEB.
6. Compliance monitoring.

Identified population groups

The identified population groups affected and thus needing tailored actions are:

General Public	All the potential owners and users of NZEB
Land Developing Companies	Companies that plan ahead for future construction developments
Professionals	Professionals that design and control the construction of buildings such as Architects, Civil Engineers, Electrical Engineers, Mechanical Engineers, etc
Qualified Experts	Engineers, specially trained and registered by the ES as qualified to issue Energy Performance of Buildings Certificates according to the national methodology for the energy performance of buildings.
Industry	All the industrial and commercial enterprises that supply construction and building materials, energy saving products, solar systems, building technical systems, etc.
Public Authorities	Ministry of Commerce, Industry and Tourism, Ministry of Interior, District Authorities, and Municipalities, ie all the competent

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

	authorities involved in the legal framework .
Consulting Companies	Companies and organizations that will consult stakeholders about the oncoming changes in the construction industry.

Suggested Actions:
The following actions have been included in order to implement the measures of the national plan. The execution of the national plan is divided in three stages according to the progressive reviews of the legal framework in Cyprus. The three stages are the following:

1st Stage 2012-2015: Application on a volunteer basis of the NZEB.

a) Preparation of a Technical Guide

ES will prepare a Technical Guide based on the results of the in depth study of the energy saving potentials and the outcomes of the consulting services contract. The Technical Guide shall include the minimum requirements of the NZEB in Cyprus and technical and **construction guidance in order to facilitate the design and construction of the building.** The application of the Technical Guide will be on a volunteer basis and will be upgraded continually. It will remain in use even after the enforcement by law application of NZEB.

b) Pilot Project Applications of NZEB in Cyprus

Residential and non residential pilot applications of NZEB are planned to be constructed.
Since last year the ES is assisting the Cyprus Land Development Cooperation[7] into designing and setting the specifications for new developments of semi-detached, terraced and apartments in order to be NZEBs. This action is subject to land development construction demand.

Also ES is working closely with the Technical Services of the Ministry of Education and Culture in order to design and construct the first NZEB schools.

c) Supporting Research Programs for the development, improvement or advancement of construction techniques.

It is important that research programmes in the industrial field are supported in order to develop or advance further the available construction products and techniques and thus make available improved solutions in the construction industry.

[7] Cyprus Land Development Cooperation was established in 1980 in the framework of the state's social policy to assist medium and low income classes to acquire their own home. In order to promote the purpose of its establishment the cooperation divides land into housing plots and erects dwelling which are available to eligible citizens in reasonable prices and terms of payments.

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

d) Methodology and software for the Energy Performance Certification of the NZEB

Comparing the existing national methodology of the certification of the Energy Performance of Buildings, with the certification of NZEB, further parameters are to be accounted for in the latter, thus the existing methodology should be further developed in order to include the NZEB category. Once this is done, the software now in use for the certification of buildings will have to be improved, or replaced in order to reflect the new methodology for the certification of NZEB. It should be noted that the software in use now is developed by the ES and is free for all users. There are at the moment several private initiatives to develop software conforming to the national methodology, which will undergo evaluation and approval by ES in order to be used for Energy Performance Certification of Buildings.

e) Informing the Qualified Experts and the Engineers of the building industry

The Qualified Experts and Architects and all Engineers involved in the design and construction of building will need to be informed of the changes of the legal framework and the minimum energy performance requirements of NZEB. Qualified Experts should be also further educated in the new parameters of the methodology for the certification of the NZEB and the use of the new software.

f) Training the construction companies personnel and the on site technicians.

Under the **European initiative "Build Up Skills"** which is part of the European programme "Intelligent Energy for Europe" and is co-funded by the European Executive Agency for Competitiveness and Innovation (EACI), Cyprus has identified[8] the numbers, the specialities, the necessary knowledge, skills and way of thinking needed to be acquired by the on site personnel, in order to render both the Construction sector, as well as other related sectors, making achievable the relevant targets of "Europe 2020" strategy[9], including NZEB.

The examination of the current **Vocational Education and Training System** in technical occupations concludes that the structure of the System is sufficiently concise and flexible, in order to meet any challenges that may arise. However, the continuous review and upgrade of the existing programmes is thought to be an absolute necessity, as well as the addition of new targeted programmes in emerging critical technologies, the training of instructors in order to renew and enrich their knowledge, and the provision of incentives and measures to increase the flow of Cypriot young people in technical occupations.

The total employment needs in certain technical occupations related to the "Build Up Skills" project for the period 2010-2020 are expected to increase significantly in comparison to the respective ones for the period 2005-2010.

8 BUILD UP Skills – Cyprus An Analysis of the National Status Quo Report

9 http://ec.europa.eu/europe2020/

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

Through the analysis of the status quo and the comparison with national targets and actions, the needs for technological skills are identified, which will play a key role in the achievement of the targets for 2020, like the installation and maintenance of photovoltaic systems, heat pumps and shallow geothermal systems, solar protection and automation systems, electronic monitoring and control of central heating, cooling and air-conditioning systems. Additionally, the minimum annual number of people per discipline who must receive training for new skills by 2020 has been estimated.

The results of this report will lay the foundation for the preparation of a **Roadmap** with a time horizon for completion by 2020, which will include all main policies and actions that are required for the promotion of the necessary vocational education and training of the people employed in technical occupations of the Construction sector and other related sectors, so that they acquire the necessary skills for the achievement of the national targets regarding the energy in the building sector.

g) Raising the awareness of the public.

The correct user-behaviour of the occupant will enhance the design and construction of NZEB whereas the foul use will negatively affect their performance. Thus it is important that the characteristics and advantages of the NZEB as well of the renewable energy systems and energy conservation systems be presented through a well planned campaign to the public, with special interest in the rational and correct use of these buildings and technical systems.

Successful practices used in the past will be planned such as publication of informative flyers, articles and interviews in newspapers, participation of energy officers in television and radio shows. Further more the upgrading of the website of the ES with a special link to the NZEB has already been planned.

h) Design and announcement of a linear tightening of the minimum energy performance requirements leading to the 2020 NZEB.

In order to achieve a smooth transition from the today's minimum energy performance requirements to the NZEB energy performance requirements the ES will design and announce a linear tightening of the minimum energy performance requirements.

2nd Stage 2015-2018: Gradual Application of NZEB

a) Second and third revision of the minimum energy performance requirements.

The minimum energy performance requirements, as mentioned before, have been set for the first time in 2007 and have been revised in 2009 and are included in Ministerial Orders issued by the Ministry of Commerce, Industry and Tourism. It is planned that at least 2 more revisions will take place between 2015 and 2018 named as the Second Revision and Third Revision respectively. On the second revision the minimum energy performance requirements will be tightened further, reflecting the trend leading to the NZEB and in the third revision the minimum energy performance requirements for NZEB will be issued

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

b) Further upgrading of the software for the Certification of the NZEB.

The software developed during the first stage will continuously be upgraded /improved according to the remarks of the users and the changes made by the ES.

c) Further upgrading the NZEB web platform

Information will be periodically updated and enriched to include: a) the Technical Guide, b) the presentation of NZEB that have been certified as such including description of construction and planning data, as well as visual presentation (photos and videos) and c) information on the construction companies, or land development organization responsible for the building.

d) Informing the Qualified Experts and the Engineers of the building industry- continued.

The education of the Qualified Experts and Engineers of the building industry will continue through the second stage in order to cover all new interested parties and to continuously update their knowledge on the different aspects of NZEB, as well as the legal requirements, i.e. the second and third revision of the minimum energy performance requirements.

e) Training the construction companies personnel and the on site technicians.

The Roadmap to be prepared on the second stage of **Build up Skills Project** will set the pace and needs of the training of the construction companies personnel and the on site technicians and will run through to the second stage.

f) Raising the awareness of the public- continued.

The information campaign that has started during the first stage will be evaluated and according to the results, adjusted to reach further and further the public. Furthermore Open Day houses visits to the NZEB constructed during the first stage, either by the pilot projects supported by ES, or by private initiative will be planned

3rd Stage 2018-2020: Implementation and Application of NZEB

a) Implementation of the Third Revision of the Minimum Energy Performance Requirements.

The Ministerial Order containing the Third Revision of the Minimum Energy Performance Requirements will be enforced and it will apply to all new building occupied and owned by the public authorities- from the 31st of December 2018 and to all new buildings- from the 31st of December 2020.

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy

b) Identified final software for the Certification of the NZEB.

The Ministerial Order prescribing the Final version of the official (free) software for the Certification of NZEB will be enforced. At the same time other software developed by the private sector will be evaluated and be approved for use for the certification of NZEB.

6. Conclusion

Existing Insulation requirements for new buildings are approaching the limits of cost efficiency. Some further improvements will be delivered due to the reduction of cost of the necessary material and technology. The bulk of the improvements towards the NZEB will be achieved by increasing RES on buildings, primarily photovoltaics. The proposed NZEB in Cyprus will be finalized after a public consultation process.

Ministry of Commerce, Industry and Tourism
CY-1421 Lefkosia (Nicosia) CYPRUS
Tel. board: +357 22867100, fax: +357 22375120, www.mcit.gov.cy