LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG

National plan for smart, sustainable and inclusive growth

Luxembourg 2020

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National Reform Programme
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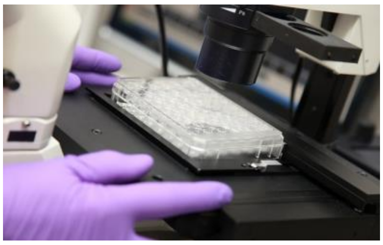

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ACRONYMS

ABBL	Association of Banks and Bankers in Luxembourg
ADEM	Employment Development Agency
AIP	Professional Insertion Activities
ALJ	Local Youth Action
BNG	New generation budget
CAE	Work-Support Contract
CASNA	Welcome center for newly arrived students
CCPUE	Coordination Unit for Urban and Environmental Projects
CCSS	Joint Social Security Centre
CEPS	Centre for Population, Poverty and Socio-Economic Policy Studies
CES	Economic and Social Council
CFE	Financial Contributions by the State
CIE	Initial Employment Contract
CIE-EP	Initial Employment Contract—Practice
CIPU	Urban Policy Information Cell
CNS	National Health Fund
CPTE	Permanent Committee for Labour and Employment
CRP	Public Research Center
CSL	Employees' Chamber
CTIE	Centre for Information Technologies of the State
DIRD	Gross domestic expenditure on R & D
DSGE	Dynamic Stochastic General Equilibrium
E2C	Second chance school
EFT	Labor Force Survey
EPC	Economic Policy Committee
ETS	*Emission Trading Scheme*
FNR	National Research Fund
ESF	European Social Fund
GES	Greenhouse Gas Emissions
IFBL	Luxembourg Institute of Banking Education
IGSS	Inspectorate General for Social Security Administration
ILR	Luxembourg Regulatory Institution
IVL	*Integratives Verkehrs-und Landesentwicklungskonzept*
NEET	*Not in Education, Employment or Training*
NREAP	National Renewable Energies Action Plan
NGO	Non Governmental Organization
PAEE	Action Plan for Energy Efficiency
GDP	Gross National Product
NPR	National Reform Programme
PRO-SUD	Syndicate of Communities for the Promotion and Development of the South Region
SGP	Stability and Growth Programme
R&D	Research and Development
RDI	Research-Development-Innovation
RMG	Guaranteed Minimum Income
SNAS	National Social Action Service
SNJ	National Youth Service
SRAS	Regional Social Action Service
SSM	Minimum wage
STATEC	Luxembourg Central Statistics and Economic Analysis Office
SVO	Voluntary Guidance Service
SYVICOL	Syndicate of Cities and Towns in Luxembourg
EU	European Union
UEL	Union des entreprises luxembourgeoises (Employer's Orgnanization)

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1. Introduction

The European Union (EU) has just been through the worst financial and economic crisis it has experienced in recent generations. Despite multiple successes achieved on both national and European levels, economic activity is returning only moderately, though it should accelerate in 2016. The improvement is underpinned by the drop in oil prices and the depreciation of the euro. Still, the recovery is fragile. Changes in the international situation, especially the persistence of geopolitical tensions and the slowdown of economic activity in emerging economies, is bolstering uncertainty regarding economic perspectives. While the international environment may provide a partial explanation for the current situation, specific national factors are also preventing more rapid growth in the EU. The risk of perennially weak growth and high levels of unemployment has thus become a center stage preoccupation. The crisis not only had a cyclical impact; it also appeared to have a significant structural component that has weakened the growth potential. Structural and budgetary policies at both the Community and Member States levels must therefore be combined more into a more integrated approach that is auspicious to growth. While both necessary and comprehensive, too little time and energy have been expended up till now on implementing the structural changes needed to enable economies to recover higher growth rates. The crisis has certainly slowed progress achieved with relation to the Europe 2020 strategy objectives, although without diminishing the long-term challenges facing growth in Europe, which include changes in demographics, pressures on resources, environmental concerns, etc. It is now more important than ever to direct efforts both toward measures that will produce short-term impacts on growth and on developing a genuine growth model for the medium and long-term. The five priorities determined at the end of 2014 by the European Commission as part of its Annual growth survey take on primordial importance against this backdrop: a coordinated boost to investment, a renewed commitment to structural reforms, pursuing fiscal responsibility.

In Luxembourg, the economic situation remains relatively favourable for the moment and forecasts call for an acceleration of economic growth in upcoming years. Public investment levels remain high and public finances are healthy, with expectations of showing structural surpluses over the programming period. Still, Luxembourg is experiencing difficulties in returning to pre-crisis growth levels, potential growth has slackened and the country's productivity levels show little inclination for increasing. The country is also facing a number of challenges. These include the sustainability in the long term of public finances, productivity and cost competitiveness, employment and social cohesion, as well as climate change and energy.

The National Reform Programme (NRP) for Luxembourg deals with these factors and challenges from a long and medium term perspective. This new 2015 edition of the NRP both reviews the implementation status of measures announced in 2014[1] and addresses the 2014-2015 Council recommendations with regard to Luxembourg. In addition it takes on Luxembourg’s national objectives for 2020, the priorities of the Annual growth survey 2015 and the conclusions of Luxembourg’s 2015 country report published by the Commission in February 2015. The NRP thus includes a coordinated group of measures for setting up the foundations of a smart, sustainable and inclusive growth over the medium and long term:

- On the macroeconomic level, Luxembourg, contrary to the preceding year, has no longer been amongst those Member States subject to an in-depth review by the Commission for 2014-2015 after the publication of the fourth Alert mechanism report (AMR) relating to the new MIP procedure for preventing and correcting internal and external macroeconomic imbalances.

[1] For more details see: http://www.odc.public.lu/actualites/2014/04/PNR_2014/index.html

Notwithstanding, the government continues to closely monitor the country's macroeconomic performance.

- From the perspective of microeconomics and employment, the structural pillars for the long term are still education and training, R&D and innovation, efficient use of resources, cohesion and social inclusion[2], and gender equality as a cross-disciplinary objective. In this context, the government is also paying particular attention to administrative simplification by setting up an inter-ministry platform, drafting the "Omnibus" law to modify several dozen legislative clauses and through the vote in March 2015 on civil service reform, in order to provide a modern public service that is capable of meeting expectations in terms of quality and efficiency.
- On the budgetary level, the NRP goes hand in hand with healthy and viable public finances like formulated in the Draft Budgetary Plan (DBP)[3] and the Stability and Growth Pact (SGP)[4] for Luxembourg.

By way of the law dated 12 July 2014 relating to the coordination and governance of public finances, the government has put in place a National Council of Public Finances to contribute to improved governance of public finances in Luxembourg through public evaluations. A draft law will create a "National Economic and Financial Committee" under the tutelage of the Ministry of the Economy and the Ministry of Finance, whose particular objective is to coordinate the drafting of the NRP, the SGP and the DBP by optimizing the collaboration between the various ministerial departments and administrations.

To conclude, in 2014, the government was also particularly committed to reinvigorating regular social dialogue, primarily through the Economic and Social Council (ESC). A new annual cycle of regular consultations, which includes four meetings in 2015, will seek to cultivate regular social dialogue throughout the year so that the social partners can submit their viewpoints to the government as part of the European semester[5]. The government consulted the social partners once at the end of January 2015 to go over the economic and financial situation in the EU and in Luxembourg[6] and a second time at the end of March 2015 in order to prepare this NRP and the SGP[7]. Other meetings are planned for the beginning of the second half of 2015, to discuss the budget and to do an in-depth analysis of the job market and the social situation. Parliament will also be consulted.

[2] On the social level, this NRP is also consistent with the National Social Report (NSR)
[3] 2014-2015 Luxembourg 2014 Budget Plan
http://www.mf.public.lu/publications/projet_budget/budget2015_projet_151014.pdf
[4] For more details see: http://www.mf.public.lu/publications/index.html
[5] For more details see: http://www.ces.public.lu/fr/semestre-europeen/index.html
[6] For more details see: http://www.ces.public.lu/fr/actualites/2015/01/semestre-europeen/index.html
[7] For more details see: http://www.ces.public.lu/fr/actualites/2015/03/semestre-europeen/index.html

2. The macro-economic scenario for 2015-2019

2.1 Macro-economic perspectives for the period covered by the programme

It is essential that NRP measures take into account the constraints of the macroeconomic environment and the medium-term budget strategy that results from them. Implementing the NRP as a whole thus falls under the same economic hypotheses involving macroeconomic projections as those of the Stability and Growth Programme (SGP).

According to the medium term macroeconomic forecasts of the 2015 SGP, growth in Luxembourg is improving progressively. In the short term we are witnessing a strong economic recovery with real GDP growth of 3.8% for 2015 and 3.6% in 2016, while in the medium term growth is expected to be around 3% on average between 2017 and 2019. This economic growth trajectory is well below historical averages before the crisis. The crisis has continued to sap the economy's potential for growth, which is now around 2.5%.

For the long term, the government has aligned its main economic hypotheses with those in the macroeconomic scenario used by Luxembourg as part of the Working Group on Ageing Populations and Sustainability of the EU Economic Policy Committee and of its most recent report on ageing[8].

2.2 The macro-economic impact of structural reforms

Over recent years, major efforts have been made in Luxembourg in the area of evaluating reforms. An econometric DSGE (Dynamic Stochastic General Equilibrium) model, called the Luxembourg structural model (LSM), has been developed[9] that will better simulate macro and micro-economic impacts of structural reforms.

Some characteristics of the model make it particularly well adapted to analyzing economic policies implemented by Luxembourg. It integrates the economic specificities of Luxembourg, especially the particular functioning of the labour market that assimilates residents and cross-border workers, the importance of negotiations between unions and companies, and the fact that Luxembourg is a small, extremely open economy.

An initial version of the LSM was widely used in reviewing the consequences of structural policies. However, this initial version was not appropriate for studying the consequences of the extreme level of Luxembourg's specialization in its financial cluster. The development of a new version, known as LSM2, addresses this concern. The LSM2 model including the banking sector for Luxembourg was introduced in June 2012. However, it should not be forgotten that there is no ideal structure for an institutional macro-econometric model.

[8] For more details see: http://europa.eu/epc/working_groups/ageing_en.htm

[9] For more details see: http://www.odc.public.lu/activites/LSM/index.html

3. Implementation of country specific recommendations

In July 2014 the Council adopted five recommendations on Luxembourg's SGP and NRP for the period 2014-2015. This chapter describes the measures implemented in Luxembourg to meet their criteria.

3.1 Budgetary situation

"Preserve a sound fiscal position in 2014; significantly strengthen the budgetary strategy in 2015 to ensure that the medium-term objective is achieved and remain at the medium-term objective thereafter, in order to protect the long-term sustainability of public finances, in particular by taking into account implicit liabilities related to ageing. Strengthen fiscal governance by speeding up the adoption of a medium-term budgetary framework covering the general government and including multi-annual expenditure ceilings, and by putting into place the independent monitoring of fiscal rules. Further broaden the tax base, in particular on consumption"

The budget strategy adopted by the government in its 2015 budget law and the multi-year financial programming law ensure that the budgetary situation will meet the medium term objective of obtaining a surplus of 0.5% of GDP in 2015. Indeed, for 2015 the government has adopted consolidation measures amounting to € 500 million, around 1% of GDP.

Furthermore, the law dated 12 July 2014 on the coordination and governance of public finances introduced a medium term budget framework and the multiyear financial programming law is the specific express of that legislation. This framework covers the public administration sectors and also calls for a rule on public expenses at the central administration level. The 12 July law also set up a National Council of Public Finances whose mission include independent monitoring of the budgetary rules in the 12 July 2014 law.

A new "VAT" package also went into effect in 2015. The standard VAT rate increased from 15% to 17% and the intermediary rates rose from 12% to 14% and from 6% to 8%. The super reduced rate remains unchanged at 3%. Furthermore, the new standard rate of 17% is extended to all real estate investments other than those carried out for the purchase of primary residences, for which the super reduced rate of 3% remains unchanged.

3.2 Budgetary sustainability

"*In view of ensuring fiscal sustainability, curb age-related expenditure by making long-term care more cost-effective, pursue the pension reform so as to increase the effective retirement age, including by limiting early retirement, by aligning retirement age or pension benefits to change in life expectancy. Reinforce efforts to increase the participation rate of older workers, including by improving their employability through lifelong learning"*

The government implemented a reform of the pension system in 2012 encompassing both the general and special retirement schemes. The reform took effect on 1 January 2013 and is based on aligning retirement age with increased life expectancy and an adaptation of pensions to the budget situation. Once this reform is adopted, movements in pensions will be conditioned by the income for the scheme's contributions. If contributions fall short and the scheme's reserves must be tapped to make up the difference, adjusting general and special pensions to changes in wages will be either partially or completely eliminated, and in the latter case the only adjustment will be to changes in the cost of living. In the same way, payment of end-of-year allotment will hereafter depend on the financial situation of the scheme.

The general retirement fund had financial reserves in the area of 30% of GDP[10] in 2013, representing four times the amount of annual pension benefits. If contributions rates remain unchanged, these reserves will be available should income from contributions be insufficient in covering the cost of benefits. Regardless of growth scenario, the reform provides financing of services on the basis of funds accumulated in reserve beyond 2040, even without increases in contributions.

Under the reform, the Inspectorate General for Social Security Administration (IGSS) as the monitoring institution verifies consistency between assumptions underlying the reform and the scheme's updated financial trajectory every five years on the basis of an actuarial study. Should there be any significant shifts from the equilibrium trajectory, several expenditures alignment measures are in place under the new provisions. The reform offsets an increase in life expectancy of three years for the period 2013-2053. Should life expectancy increases accelerate, the parameters relating to it can be adapted accordingly.

The government decided to move up the supervision and assessment aspects of the law by one year. Therefore, IGSS will submit a new study on the financial position of the plan for the medium term in 2016 instead of 2017. The government is considering setting up a "Pensions Group" in 2016 consistent with the practices of other Member States. This group will comprise experts of the principal participants whose mission will be to verify consistency between the provisions made for observed changes in life expectancy and recommend modifications to adapt to them every five years on the basis of IGSS an actuarial study. On the basis of these results, other measures can be discussed with the social partners for financial consolidation.

As part of this effort, the government also announced that it will provide additional incentives to extend the age of retirement and to activate a more progressive transition to retirement:

- Elimination of early retirement under the solidarity scheme: The government is planning a revision of its early retirement system, focusing on the elimination of early retirement under the solidarity scheme.
- Professional reclassification: In view of the ageing of the workforce, a steady increase in the number of persons eligible for external reclassification[11] is to be expected over the next decade, the cost of which will be borne by the pension system. A draft law to reform the internal and external reclassification system was submitted in Parliament in March 2013. The modifications aim at accelerating procedures, a more thorough preservation of individual rights in external reclassification and the creation of conditions conducive to favoring internal reclassification. The concept is based on supporting companies in their efforts to improve working conditions, to emphasize internal reclassification, i.e. within a worker’s same company, in external reclassification efforts, and above all, improving reinsertion of reclassified persons into a job. Thus the reform will contribute to increasing the employment rate of older persons, with 48% of persons reclassified externally older than 50. It will also reduce the rate of long-term unemployment as many long-term job-seekers

[10] Calculations made on data from the 2014 General Report on Social Security (IGSS) p. 202
For more details see: http://www.statistiques.public.lu/fr/espace-edu/indicateurs-phares/index.html

[11] Persons in external reclassification programmes are persons with reduced work capacity who cannot work at their last job and cannot be reclassified in a job consistent with their capacities within the same company. Consequently, these persons are reclassified into another company where possible.

were reclassified externally and it will make the reclassification system more effective and efficient, while providing adequate protection for the most vulnerable people. A vote on this issue is expected in Parliament in upcoming months.

- As part of the development of the national policy for promoting the employment of seniors, a draft law introducing a package of age policy measures was submitted to Parliament in April 2014 and is currently working its way through the legislative process. This draft law includes an obligation for employers with over 150 staff to draw up an age management plan that focuses on at least three of the following issues: recruiting older workers, anticipating career changes, improving working conditions, providing access to life-long education and passing on knowledge and skills to lesser experienced workers. Financial initiatives are being included for the companies in this group, as well as for those companies not required to draw up plans but who voluntarily apply an age management plan. Companies with more than 150 employees that are already covered by such a plan through a collective bargaining agreement or an inter-professional accord are not constrained by this obligation if they already fulfil a certain number of conditions.
- Supplementary pensions: The government announced plans to extend supplementary pensions via a change to the 8 June 1999 law regulating supplementary pension schemes, to self-employed professionals and independent workers, as well as to some categories of employees not affiliated with a company retirement scheme. The mechanism to be adopted must ensure that basic principles are the same for independent workers, self-employed professionals and the categories of employees concerned.
- In order to increase the activation of older job seekers, the government has developed various projects, including the "Fit4Job – Restart my career" project, to better suit the requirements of the target population and companies. This project is intended for job seekers over 45 and essentially persons who have been jobless a long time. Under the project, these persons are activated, guided into appropriate training programmes if required and given support in drafting CVs and cover letters, as well as preparing job interviews. Under a tight collaboration effort between the adult training department and ADEM, older job-seekers are integrated into general training, basic training and language training programmes.

Nursing care insurance (long term care) was introduced in 1999 as a new branch of the social security system and has been highly successful. Nonetheless, a report in 2013 on the functioning and financial viability of nursing care insurance indicates that under current conditions, the financial stability of nursing care insurance is fragile and that its long-term viability is in question. Following publication of this report, the government decided to reform nursing care insurance with the objective of providing help and care in adequate amounts to persons requiring assistance from a third person, while ensuring the financial viability of the programme.

According to the 2015 nursing care insurance budget drawn up in November 2014, cumulative reserves of the programme will represent 19% of annual expenditures at end 2015[12]. This is double the legal minimum. If policies remain unchanged, deficits in the nursing care programme should not appear prior to 2017.

The planned reform currently being prepared would potentially improve the cost-efficiency ratio of the nursing care insurance system. A consultative debate was held on the issue in Parliament in July 2014. Initial exchange discussions also took place at the end of 2014 with stakeholders.

A priority objective of a structural reform should be to halt the increase in costs while retaining a high level of quality care and adhering to the fundamental principles of nursing care insurance. It is

[12] CNS, Budget de l'Assurance Dépendance - 2015, November 2014, p.9

therefore necessary to evaluate certain services with relation to their intent, effectiveness and volume and to recommend any necessary adaptations. It is necessary to identify potential savings while maintaining the same level and quality of care and adhering to the basic principles of nursing care insurance. Some of the major areas to be explored include revising assessments of degrees of dependence, evaluation of the scope of support activities, better coordination of the entities involved, including planning of structures and approval of activities and the revision of methodology and determination of monetary values. These areas are already a part of the 2013-2018 government programm.

The above-cited report also recommends standardising the evaluation procedure for requirements of persons seeking nursing care insurance, redefining the roles of informal caregivers and revising the concept of cash services with a stronger link between services given and those covered. Another item to review is the financing of services and determining monetary values by setting a more complete regulatory structure that will provide more appropriate rates and will strengthen coordination amongst long term care providers.

In addition, the law dated 19 December 2014 on the budget for income and expenses of the State for the 2015 financial year call for a freeze of monetary values[13] at the 2014 level. In combination with the other health insurance measures[14], the expected gain from the various budget measures under the *Zukunftspak* programme represent 3.5% of expenditures for services in kind in 2018.

The government also intends to modernise the provisions regulating Social Security Medical Examinations (CMSS) in order to account for changes that have occurred on the legislative and practical levels since the establishment of this administration. Through the reform[15], medical examinations will better target check-up and consulting activities. These measures will provide better follow-up of long-term illnesses from the insurance viewpoint, in addition to making adjustments to the Employers' Mutual insurance fund and benefits in-kind mechanisms. By means of the reform, the Medical Inspection can guide persons more effectively toward the system that is best suited to an individual's situation. In this way, reviewing a professional reclassification, disability or certificate of fitness for work procedure more rapidly will avoid paying out long-term indemnities that occasionally extend to the end of benefits at 52 weeks because of excessively long case evaluation times.

3.3 Wage-setting, economic diversification and RDI

"*Speed up the adoption of structural measures, in consultation with the social partners and in accordance with national practices, to reform the wage setting system including wage indexation with a view to improving the responsiveness of wages to productivity developments, in particular at sectoral level. Pursue the diversification of the structure of the economy, including by fostering private investment in research and further developing cooperation between public research and firms"*

3.3.1 Reform of the wage-setting system

In December, 2011 the Government decided to modulate the automatic wage indexation mechanism. The law concerning this modulation was approved at the end of January 2012[16]. A maximum of one automatic indexation payment per year was permitted in 2012, 2013 and 2014. In

[13] Measure no. 256 of the New Generation Budget (BNG)
[14] Measure no. 255 of the New Generation Budget (BNG)
[15] Measure no. 255 of the BNG
[16] Law dated 31 January 2012 adapting certain forms of applying the sliding wage scale and modifying Article 11 of the amended law dated 22 June 1963 setting the scheme for State functionary salaries.

addition, an interval of 12 months had to elapse between each automatic indexation. The automatic indexation that was to have been paid in early 2012 was put back to October, 2012 and the indexation that was to have been triggered in February, 2013 was put back until October, 2013. As a result, 2014 was the last year covered by the 2012 law and a subsequent adjustment to wages, salaries and pensions could then have occurred on 1 October 2014 at the earliest. However, with slowing inflation, no adjustment was triggered during 2014.

In its programme at end 2013, the government stipulated that the automatic wage indexing system would remain intact. However, should it be confirmed that Luxembourg has not fully emerged from the crisis, the government will, following consultation with the social partners, adapt legislation in the area of automatic wage indexing based on the current model. Based on modest inflation forecasts, the government decided to re-introduce the "non-modulated" automatic wage indexing mechanism as provided for by the amended law dated 22 June 1963 for the period subsequent to that indicated by the temporary provisions of the 31 January 2012 law. Nonetheless, the government stated that in the event of increased inflation in an economically difficult climate, the wage indexing system would return to the modulated version. In principle, between two adjustments of wages, an average period of 12 months must elapse for the period of July 2014 to July 2018. If it is observed that this time period principle has a strong chance of being disregarded, consultations will occur regarding steps to take to remedy this situation. Should disagreement arise regarding what measures to implement, the government will take the necessary steps, in accordance with the government programme.

According to the most recent STATEC[17] inflation forecasts in February 2015, the recent significant decrease in oil prices suggests that inflation will amount to only 0.3% throughout 2015, despite the increase in VAT in effect on 1 January. Inflation will likely remain limited next year as well, with average price increases of 1.1%. With relation to this significant slackening of the possibility of inflation, the next wage indexing should not occur before mid-2016. Only a new increase in oil prices could trigger the mechanism in 2015.

The government is closely monitoring changes in wage and price setting behaviour. A number of studies are attempting to assimilate these issues. A legal study of the methods for regulating the automatic price indexation clauses[18] was published in 2012 and a study analysing the price adaptations of companies in Luxembourg[19] was published in 2013. Also, a macro-economic study on the setting of wages with and without an automatic indexing system was published in 2014[20]. This comparative econometric study shows that the presence of institutionalised indexing mechanisms does not significantly modify the wage setting process for hourly pay, when observing relationships in the long term or dynamic reactions resulting from an exogenous impact. In other words, while differences in wage rigidity exist, their origins should be sought elsewhere than in automatic indexation mechanisms.

[17] For more details see: http://www.statistiques.public.lu/fr/actualites/economie-finances/prix/2015/02/20150213bis/20150213bis.pdf

[18] MINISTERE DE L'ECONOMIE ET DU COMMERCE EXTERIEUR, Modalités de la réglementation des clauses d'indexation de prix en France, Allemagne, Belgique et au Luxembourg, Perspectives de politique économique n°19, Luxembourg, May 2012. For more details see: http://www.odc.public.lu/publications/perspectives/PPE_019.pdf

[19] MINISTERE DE L'ECONOMIE ET DU COMMERCE EXTERIEUR, Etude des adaptations de prix des entreprises au Luxembourg, Perspectives de politique économique n°26, Luxembourg, July 2013.
For more details see: http://www.odc.public.lu/publications/perspectives/PPE_026.pdf

[20] MINISTERE DE L'ECONOMIE, Formation des salaires et indexation automatique, Perspectives de politique économique n°28, Luxembourg, July 2014.
For more details see: http://www.odc.public.lu/publications/perspectives/PPE_028.pdf

3.3.2 Diversification of the structure of the economy

The government is implementing an active development and diversification policy on the economic structure based on a multi-specialisation strategy with a view to reducing dependence on the financial sector, which is still the preponderant pillar of Luxembourg's economy. In addition to maintaining a high performance industrial capacity based on R&D and innovation, the government is concentrating its diversification efforts for Luxembourg on several specific sectors in order to benefit from concentration effects and economies of scale. These include Information and Communications Technology (ICT), logistics, eco-technologies, health technologies and space technology[21]. These priority sectors currently account for around 10% of GDP and 7% of total jobs in Luxembourg. In general, the performance of non-financial sectors in the current account balance, which is both largely positive and features significant evolution over recent years, indicates a genuine degree of success of the multi-specialisation strategy.

More specifically regarding these sectors:

- In the ICT sector, Luxembourg, through its implementation of customised infrastructure in the domain of connectivity and data centres, has now become a location of choice for numerous companies, especially in the electronic content distribution and data storage sectors in a highly secure environment. Luxembourg, through significant investment in connectivity and in high security data centres, has forged a reputation over recent years of being a "European Trusted Information Center".
- With regard to the logistics sector, the government is seeking to position Luxembourg as an intercontinental and multimodal logistics platform in Europe, primarily in the domain of high added value logistics.
- Concerning eco-technologies, the government is seeking to converge policies for energy and the environment with the concept of economic diversification. Eco-technologies are technologies that seek to reduce consumption of energy and resources and to protect the environment.
- In the area of health technologies, the government is capitalising on its major investment in public research that resulted in the development of a critical mass of skill sets centred on the federating theme of personalised medicine.
- The aerospace sector is an important sector for Luxembourg, a country that started in the space adventure in 1985 through the Société Européenne des Satellites (SES), one of the jewels of the satellite telecommunications industry and currently one of the major players of the sector. This successful venture has resulted in the development of an entire industry around a major player of the Luxembourg space landscape.

To further promote private investment in R&D, the government has set up a multitude of measures under its NRP, including the development of a "smart specialization" strategy in a limited number of sectors, a performance contract between the government and Luxinnovation, the amended law dated 5 June 2009 on the promotion of RDI, the Luxembourg Cluster Initiative, the setting up the Luxembourg Intellectual Property Institute, the supporting start-ups through the Technoport S.A. and the House of Biohealth, the 123GO initiative, the cross-border investment capital platform Seed4Start, the Fit4Innovation programme of Luxinnovation, the promotion of PPP for research-

[21] For an attempt at a quantified analysis of the development of the priority sectors see:
MINISTERE DE L'ECONOMIE ET DU COMMERCE EXTERIEUR, A la recherche des secteurs d'avenir, Perspectives de politique économique n°27, Luxembourg, October 2013, pp.141-150. 141-150.
For more details see: http://www.odc.public.lu/publications/perspectives/PPE_027.pdf
MINISTERE DE L'ECONOMIE, Analyse de l'impact économique des nouveaux secteurs prioritaires du gouvernement, Perspectives de politique économique n°29, Luxembourg, October 2014, pp.143-176.
For more details see: http://www.odc.public.lu/publications/perspectives/PPE_029.pdf

training grants by the National Research Fund, the public R&D Proof of Concept programme to encourage converting an excellent research effort into economically viable innovation, etc[22].

3.4 Youth unemployment

"Pursue efforts to reduce youth unemployment for low-skilled jobs seekers, including those with a migrant background, through a coherent strategy, including by further improving the design and monitoring of active labour market policies, addressing skills mismatches, and reducing financial disincentives to work. To that effect, accelerate the implementation of the reform of general and vocational education and training to better match young people's skills with labour demand"

3.4.1 Labour market policies

A high quality support system for youths embarking on their professional careers or NEETs who have left school or are idle, must be made available as soon as possible. The government introduced a "Youth guarantee"[23] programme in June 2014. It is based on the model offered at the European level. A dedicated site was set up on line to launch it[24]. As part of this mechanism, the primary institutions concerned are working closely together to provide young people under the age of 25 good quality support to get them into a profession, return to school, get into an apprenticeship or a qualifications training programme, or helping them develop a personal/professional project for youth activation. This involves ADEM, the National Youth Service (SNJ), the Professional Training Department and Local Youth Action (ALJ), the Adult Training Department, as well as the Ministry of Labour, Employment and the Social and Solidarity Economy and the Ministry of Education, of Children and Youth. In addition to these institutions, other entities are strongly involved in the guarantee mechanism, especially the Social-Professional Guidance Centres (*Centres d'Orientation Socio-Professionnelle* -COSP), the youth centres and other local organisations. The working group developed three avenues for guiding young people depending on their requirements: a professional path for insertion into a job through ADEM, an academic path with a view to returning to school through the Professional Training Department and ALJ and a launching mechanism to activate young NEETs through SNJ. These three pathways in principle cover the entire youth population, offering solutions to address academic, professional and inactivity or NEET issues. The mechanism is comprised of four phases: 1) Information for young people, 2) Guidance of young people toward suitable paths, be they employment, school or activation choices, 3) Determination of a high quality solution suited to the requirements of a young person within that person's path, 4) Implementation of a set offer, perhaps through available tools such as specific training, employment measures, etc. With regard to professional paths run by ADEM, youth counselors monitor young job-seekers by guiding them through a personalised trajectory. All young people who take advantage of this structure will sign a collaboration agreement with ADEM. Young people who are farthest away from the job market are also offered an individualised action plan, which they agree to follow in order to improve their chances for insertion into the labour market. Since the launch of the Guarantee for youth programme at the end of June 2014, 4,027 young people entered the ADEM programme during the end June 2014-end April 2015 observation period. Amongst these, a monitoring indicator may be established for 2,156 persons who were registered with ADEM between the end of June 2014 and the end of December 2014, and who did not leave the programme during the first four months. Of these 2,156 persons, around 71% received got a good quality offer, which is defined as a job offer, an apprenticeship programme, an employment measure or a return to school. Most of these, 58% of whom received a quality offer, received such offers during the first four months of their registration, and the others between 4-6 months after registration, 36% of participants, or between 6-9 months after registration, 6% of the

[22] For more expansive details, also see the R&D Objectives chapters and the key measures to achieve them.
[23] Official launch of the Guarantee for Youth programme: http://www.gouvernement.lu/3812417/26-garantie?context=3423222
[24] For more details see: www.jugendgarantie.lu

total. Of the 617 persons who did not receive a quality offer, 26% abandoned the programme and 74% are still in it, receiving supervision and help that will result in a quality offer as soon as possible. Information on the guarantee mechanism may be consulted in the national implementation plan for the "Youth guarantee" programme[25].

Young participants with very low skills require specific training and intensive monitoring. In order to provide the best possible support for these youths, a project was developed addressing their specific requirements that was integrated into the Youth guarantee mechanism. The "Job-Elo!" programme addresses young job seekers aged 18-24 with few or no qualifications, no academic diplomas and no professional experience, who are consequently far removed from the labour market. Young people follow a specific two-month training programme in the COSP, followed by an introductory period of one month in companies. The work experience is comparable to an internship in a company. If the experience proves conclusive, young people can then enrol in a practical training course in a company by means of a Work-Support Contract (CAE) under ministerial authority that lasts one year, which can then lead to an apprenticeship or an indefinite or fixed term employment contract. During the practical training period in the company, young people can participate in special refresher courses leading to qualifications required for beginning an apprenticeship at the end of the project. In 2014, the success rate of the programme was 77.9% for young people who started the training programme[26]. Current data culled in 2015 are even more encouraging, with a training success rate of 84% for young people who began the initial training programme of this project. The project's success is also due to the involvement of numerous companies who assist by giving young people a genuine perspective of sustainable professional integration. In all, 192 companies have participated in the project at this stage.

In addition to "Job-Elo!", other training programmes targeting youth were launched and are currently in development with a view to offering training or measures more adequate to the requirements of youths, but that also accommodate requirements of companies. One example of this is the "Career and Professional Project" workshops that were set up in partnership with the Luxembourg School of Commerce (LSC), whose first workshop took place in October 2014, as well as business-oriented workshops. These two types of workshops are an integral part of the Guarantee for Youth mechanism. The diversification of the economy and the development of work in job-generating sectors is also a priority of the government. One sector in need of highly qualified labour in upcoming years is the building and construction sector, especially in installing new insulating materials and technical installations for reducing energy consumption in buildings. For this reason, a specific "green jobs" training course for the building sector will be set up the building industry training centre. This training will especially target young job-seekers and in principle will begin in mid-2015. A second training course in the area of the environment will complement this one. Several of these projects are co-financed by the ESF.

3.4.2 Education and training

The responses of the government in the area of education and training are organized over the medium and long term and fall under a lifelong learning logic. They concern early childhood education, primary education, secondary education and professional training, university education and adult training programmes. The challenges that must be overcome are maintaining multi-lingual capabilities as an advantage of educational and training systems at all levels, the capacity of educational systems to take in children, youths and adults with different origins, the capacity of

[25] Official launch of the Guarantee for Youth programme: http://www.gouvernement.lu/3812449/plan.pdf
Youth Guarantee Implementation Plan in English : http://www.gouvernement.lu/3812467/plan-en.pdf
[26] In all, 115 EIP were organised, 71 CAE were concluded, 16 apprenticeship/training employment contracts signed and 28 young people registered in academic classes suited to their requirements.

educational systems to overcome disparities in learning results and an increase in the level of qualification of the population through actions that include all forms of learning and target all ages. The reforms in progress are the basis for addressing these challenges in the short and medium term. To this may be added more cross-functional measures that are integrated into various laws and concern guidance, promoting cross-functional skills, diversifying academic programmes, drawing up training programmes, educational and training quality and professional development of teachers and trainers. The need to reduce the phenomenon of inadequate qualifications and to make young peoples' skills correspond better with demand on the labour market was one of the core objectives of the 2008 professional training reform. Considerations relative to this also underpin reform measures in education in general, which concern the organisational structure of teaching but also counseling students and promoting cross-functional skills.

The professional training reform of 2008 was revised to counter certain unforeseeable adverse effects in terms of structure resulting from its initial implementation phase, such as an accumulation of unsuccessful modules. A draft law compiled with the cooperation of the social partners was submitted to Parliament in early 2015. The law is set to take effect at the end of summer, 2015. This draft law does not affect the broad outlines of the reform, but it does introduce the adaptations that proved necessary. These include reintroducing the conditions for student progress in order to stimulate the will to succeed, changes with regard to the participation of the professional chambers, adaptation of the "internship agreement" - formerly "internship contract"- to bring it into compliance with the Labour Code, inclusion of measures to enhance basic training programmes introduced by the 2008 reform, streamlining of the validation of prior professional experience procedure and determination and adaptation of methods for reasonable adjustments to the professional training environment.

An initial report of the implementation of the reform of primary schooling in 2009 was drawn up by the University of Luxembourg in January 2013. Following this analysis, certain adaptations are currently ready, principally concerning the simplification of intermediary reports. The reform was especially successful in introducing a new level of reflection in primary schools. These schools are progressively more inclined to base strategic thinking on academic success plans (PRS) and on quality processes as part of their academic autonomy.

The draft law on secondary education reform was submitted at the end of 2013. The State Council's opinion on the reform was published at the end of 2014. It indicated no opposition in principle to the reform, but the opinion noted one inconsistency regarding the Constitution when it was stated that everything dealing with education is regulated by law. The forms that ought to have been regulated by Grand-ducal regulations must now be made laws, which complicates procedures for all texts in the area of education. The government and the State Council are currently seeking to resolve this issue. The issues judged the most urgent of the 2013 draft law are currently part of draft laws in different contexts. The draft law on counseling includes professional support and the guidance mission and the draft law on academic autonomy will include discussions with establishment heads on the perspectives of developing academic autonomy on the levels of finance, personnel and pedagogy.

In conclusion, the government is also implementing a series of other measures to include diversifying academic programmes to better adapt teaching to the requirements of students and setting up a National Forum of Programme Heads to ensure that programme objectives and their content reflect societal developments and to guarantee a shared perspective of objectives to achieve.

3.5 Greenhouse Gas Emissions

"Develop a comprehensive framework and take concrete measures to meet the 2020 target for reducing greenhouse gas emissions from non-ETS activities, especially through the taxation of energy products for transports"

The government has a multitude of tools for reducing greenhouse gas emissions outside of EU ETS in accordance with existing regulations, which include both national measures and measures stemming from the flexible mechanisms[27]. In particular, the second CO2 Emissions Reduction Action Plan includes numerous measures in the areas of transportation, building, renewable energy, industry, information and awareness campaigns and energy consulting and training that are intended to assist in attaining Luxembourg's greenhouse gas emission objectives:

- Transportation: the principle measures include the implementation of actions and projects recommended by the overall MoDu sustainable mobility strategy, which seeks to develop public transportation, more intensive use of "soft mobility" and the drawing up of a quasi real-time telematic information system for public transportation. Other priorities include the installation of a high capacity and frequency transportation system in the capital, supporting the development of electric mobility, introducing an ecological mobility label for companies, etc.
- Housing: the Housing Sector plan progressively increases energy performance requirements for new and old residential buildings.
- Commercial buildings: progressive remediation of all constructed buildings and an inventory of central government buildings impacted by the energy efficiency directive.
- Energy: Support of renewable electric energy through purchase obligations, heat production by means of renewable energy sources and the promotion of energy efficiency.
- Industry: EU ETS, energy audits in major companies and promotion of eco-technologies.

The Climate Pact empowers the State to provide financial and technical support to communities, who are members of the pact. The goals pursued by the Climate Pact consist in strengthening the role of municipalities, reducing GHG emissions and the energy bill on municipal territory and stimulating local and regional investments.

Particularly with regard to the taxation of energy products in the transportation sector:

- The recent increase in the standard VAT from 15% to 17% had a two-percentage point impact beginning in January 2015.
- The government is also committed to reviewing taxation from a prudent perspective, taking into account the budgetary impact of all changes in taxation. To accomplish this, and especially to comply with the governmental statement by ensuring a separation in the medium and long term of proceeds from fuel sales, the government is carrying out an economic feasibility study with the objective of evaluating the medium and long term impact of a major structural decrease in the sale of fuel to non-residents. This work in the area of taxation of energy products is part of the more general framework of studies pertaining to an overall tax reform process.

[27] Cf. The GHG emissions objective and the key measures for achieving it.

4. Progress achieved in national objectives for the Europe 2020 strategy

The European Council decided on the new Europe 2020 strategy at their June, 2010 session, confirming the five major EU objectives that will make up the common goals steering EU Member State action in the areas of promoting employment, improving conditions for innovation and R&D, achieving objectives in the area of climate change and energy, improving education levels and promoting social inclusion, essentially by reducing poverty. Each Member State had to determine its national objectives reflecting these European objectives. Luxembourg is determining its national objectives for 2015-2020 and a series of measures to implement them as part of its NRP[28].

Table 1: National objectives determined by Luxembourg in April 2015

		Europe 2020 Objectives	**Luxembourg 2020 Objectives**
Priority 1 *"Smart growth"*	*Objective 1*	*" (...) raising combined public and private investment levels in this sector to 3% of GDP "*	**Between 2.3% and 2.6%**
	Objective 2	*" (...) reduce school drop-out rates to less than 10%"*	Sustainable **under 10%** [a]
		" (...) increasing the share of 30-34 years old having completed a university degree or equivalent level of studies to at least 40%"	**66%** [b]
Priority 2 *"Sustainable growth"*	*Objective 3*	*" (...) reduce greenhouse gas emissions by 20% (...)"*	Reduction of GHG outside of EU ETS **-Less than 20% compared to 2005, i.e. emissions of around 8,085 Mt CO2 in 2020** [c]
		" (...) increase the share of renewable in final energy consumption to 20%"	**11%** [c] Average 2015/2016: 5.45%
		"(...) move towards a 20 % increase in our energy efficiency"	Objective 2016: **14,06%** Objective 2020: Final energy consumption of **48.789 GWh** [d]
Priority 3 *"Inclusive growth"*	*Objective 4*	*"(...) raise to 75 % the employment rate for women and men aged 20-64"*	**73%** (71.5% for 2015)
	Objective 5	*« (...)lift at least 20 million people out of the risk of poverty and exclusion"*	Reduce the number of persons under the threat of poverty or social exclusion by **6,000 people by 2020**

Notes:

a National data will also be used as measurement tools because the indicator calculated by Eurostat that came out of the Labor Forces Survey is not totally representative of Luxembourg Attention must be paid to producing statistics that better distinguish those persons having attended Luxembourg schools in order to be able to assess the quality of the national education system for the national resident population and to provide information about the capacity of the Luxembourg school system to train young people.

b Luxembourg intends that this indicator provide data on the capacity of the national education system to train young people who can earn post-secondary school diplomas rather than it being a reflection of post-secondary qualifications requirements of the labour market. In Luxembourg there is a strong disparity according to birth country, while in neighbouring countries this is much less marked. Furthermore, the proportion of university degrees is higher amongst natives than amongst foreign born persons.

c With regard to greenhouse gases and renewable energies, strict national objectives were already in place prior to the launching of the Europe 2020 strategy. For the post-Kyoto 2013-2020 period, only the sectors outside of EU ETS are targeted

[28] For more details see: http://www.odc.public.lu/publications/pnr/index.html

by objectives set amongst Member States. This emissions reduction objective excluding ETS is stated for 2020 as compared to the 2005 level.

d In July 2013, the European Commission was notified of the first annual report on progress achieved in the attainment of national energy efficiency objectives. The administration and implementation of Directive 2012/27/EU are in part assumed in the third action plan, sent to the European Commission in December 2014. The PAEE III includes the updated estimates of overall final and primary energy consumption in 2020.

4.1 The Employment objective and the key measures for achieving it

European Objective: "*aiming to raise to 75% the employment rate for women and men aged 20-64, including through the greater participation of young people, older workers and low-skilled workers and the better integration of legal migrants*"

4.1.1 National objective

Luxembourg's national objective in terms of employment rate for **2020 is 73%** and the objective for 2015 is to achieve an employment rate of 71.5%.

Table 2: Statistics of the labour market in Luxembourg

	2000	2005	2012	2013	2014
Domestic employment	245,653	287,170	355,800	362,789	371,575
Percentage of cross border workers	*35.6 %*	*41.0 %*	*44.2 %*	*44.1 %*	*44.3 %*
Percent of women	*37.0 %*	*37.9 %*	*40.1 %*	*40.5 %*	*40.5 %*
Total employment rate [20-64]	67.4 %	69.0 %	71.4 %	71.1 %	72.1 %
Employment rate: Men	80.8 %	79.4 %	78.5 %	78.0 %	78.4 %
Employment rate: Women	53.8 %	58.4 %	64.1 %	63.9 %	65.5 %
Employment rate: Youths [20-24]	52.9 %	44.0 %	36.7 %	35.4 %	33.3 %
Employment rate: Youths [25-29]	80.3 %	81.3 %	78.7 %	76.0 %	81.0 %
Employment rate: Seniors [55-59]	38.9 %	46.8 %	56.0 %	54.7 %	58.1 %
Employment rate: Seniors [60-64]	14.5 %	12.7 %	22.5 %	22.9 %	23.1%
FTE unemployment rate	2.3 %	4.5 %	5.1 %	5.9%	5.9%

Sources: STATEC, Eurostat-EFT

The labour and employment market in Luxembourg features several specificities that it is useful to underscore in this perspective:

- In the first place, the labour pool is not limited to national borders, but includes a large part of the Greater Region. The supply of available labour in neighboring countries, the cross-border workers, will have a significant impact on Luxembourg's ability to meet the objectives the country will be setting, in view of the variables present when preparing statistical results. The employment rate is calculated solely with relation to the resident population. According to the latest consolidated data, the percentage of cross-border workers with salaried jobs in Luxembourg is 44%, a percentage that has been stable since 2008. Of these, cross-border French residents alone account for 50.2%, which represents 22.2% of the total domestic labour force. Belgian residents account for 25.0% while German residents represent 24.8% of total cross-border workers. The change in the number of cross-border workers with a job in Luxembourg is even more explicit. They have increased by

39.7% between 2005 and 2014, whilst during the same period overall employment increased by 29.4%. The use of a labour pool that extends far beyond Luxembourg's borders partially explains how the significant increase in employment in Luxembourg has not been accompanied by lower unemployment. Although domestic employment grew by 4.7% between 2012 and 2014, the number of job-seekers increased by 22.4% over the same period. However, it should also be emphasized that this vast labour pool constitutes a major advantage for the Luxembourg economy in that company labour requirements are too great to be met domestically. The number of employed persons greatly outnumber the working population, i.e. resident employed persons and job-seekers. This is also true qualitatively because the economy's needs in the area of skills and knowledge are rather diverse.

- Secondly, immigration is very strong in Luxembourg and therefore has a major impact on demographical changes. Between 2005 and 2014, the foreign resident population grew by 35.5%, while the native Luxembourg population grew by only 8.4%. Thus between January 2014 and January 2015 alone, the working population grew by 2.1%. As with cross-border labour, the economy benefits from immigration, especially with regard to demographic growth. Nonetheless, the challenges in the area of linguistics are every bit as important for sustainable professional and social integration.

The changes described above clearly show the extent of vitality of the Luxembourg labour market, but also the level of complexity of its operations.

4.1.2 Key measures for achieving the national objective

National employment policy promotes high quality, sustainable and inclusive jobs, and supports measures and actions designed to eliminate precariousness and poverty, thus seeking to obtain improved living conditions and a sustainable social model. It features organic measures as well as measures promoting vulnerable groups, such as young people, women, older workers and persons with specific needs.

a. Organic measures

The government has implemented the measures described below in order to modernise and adapt institutional structures to present and future challenges, as well as to improve the effectiveness and efficiency of active policies promoting employment.

- A modern and high performance public employment service is necessary to meet the requirements and necessities facing the employment market today. The Labour Administration was transformed into the Employment Development Agency (ADEM), with the law establishing the entity going into effect in January 2012. Under this reform, new regional agencies were established and additional employment counselors were recruited, an employers' department was set up and a personalised process was introduced. These measures improve the quality of services offered both to job-seekers and to companies. ADEM management is pursuing the transformation of the service through numerous projects, including the three described below:

  - The personalised process: A personalised process is progressively being implemented to address these tasks. This process seeks to optimally mobilise expertise within ADEM so as to exploit it in professional insertion actions for job seekers by qualitatively improving support provided to the jobless. The process is also useful in managing the constantly increasing number of cases and in personalising/individualising follow-up of job-seekers in order to get them sustainably employed as rapidly as possible. Specifically, job-seekers are the subject of an initial report, whose purpose is to determine that person's skills, capacities and requirements with relation to the labour market. Job-seekers are then monitored through regular supervision or, if weakness in skill levels are detected, through an intensive programme managed by specialised educators, psychologists and social assistants in addition to counselors trained specifically for this type of supervision. ADEM services, training and measures are then offered depending on specific requirements of persons seeking work. Since the test phase launched in 2013, personalised support programmes have been successively extended to all ADEM branches and services. The personalised support concept is already fully integrated into the Youth guarantee mechanism, officially launched in June 2014. Since the start of these processes, 10,783 profiles have been done and 7,186 collaboration agreements have been signed between ADEM and job-seekers. Prior to the end of 2015, all ADEM branches will offer personalised support processes.

- The new jobs portal: Providing high quality public employment services requires the implementation of modern IT tools that are accessible through the internet. In order to make such services accessible to persons who require them, ADEM is currently developing a new jobs portal. In addition to information about various ADEM services to job-seekers and companies or regarding measures promoting employment, consultation of job offers and requests, pre-registration and other interactive services will be available on this new portal. The new portal will come online at the end of 2015.
- Developing partnerships: Providing high quality services requires the development of partnerships with public, private and non-governmental organisations (NGO) in order to create synergies and to offer services that are better adapted to the requirements of job-seekers.

An agreement was concluded between the Union des entreprises luxembourgeoises (UEL), the government and ADEM under the "*Entreprises, partenaires pour l'emploi*" programme to recruit 5,000 job-seekers over the next three years. The programme plans for close cooperation in carrying out specific actions, in particular, setting up regular exchanges of information, developing partnerships between ADEM and private companies, developing targeted training for job-seekers that is adapted to company requirements and awareness campaigns.

Job-seekers from immigrant communities often do not have a good command of at least one of the languages used in Luxembourg. To assist with this, ADEM has developed its internal language training offer and developed partnerships externally to offer job-seekers more courses.

The long-term unemployment phenomenon continues to expand in the EU, including in Luxembourg. ADEM and the University of Luxembourg's Lifelong Learning and Guidance Institute have established a partnership to identify the risk factors of long-term unemployment in as much as possible. This process is part of the "personalised process" and will be used to act in appropriately and proactively depending on individual requirements of job-seekers.

Under the ADEM reform, the youth employment department was further strengthened and extended to the regions, an Employers department was set up, the IT system was modernised, in particular the new ROME jobs reference and the CROSS skills correspondence systems, more staff was hired and a single catalogue for training was established.

- To improve understanding of the complex functioning of the labour market in Luxembourg and to bolster monitoring of job promotion measures, in 2011 the government established a Labour Market Observatory. The objectives of this observatory include analysing the functioning of the job market, developing forecasts, longitudinal studies, evaluations of pro-employment policies and establishing indicators. Indicators play a very important role in monitoring measures promoting employment as well as in developing more targeted and efficient measures. The Observatory established a control panel to monitor labour flows and is finalising implementation of a database that groups anonymous source data on employment and unemployment. This database will be used to carry out more accurate and targeted studies, especially on the effectiveness of measures that promote jobs.

- The government, in close cooperation with four institutions involved in professional insertion of job seekers who are far removed from the market and that are co-financed by the government, created a Centre for Socio-Professional Guidance (COSP) in 2013. In order to increase the offer of services for vulnerable persons, especially young people, a new site was opened in November, 2014. There are now three sites that cover the North, Centre and South of the country. COSP plays a key role in the "Job-Elo!" project for youth with weak qualification levels.. The centre offers the training, supervision and specific monitoring that the target population needs.

- The government is seeking improved coordination of employment and poverty reduction policies. This cooperation will be reinforced for the new operational programme of the ESF, 20% of the budget of which will be consecrated to measures and projects for social inclusion. Likewise, the new Fund for European Aid to the most deprived has been set up and monitored in collaboration with the ESF management authority.

- The implementation of measures and actions that were developed to sustainably promote professional insertion, keeping people employed and social inclusion are supported by the new operational programme for 2014-2020 of the ESF. The programme was adopted by the European Commission in December 2014 and places stronger focus on young people under 30, including those with immigrant backgrounds and in the Youth guarantee programme, persons far removed from the labour market to enhance their chances of social inclusion and job-seekers over the age of 45. The first call for tender was published in February 2015 and the first projects to be co-financed in the new programming period will begin in July of this year.

- In order to take full advantage of "green jobs" in the environment sector and in the construction sector, the government is in the process of conceiving a broad programme targeting these areas. The programme will target both job-seekers who are removed from the labour market and those who are qualified but need to adopt their skills. The project will begin at the end of 2015 or beginning of 2016.

- The current and future challenges of the labor market require solutions to be arrived at through social dialogue. This refers especially to dialogue within different decision-making bodies such as the Tripartite Coordination Committee, the Economic and Social Council (ESC) and the Permanent Committee for Labour and Employment, as well as for social dialogue at sector and corporate levels. A draft law to reform social dialogue within companies was submitted to Parliament in February 2015 and is currently in the legislative process. The law seeks to modernize, simplify and adapt legal measures concerning social dialogue within companies, with the purpose of improving the quality of dialogue.

b. Youth measures

The government has adopted a series of measures whose objective is improving youth employability through training and guidance[29].

- The government started a number of reforms of the educational and training system. A draft law was submitted to Parliament in May 2013 with the objective of reforming the secondary educational system. This reform will lead to a modernisation and adaptation of the secondary schooling system to a social, cultural and economic environment that is both extremely diverse and changing, as well as to university requirements. The overall purpose of the reform is to better prepare young people for university studies and adult life.

- Academic and professional guidance for young people plays a crucial role in increasing compatibility between the requirements of the labour market and knowledge and capabilities of the young. In March 2015, the government submitted a draft project on the reorganisation of academic and professional guidance as well as on the Guidance Centre, which was inaugurated in September 2012.

c. Measures targeting women

The government has implemented a series of measures aimed at increasing women's participation in employment.

- In attempting to facilitate the insertion of women into jobs, it is essential to emphasize measures that reconcile professional and family life, for example providing child care services, day nurseries or full-time schooling. Coordination of implemented policies at the inter-ministerial level is essential. In this framework, future discussions should occur amongst the social partners to provide more diversified models that better accommodate the specific requirements of working men and women who wish to care for their children.

- The government will analyse the impact of the transition from collective to individual taxation on the employment offer by means of a study on taxes and employment that is currently being prepared, as part of the national tax reform programme announced by the government. This reflection is part of a broader strategy that seeks to establish a tax and social environment that promotes the employment of women. Preliminary research will lay the foundations for reform trajectories.

- The government drew up a national action plan for equality between men and women that addresses the twelve themes of the UN’s Beijing action platform and covers international commitments, especially EU and Council of Europe implementation of European policies in the area of equality between men and women. To this may be added the CEDAW March 2014 report and the Human Rights convention with the universal periodic review (EPU) mechanism in 2012, which require a detailed follow-up in the area of equality between men and women.

- The Positive Actions programme of the government is a tool for companies to promote equality between the sexes in the job market by incorporating the talents of the under-represented sex in a more significant manner. These positive actions must be bolstered both in private corporations and in public institutions. The programme will be further expanded and a network that includes

[29] Cf. 3.4 (recommendation 4) and especially the Youth guarantee mechanism

participating companies and companies interested in the programme will be implemented. Since 2011, all ministerial, administrative and services departments of the State have also been requested to participate annually in the positive action programme.

- In order to support women in the best manner possible in returning to work, the not for profit "Dress for Success" association has moved into ADEM premises under a cooperation agreement between the two entities. The purpose of this cooperation is to prepare women who have been removed from the labour market from some time for job interviews. Changes in the job market over time have also resulted in changes in recruitment methods. Therefore, many persons who left the job market or who haven't changed jobs in many years are now not really comfortable in job interviews or underestimate the importance of some details that count in these interviews.

- Another measure for achieving the national objective in terms of the employment rate is encouraging women to set up their own companies.

- The government is adopting a firm policy in favour of balanced representation between men and women on the decision making level. In order to set an example, the government will intervene where it can to directly reduce the imbalance that still remains despite concentrated efforts that have been made in recent years. The law on financing political parties will be modified by the introduction of a requirement for political parties to guarantee that a quota of 40% of the under-represented gender be included on electoral lists receiving funding by the parties. Financial sanctions will be put in place for failure to comply with regulatory minimums. The Ministry of State will carry out a systematic and professional review of changes in the situation in the area of equality between men and women on the decision making level. The government guarantees to promote balanced representation between men and women, achieving a 40% figure in terms of representation of the under-represented gender on public entity Boards of Directors and 40% in appointments to Boards of Directors of private companies that it has a shareholders' stake in. The government will support the proposal for a directive by the European Commission seeking to guarantee a balanced representation of women and men sitting on Boards of Directors of companies listed on the stock exchange.

d. Measures benefitting older workers

The government has taken a series of measures that seek to increase the rate of older persons on the job while ensuring the well-being, safety and health of these older persons[30].

- Following the reform of the pension system, the law for which entered into effect in 2013, the government has begun work with the social partners on the reform of the various pre-retirement systems involving solidarity, adjustments, progressive and pre-retirement of shift and night workers. In the wake of the initial discussions, the government prepared a draft law that is currently the subject of dialogue with the social partners. This reform, which will also revoke the solidarity pre-retirement system, will concentrate more on persons who are working in strenuous jobs and takes into account working conditions of older workers.
- In order to more actively support professional reinsertion of older job-seekers, the government will introduce internships for job-seekers aged at least 50 and registered with ADEM for at least one month. The maximum duration of this type of internship will be six weeks so as to support recruitment by companies and avoiding any possible abuse situations. This measure is part of a draft project introducing a bundle of measures promoting an age policy.

[30] Cf. Chapter 3.2 (recommendation 2)

- In order to support and improve lifelong learning (LLL), a key factor in maintaining employees on the job, especially older ones, the government will progressively implement the measures of the white paper on the national strategy for lifelong learning that was adopted in 2012. There are eight of these measures, including the adaptation of the LLL mechanism to the life cycle of the learner and diversity in Luxembourg society and the development of quality in the area of adult training.

e. Measures supporting persons with specific needs.

Accessing employment and integration into the primary labor market, as well as providing protected structures offering jobs to handicapped persons is a priority to the government, since employment is a key factor for integrating such persons. This integration promotes autonomy and economic independence of these persons. In 2014, the government held an awareness event in which it presented good practices developed by companies in this area. The government is also conducting dialogue with all entities to include companies, federations of companies, NGOs, etc. in order to jointly implement solutions that are relevant to situations that are very dissimilar. Customized training is becoming increasingly crucial for successful professional inclusion. At another level, the various job-coaching approaches that take into account specific circumstances of handicaps are a complementary tool in supporting employers before, at the time of and after hiring a person who is officially recognised as disabled.

f. Management of the age pyramid in Luxembourg's civil service

The National Institute of Public Administration (INAP) has incorporated training into its continuing education programme in addition to training that aims at developing skills acquisition throughout one's career from an LLL perspective. This training more specifically addresses older government workers and deals with aspects such as preventive and overall health management, well-being on the job and strategies for maintaining proper balance between professional and private lives.

4.2 The R&D objective and the key measures for achieving it

European Objective: "*improving the conditions for research and development, in particular with the aim of raising combined public and private investment levels in this sector to 3% of GDP (...)*" ;

4.2.1 National objective

The government has set a **national objective for R&D intensity of between 2.3% and 2.6% of GDP**, of which 0.7% to 0.9% applies to the public sector.

Table 3: Changes in budget allocations for RDI from 2000 to 2014

	2000	2006	2008	2010	2012	2013	2014
Mn €	28.0	113.8	183.1	247.7	282.1	309.9	326.4
% GDP	0.13	0.34	0.49	0.62	0.66	0.68	0.69

Source: www.statistiques.public.lu

The government's R&D budgets have continued to increase, both in the public and private sectors, with allocations evolving from € 28 million in 2000, representing 0.13% of GDP, to € 326.4 million in 2014, 0.69% of GDP. The change in these budget allocations illustrates the government's determination to increase RDI and to make it a sustainable policy for developing and diversifying the country.

The economic crisis of recent years has had a major negative impact on R&D expenditures in Luxembourg. The decrease in total R&D expenditures is primarily due to the downward revision of private company expenditures. Expenses in the public sector, meaning both the State sector and Higher Education, have both continually increased. Inside the private sector, where total R&D expenditures still show a downward trend since the onset of the economic crisis, both expenses in non-financial activities and in financial and insurance activities have been decreasing since 2008. Declines in expenditures seem however to be most pronounced in the financial and insurance sector. It should be noted that evaluating R&D in the services sector, particularly in financial services, is a very complex task from the perspective of methodology. The financial sector may be an innovative sector with output, but with low intensity R&D or input. The Competitiveness Observatory launched a study on innovation and research in services[31]. Additional analyses must yet be carried out in order to learn more about this particular issue.

Table 4: Changes in gross domestic expenditures and in intensity of research by sector

Year	Public research (Mn €)	Intensity (€ / GDP)	Private research (Mn €)	Intensity (€ / GDP)	Total (Mn €)	Total (€/GDP)
2000	27.5	0.13	337.0	1.53	364.5	1.66
2005	64.0	0.21	408.0	1.35	472.0	1.56
2006	78.5	0.23	485.0	1.43	563.5	1.66
2007	96.6	0.26	495.0	1.32	591.6	1.58
2008	136.8	0.37	482.0	1.29	618.8	1.66
2009	149.6	0.42	470.7	1.32	620.3	1.74
2010	191.1	0.49	400.0	1.02	591.1	1.51
2011	182.1	0.43	416.2	1.00	598.3	1.43
2012	196.1	0.46	310.4	0.71	506.4	1.16

Source: STATEC/Eurostat

In 2012, private sector research represented around 60% of all research expenditures nationally. It should be noted that the proportion of public sector research transitioned from 7.5% of all research expenditures in 2000 to 40% in 2012.

Table 5: Financial contributions by the government and Third Party financing of the University of Luxembourg authorised for the period 2014-2017

2014 – 2017 Convention	2014	2015	2016	2017	Total
CFE Université	128.7	145.4	145.4	145.5	565.0
Third party financing	32.0	34.0	36.0	38.0	140.0
Total	160.7	179.4	181.4	183.5	705.0

Source: Ministry of Higher Education and Research

Regarding financial contributions of the State (CFE) and third party financing of public research centres (CRP) authorised for the period 2014-2017, it was decided to establish four year authorisations accompanied with revision clauses at mid-term, prior to the end of 2015. The revision provides the opportunity to apply changes the government considers appropriate by virtue of the implementation of the government programme. To this end, the State's financial commitment for the years 2016 and 2017, subsequent to the above-cited revision, is currently set at the level of 2015, contingent upon review subsequent to conclusions of the revision in 2015.

[31] For more details see: http://www.odc.public.lu/publications/perspectives/PPE_021.pdf

Table 6: Financial contributions by the government and Third Party financing of public research centres authorised for the period 2014-2017

2014 – 2017 authorisations	2014	2015	2016	2017	Total
LIST	37.0	39.0	39.0	39.0	154.0
LIH	31.0	31.1	31.1	31.1	124.3
LISER	10.4	10.5	10.5	10.5	41.9
Total CFE for the State	**78.4**	**80.6**	**80.6**	**80.6**	**320.2**
Total third party financing	40.5	43.2	45.0	46.2	174.9
Total budget	**118.9**	**123.8**	**125.6**	**126.8**	**495.1**

Source: Ministry of Higher Education and Research

4.2.2 Key measures for achieving the national objective

a. Measures for achieving the nation's target in public research

The Government is seeking better integration of its research policy in the context of the European Research Area through the following actions:

- Efficiency of national research systems

In order to consolidate and better standardize the research system, the government started a legislative reform process in 2011. This process was completed in 2014 with the approval of two laws by Parliament:

- The law dated 27 August 2014 amending the law dated 31 May, 1999 creating a National Research Fund for the public sector. The main modifications occur on four different levels: Updating of National Research Fund (NRF) tasks, redefining of the framework of organisations eligible to NRF programmes, improvement of governance and introduction of collective subsidies for training-research. This law took effect on 1 November 2014.
- The law dated 3 December 2014 for setting up public research centres. The main modifications in relation to the 1987 law occur on four different levels: the status, missions, administrative and governance bodies of CRP and CRP personnel. In addition to the main elements stated above, the current draft law comprises two complementary elements, the grouping of CRP-Gabriel Lippmann and CRP-Henri Tudor into the Luxembourg Institute of Science and Technology (LIST) and the incorporation of the Integrated BioBank and the CRP-Santé into the Luxembourg Institute of Health (LIH). This law took effect on 1 January 2015.
- The law dated 25 November 2014, whose objective is to authorise financing of the Max Planck Institute in Luxembourg was approved by Parliament on 16 October 2014. The Max Planck Luxemburg Institute for International, European and Regulatory Procedural law was set up as a foundation governed by Luxembourg law, whose bylaws were published in Mémorial C on 28 March 2012 under the name "Max Planck Institute Foundation Luxemburg" and whose purpose is to establish and manage the "Max Planck Luxemburg Institute for International, European and Regulatory Procedural law".

The entities concerned are currently implementing these modifications. It should be noted that the NRF is in the drafting phase of the guidelines for the candidate/selection process for collective AFR aid. This collective aid programme will start during 2015.

Concentrating the nation's R&D effort on a limited number of priority domains was continued through the NRF's CORE programme that promotes/supports scientific quality and excellence. At the CORE 2014 submission deadline, the NRF received 114 eligible proposals. After review by independent experts, the NRF selected 30 proposals for financing with an the amount of € 17 million. Under the CORE Junior programme, ten of the thirty proposals submitted were accepted. Under the bilateral cooperation agreements implemented in CORE, four of the eighteen proposals for bilateral projects submitted were selected for financing.

In the same context of concentration of efforts, the NRF developed a programme called "National Centre of Excellence in Research" (NCER). This programme aims to establish a collaborative trans-institutional (virtual) research centre to resolve a well defined socio-economic problematic. To this end, existing skills are pooled and partnerships strengthened in order to consolidate sustainable networks between research groups in Luxembourg and abroad. The NRF is banking on a lever effect of existing investments combined with new investments to achieve this. The first pilot project of this type of NCER project was selected for financing in the domain of Parkinson's disease, covering a period of four years and a budget of € 4 million, with a four-year extension and € 4 million addition, subject to review.

The new 2014-2017 performance contracts set out tasks and objectives for public research organisations in upcoming years. Performance indicators for this were established between the government and public research organisations. Performance based financing is determined through an institutional review.

Table 7: Results indicators for public research centres set for the 2014-2017 period

2014 – 2017 conventions	Results indicators
Number of scientific publications (having an impact factor over 2)	1,040
Number of doctoral theses completed	167
Number of patents applied for	45
Number of spin-offs created	10

Source: Ministry of Higher Education and Research

Table 8: Results indicators committed to and achieved by public research centres and CEPS for the 2011-2013 period

2011-2013 period	Results targeted	Results achieved
Number of scientific publications (having an impact factor over 2)	558	775
Number of doctorate candidates	132	137
Number of doctoral theses completed	91	90
Number of patents applied for	23	34
Number of spin-offs created	6	4

Source: Ministry of Higher Education and Research

The new multi-year agreement for 2014-2017 for the NRF featured a renewal of its strategic orientations. In addition to the principal objective of the NRF, which consists in promoting scientific quality and excellence in research as well as its consolidation, a particular emphasis will be placed on public-private partnerships in research programmes or doctoral and post-doctoral (AFR) programmes. In this context, it is important to underscore that the new Grand-ducal regulation takes into consideration not only geographic mobility but also inter-sector mobility. In 2014, the NRF was very active in promoting public-private partnerships with the AFR grant scheme “Public-Private-Partnerships” (AFR-PPP). Under this effort, NRF reviewed 23 doctorate proposals, of which seven were selected for a total budget of around € 1.3 million. Of the seven post-doctorate proposals submitted, three were selected for a total budget of around € 0.39 million.

The purpose of the Proof of Concept programme (POC) is to promote the transformation of innovative excellent research projects into viable economic ventures. After a pilot programme was conducted between 2013 and 2014, a standard programme was launched at the end of 2014 with three tender calls per year. During the pilot period, three ICT, one Biomedical and one Materials Sciences projects were selected out of eleven proposals submitted and are currently underway with a budget of around € 0.85 million. A spin-off of the SnT of the University of Luxembourg was launched in December 2014 as a direct result of one of the POC projects.

Also in December 2014, the first edition of the "Assises de la Recherche" was held at the Maison du Savoir in Esch-Belval, attracting some one hundred personalities of the research, economics environment and civil society, who joined in discussions about cooperation and coordination of public research in upcoming years. The following two principal subjects were discussed in round table discussions that included national entities and international experts:

– Joint recruiting for positions of responsibility by CRPs and the University. The discussions showed that shared positions will contribute to improved visibility and heightened coordination of activities.
– Formalised coordination between research entities. Coordination at all levels is necessary in order to achieve high efficiency and to maximise impact potential of research activities.

In 2014, the OECD started a second review of Luxembourg's R&I policy system. Preliminary results of this study-assessment of the country's public research system were presented at the "Assises de la Recherche" by OECD experts. The OECD experts were pleased to note the implementation of nearly all of the organisation's recommendations and emphasised the impact of progress achieved since the first study in 2007. Certain initial recommendations based on an in-depth analysis of the current system were formulated. The final report got presented in Luxembourg in early 2015.

- Transnational cooperation and competition

The government seeks better integration of Luxembourg actors in scientific and technological cooperation programmes and initiatives at the European and wider international levels. Particular attention is paid to heightened participation in the activities of the Community Horizon 2020 research and innovation programme. The National innovation and research agency Luxinnovation and the government jointly launched the national conference for the Horizon 2020 programme in January 2014. Regarding the Horizon 2020 objectives, statistics show that through February 2015, on a total of 340 projects with Luxembourg participation, 67 will be financed, representing a success rate of 19.71%. The overall financial return since early 2014 amounts to € 19.8 million. The largest entity in financial terms was the University of Luxembourg, at € 7.1 million, followed by LIST, with € 2.9 million.

In 2014, the University of Luxembourg hosted the first recipient of an ERC-2014-CoG Consolidator Grant with a project in the domain of Physical Engineering Sciences, through a contribution of an amount of € 1.93 millions.

The INTER programme finances participation of Luxembourg researchers in international projects. Luxembourg has signed numerous bilateral agreements committing around € 6.1 million that follow the lead agency principle and that comply with evaluation rules and procedures of the agency to which the proposal was submitted. At present, the NRF participates in ten ERA-Nets as well as in other multilateral projects such as Ambient Assisted Living (AAL), European & Developing Countries Clinical Trials Partnership (EDCTP), EUROCORES Scheme of the European Science Foundation (ESF), European Collaborative Research Projects ERCP (ESF) and Materials World Network (MWN) - NSF MATERIALS. Under the INTER Mobility programme, the NRF finances residences abroad of six weeks to one year for Luxembourg researchers as well as visits by foreign researchers to Luxembourg. In 2014, twelve projects were selected for financing with a total budget of around € 1 million.

Luxembourg participates in two infrastructures, DARIAH and SHARE, selected by the European Strategy Forum on Research Infrastructures (ESFRI). The government is currently analysing opportunities for strategic participation in other infrastructures on the ESFRI roadmap in conjunction with research institutions and research actors, especially in the bio-medical domain.

- Opening of the labour market for researchers

The government is continuing its efforts to develop an environment propitious to the expansion of scientific and technological employment. It seeks to promote career perspectives and mobility. By virtue of the new law on public research centres, the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers must be included in internal regulations. The AFR financing programme complies with the principles stated in the Charter and the Code and adheres to the "Towards a European framework for Research Careers" directives. In order to ensure open, transparent and merit-based recruitment, the Public Research Centre organisation law requires that positions announced by public RDI institutions must be made public and all positions displayed on European / International scope web sites. In addition, recruiting committees for new management positions are obligatory. The NRF selected a total of 65 doctorate candidates in 2014 for AFR grants out 244 proposals with a budget of around € 10.2 million and 51 post-doctoral candidates from 144 proposals with a budget of around € 6 million. The NRF law calls for the introduction of a new instrument for allocating collective AFR grants to institutions. This reform was prepared in 2014 with the involvement of the main actors in a working group. The new instrument will be implemented through an initial call for proposals in 2015. In addition, the NRF adopted a document entitled "Quality Framework for Doctoral Education", which sets out the principles and quality standards for institutions hosting doctorate students financed by the NRF. In October 2014 the NRF submitted an EU COFUND co-financing request to the Horizon 2020 programme for a new collective grants instrument. A Commission decision is expected in 2015.

The ATTRACT and PEARL programmes of the NRF seek to attract top researchers. The ATTRACT programme targets exceptional young researchers from abroad, while the PEARL programme offers the means to public research organisations of recruiting experienced researchers in areas of strategic importance to Luxembourg. In 2014, the NRF evaluated two projects under their PEARL programme, with a proposal in the area of security and reliability of critical data infrastructures that was selected with a budget of € 4.9 million. Nine candidates applied for the ATTRACT programme in 2014. The NRF selected two of them, one in the area of condensed matter physics and the other in immunology, with respective support figures of € 1.85 million and 1.99 million.

In upcoming years, the government is considering professionalising the doctorate degree programme by setting up a series of doctoral schools in order to improve the professional skills of doctorate candidates.

- Gender equality and integration of the men-women dimension in research

The law dated 27 August 2014 amending the law dated 31 May, 1999 creating a National Research Fund for the public sector and the law dated 3 December 2014 to organise public research centres stipulates that proportions of administrative and scientific board members of each gender may not be lower than 40%.

Table 9: Breakdown of Boards of Directors by gender

	M	F
National Research Fund	4	5
Luxembourg Institute of Science and Technology	4	5
Luxembourg Institute of Health	4	5
Luxembourg Institute of Socio-Economic Research	5	4

Source: Ministry of Higher Education and Research (2014)

Eleven public research establishments have signed the Code of Conduct for recruiting researchers that upholds gender equality in research. Performance contracts for 2014-2017 for the CRPs seek to ensure an appropriate number of women researchers in positions of responsibility.

- Optimisation of circulation and transfer of scientific knowledge

The government requested that the University of Luxembourg and other public research organisations publish their scientific articles by Open Access (OA) as a much as possible. The government supports the drawing up of common guidelines in this area. The University of Luxembourg prefers the “green” pathway with its ORBiLu referential database that includes figures of citations/downloads, etc. The University also plays the role of key node facilitator for the development of OA policies for Luxembourg in the PASTEUROA project. The NRF is an active member of Science Europe and participates in the Open Science discussions. These entities encourage OA publication by the "gold" pathway with specific financing schemes, for example assuming publications costs. The NRF seeks to make available the results of research financed by public funds. In the future, each publication financed by NRF must be published through OA immediately or no later than 6-12 months.

The national Digital Lëtzebuerg initiative is part of the ERA digital framework. Luxembourg generally offers a significant degree of digital services, such as cloud computing services. The objective of research institutions is to increase their digital services in upcoming years. The mass digitalization of heritage collections of cultural institutions is also part of this digital strategy.

The National Library of Luxembourg (BnL) is the central documentary platform of the Grand Duchy that is actively pursuing its coordination, impetus and technological innovation policy in the area of production and dissemination of content and documentary services. The national library network of Luxembourg, bibnet.lu, which is managed by the BnL, includes the scientific and research libraries of the country. Extending this network goes hand in hand with the continued modernisation of IT infrastructure and services, including for example the portal a-z.lu, which provides a single access for high performance research and whose interface is now being optimised. The BnL is also pursuing a multi-year policy of mass digitalisation; the books project will be launched at the end of 2015. The BnL, in partnership with the National Archives and the Centre for Information Technologies of the State, is also in the process of developing a long term digital preservation infrastructure and will establish the legal digital repository for the Luxembourg web.

The Luxembourg Consortium for the Acquisition and Management of Electronic Publications continues to augment the offer of electronic publications available to scientific audiences. The BnL will modernise the Consortium's IT infrastructure to accommodate technological changes. In order to meet the growing demand for electronic content, a new business model was also adopted by the Steering Committee that will be implemented between 2015 and 2016.

b. Measures for achieving the nation's target in private research

Despite the government's determination to strengthen RDI in order to develop a diversification policy based on increased technological skills, capital expenditures for R&D remain below the national objective for 2020, with 1.5 – 1.9% provided by the private sector. According to the latest data, this indicator features a rate of 0.71% for the private sector. With regard to expenditures by private players in conjunction with State aid, after surging between 2008 and 2013, results in 2014 amounted to € 150.5 million. This represents an increase of 92% since 2008. The number of case files has increased by 135% since 2008.

In order to maintain a sustained rate of growth and to approach 2020 objectives, a certain number of new measures were implemented alongside others that were continued:

- The drawing up of a smart specialization strategy as part of the Guide to Research and Innovation Strategies for Smart Specialisation (RIS3). Here the emphasis is on diversification of the economy, while remaining focused on a limited number of specific sectors, as below: Industry, eco-technologies, logistics, health technologies and ICT.
- The renewal of the performance contract with Luxinnovation.
- The amended law dated 5 June 2009 on the promotion of RDI, with a view to encouraging private investment in research and innovation, which provides strong incentives for cooperation between public and private players. This law is currently being revised.
- The Luxembourg Cluster Initiative - Luxembourg Materials Cluster for materials and technology for production, the Luxembourg ICT Cluster for ICT, Luxembourg Space Cluster concerning aeronautics and space, Luxembourg BioHealth Cluster for health sciences and technologies, the Luxembourg EcoInnovation Cluster focusing on ecotechnologies and sustainable development and the Luxembourg automotive component cluster for the automobile industry.
- The establishment of the Luxembourg Intellectual Property Institute (IPIL), whose objective is to federate domestic and international skills concerning intellectual property so as to make them available to economic and institutional players. It is expected that the IPIL will be officially operational during the first quarter of 2015. Its task will be to coordinate the implementation of public policy and to federate all involved entities, to develop and provide support and assistance services to companies, research entities, public institutions and all other interested parties, to develop and provide training programmes and promotional or awareness activities and to carry out projects and studies in order to advise the government.

The following measures were taken for cluster activities:

- A study was launched in 2014 on Luxembourg's circular economy with the objective of assessing the situation of existing initiatives and drawing up a consistent action plan to specifically promote research and innovation in this domain.
- Implement a feasibility study to establish a Composite Competence Centre for Luxembourg, as well as to establish its implementation plan.

- Analysis of the opportunity of an Automotive Campus that would be an industrial site specialised in R&D that will provide an environment propitious to open innovation, the exchange of technologies and possible synergies.
- Analysis for the implementation of a High Performing Computer, a skills and services centre for high performance calculations of applications for a nationwide scope, such as aviation, logistics, smart cities, etc. The centre will host public and private research entities, industrial units and users.
- With regard to the BioHealth cluster, the development of an innovation project in the "Activate" services that focuses on personalised prevention of diabetes.
- Launch of the LEAN and GREEN label promoting the reduction of CO2 emissions of companies working in logistics.

The following measures were taken for supporting start-ups:

- Technoport S.A. now manages the former Ecostart centre and Schlassgoart Technoport sites for tech start-ups via three platforms: the Technology-Oriented Business, Co-working Space incubator and Fab lab.
- The House of Biohealth, which hosted its first occupants in 2014, represents both a strong support for public-private partnerships and a major opportunity for interdisciplinary synergies, for example with biotech or big data for young start-ups, public biotech research entities, ITC or cleantech groups.
- In addition to these incubator infrastructures, the inter-regional initiative 123 GO offers coaching to persons with projects.
- In the same way the cross-border investment capital platform, Seed4Start facilitates encounters between supply and demand of risk capital within the Greater Region[32].
- Plans are currently being made to establish a Seed Fund type financing structure. This fund will be developed as part of PPP with the objective of investing in young innovative companies coming out of the ITC sector.

The following measures were taken for supporting SME and craft trades:

- The Horizon 2020 SME Instrument is the particular vector for providing support to SME and craft trades.
- The Fit4Innovation makes resources available to promote innovation and growth in the medium and long term. The promising results of the pilot phase in 2014 highlights the need for SME to remain high performing against a difficult economic backdrop.
- The Innovation Club offered workshops for developing business plans, bolstering competitiveness and the Fit4Innovation programme. This programme is intended for craft trades company heads as a forum for the exchange of key factors of success in innovation as well as the emergence of new ideas. It was launched in collaboration with the Chamber of Trades and Luxinnovation.

The following measures were taken for promoting intellectual property rights:

- The Office of Intellectual Property is continuing promotional and awareness actions concerning intellectual property, to include the "IP Tuesdays" information series, the seventh edition of the IP Day in Luxembourg, a seminar set up jointly with the Benelux Intellectual Property Office and the World Organisation for Intellectual Property and training relating to the fundamental principles of intellectual property.

[32] The Greater Region is made up of the Lorraine region of France, Luxembourg, the Sarre and Rhine-Palatinate region of Germany and the Wallonia region of Belgium.

- The FEDER's BOOST-IP project targets awareness primarily in SME of the eco-technology and craft trades sectors regarding intellectual property. The IPorta project, which is co-financed by the Commission, is intended to maintain the national intellectual properties network and to position them sustainably as services and support suppliers to SME. Luxembourg, through the intermediary of the Technological Monitoring Centre (CVT), ensures coordination of this project involving a network of thirty national intellectual properties offices. As the IPorta project expired at the end of 2014, the CVT was asked to coordinate the determining, drafting and budgetary planning of a new project proposal as part of a new project tender for an "Iporta2", with the initial network extended to over 50 partners from more than 30 countries. Luxembourg is a member of the IPR Helpdesk consortium for all research project sponsors for European projects and SME involved in the transfer of property rights internationally. The CVT is participating in the development of training and publication services, as well as the development of the European IPR Helpdesk networks[33]. We should also note that the current consortium tendered and was awarded the contract for the European IPR-Helpdesk from 2015 to 2018.

The following measures were taken for general promotional and innovation support activities:

- The innovation and research portal is a portal specifically dedicated to research and innovation that hosts an average of 11,300 visits monthly[34].
- The Business meets Research Forum offers interactive workshops and bilateral encounters as part of its "innovation matchmaking" process.
- The magazine entitled "FOCUS on Research and Innovation in Luxembourg" promotes innovation and research by Luxembourg.
- The generalist training cycle on innovation management techniques is given over 16 sessions.

With regard to the support of Luxembourg participation in European programmes, the following measures were taken:

- Luxinnovation, the national contact for Horizon 2020, counsels and assists researchers and companies in preparing their European projects[35].
- Some twenty thematic information sessions were set up to present financing opportunities involving a total of some thousand participants.
- The Fit4Horizon2020 measure was launched as a pilot phase between 2014-2015 to support the number of participations in project tenders. It also targeted improvements in project proposal quality and encouraging companies to assume their role as coordinator of a European project. The preliminary results of tenders put out in 2014 show 67 Luxembourg participants, of which ten are coordinators, with a financial return of € 19.86 million and a success rate of nearly 20%.

4.3 The climate change and energy objective and the key measures for achieving it

European Objective: "*reducing greenhouse gas emissions by 20% compared to 1990 levels; increasing the share of renewables in final energy consumption to 20%; and moving towards a 20% increase in energy efficiency; the EU is committed to taking a decision to move to a 30% reduction by 2020 compared to 1990 levels as its conditional offer with a view to a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities*"

[33] For more details see: www.iprhelpdesk.eu
[34] For more details see: http://www.innovation.public.lu
[35] For more details see: www.horizon2020.lu

This objective is based on European Council decisions within the context of the "Climate and Energy Package" of March, 2007. Luxembourg must reduce greenhouse gas (GHG) by 20% at 2020 with relation to 2005 in the sectors not covered by the EU Emissions Trading System (ETS)[36]. In the area of energy, Luxembourg's objectives for 2020 are a share of 11% of renewable energy resources in the final energy consumption and 10% of renewable source fuels in the final energy consumption in the transportation sector[37]. An improvement in energy efficiency is included in this programme.

4.3.1 Greenhouse gas emissions objective

4.3.1.1 National objective

The latest inventory of Luxembourg's GHG emissions covers the period between 1990-2012. In accordance with EU regulation 525/2013, the year 2013 should also be part of this[38]. However, as a new notification tool developed by the United Nations was not available at the cut-off date, the inventory to be submitted in 2015 has been put back. Consequently, 2013 data presented in the NRP form an initial estimate calculated in the summer of 2014[39] using the former methodologies[40].

Initial calculations indicate that total emissions amounted to 11.2 million tons of CO2-equivalent for the year 2013, excluding international aviation and emissions and absorption due to forests and land – LULUCF, some 650,000 tons of CO2-equivalent fewer than 2012. Emissions have even decreased with respect to the record year of the decade, 2005, by 1.91 million tons of CO2-equivalent, a drop of 14.6%, bringing them to the levels more along the lines of those in 2002 or 2003. Nonetheless, despite the major decrease recorded since 2005, emissions remain above the 9.5 million tons of CO_2-equivalent yearly to which Luxembourg committed under the first commitment period of the Kyoto Protocol of 2008 to 2012[41]. Since then, Luxembourg has been using the flexible mechanisms provided for under the Protocol to comply, but in proportions clearly lower than originally estimated. In 2006, with the submission of the second "National Allocation Plan" relating to ETS to the Commission[42], use of the flexible mechanisms was estimated at 23.6 million tons of CO2-equivalent. At present, this estimate is closer to 14.2 million tons of CO_2-equivalent. At the same time, the price of the ton of CO2 has dropped considerably, making the cost of using this mechanism even lower than originally thought.

For the post-Kyoto 2013-2020 period, only the sectors outside of EU ETS are targeted by objectives set amongst Member States. For Luxembourg, this emissions reduction objective excluding ETS amounts **for 2020** to **20% of the 2005 level**. As such, Luxembourg could release around

[36] Appendix II of Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.
[37] Objectives stated for Luxembourg in Directive 2009/28/EC dated 23 April 2009 for promoting the use of energy produced from renewable resources.
[38] In accordance with EU regulation No. of the European Parliament and the Council on 21 May 2013 on a mechanism for monitoring and submitting GHG emission and for statements of same nationally and to the Union, other information dealing with climate change and revoking Decision No. 280/2004/EC and GHG emissions estimates for a given year must be submitted to the Commission prior to 15 January of year X + 2.
[39] An initial estimate of emissions for year X – 1 must be submitted to the Commission by no later than July 31 of year X in accordance with Art. 8 of EU regulation no. 525/2013.
[40] The methodologies in the latest guidelines published by IPCC in addition to new global warming potentials (GWP) for GHG other than CO_2 are to be used in submitting 2015 inventories. Consequently, once the 2015 inventory is known, all the figures will change. In this document, figures and objectives are expressed using methodologies and GWP in effect through the end of 2014.
[41] In 20102, GHG emissions were 10.1% lower than those of the base year, 1990. Yet Luxembourg set an objective of reducing its emissions by 28% compared to the base year between now and the end of the period covered by the Protocol, i.e. the end of 2012.
[42] For more details see: http://www.environnement.public.lu/air_bruit/dossiers/CC-PN_allocation_quotas_GES/index.html

8.085 million tons of CO_2-equivalent that year[43]. Between 2013 and 2019, intermediate objectives should be met along a linear trajectory for which the starting point, in 2013, is comprised of average emissions excluding ETS for the years 2008-2010. Here, the economic crisis effect exercises a clear negative impact on Luxembourg, lowering its budget of emissions for 2013 and beyond. Luxembourg estimates the deficit to be made up for the period 2013-2020 at 11.3 million tons of CO2 in an "existing measures" scenario, and at 7.5 million tons of CO2 in an "additional measures" scenario. In this eight year period, resorting to the flexible credits will surely be necessary, but the volumes in question will nonetheless be smaller than for the Kyoto phase, especially because of national measures implemented and under review. However, forecasts regarding the use of the flexible credits mechanism are provided on a temporary and obligation-free basis. While the Climate and Energy package allows for use of these mechanisms, there are restrictions on the types of projects and volumes. According to the new government programme of December 2013, the emissions certificate acquisition policy will be reviewed in order to better orient the country towards quality projects such as the Gold Standard, which takes into account sustainable development criteria.

[43] In view of the adjustment under Article 10 of Decision 406/2009/EC as published in European Commission Implementing Decision 2013/634/EU dated 31 October 2013. Amount stated using GWP from the second IPCC report in effect through the end of 2014.

Table 10: Changes in GHG emissions, excluding LULUCF for certain selected years (in million tons of CO2e)

Source	1990	1995	1998	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013prov	2012/1990	2012/2011
production d'électricité et de chaleur	0,04	0,09	0,15	0,12	1,24	1,31	1,18	1,00	1,20	1,21	1,00	1,04	0,62	2500,0%	4,0%
production industrielle	7,93	4,36	2,11	2,21	2,31	2,44	2,32	2,14	1,95	2,07	1,98	1,89	1,78	-76,2%	-4,5%
transports routiers: flotte nationale	0,92	1,26	1,33	1,51	1,54	1,65	1,64	1,69	1,71	1,73	1,78	1,76	1,71	91,3%	-1,1%
transports routiers: exportations de carburants routiers	1,75	2,16	2,56	3,32	5,45	5,04	4,78	4,86	4,34	4,66	5,02	4,74	4,65	170,9%	-5,6%
ménages, commerces et services	1,31	1,39	1,56	1,67	1,68	1,66	1,58	1,63	1,61	1,69	1,47	1,57	1,56	19,8%	6,8%
agriculture	0,76	0,75	0,75	0,78	0,72	0,71	0,72	0,74	0,75	0,76	0,74	0,73	0,74	-3,9%	-1,4%
autres sources	0,20	0,17	0,19	0,17	0,15	0,15	0,15	0,14	0,14	0,14	0,14	0,13	0,13	-35,0%	-7,1%
émissions totales de GES, hors LULUCF	**12,91**	**10,18**	**8,65**	**9,78**	**13,09**	**12,96**	**12,37**	**12,20**	**11,70**	**12,26**	**12,13**	**11,86**	**11,19**	***-8,1%***	***-2,2%***
valeur retenue dans le cadre du Protocole de Kyoto	13,17													-9,9%	
Source: Ministère du Développement durable et des Infrastructures															
1990 à 2012 - soumission 2014v3.1 du 18 novembre 2014; données provisoires 2013 - soumission du 31 juillet 2014 ajustée pour la soumission du 18 novembre 2014.															

Table 11: Trajectory for GHG emissions, excluding LULUCF & ETS under decision 406/2009/EC (in million tons of CO2e)

	2005	2008	2009	2010	2013	2014	2015	2016	2017	2018	2019	2020
émissions totales de GES, hors LULUCF	13,01	12,09	11,55	12,11								
émissions de l'aviation civile (vols nationaux)	0,00	0,00	0,00	0,00								
émissions ETS vérifiées dans le CITL	2,60	2,10	2,18	2,25								
allocations annuelles d'émissions - Décision 2013/162/UE					9,74	9,54	9,33	9,13	8,93	8,73	8,53	8,32
contribution à l'adaptation des ETS (Art. 10 ESD)					0,28	0,27	0,27	0,26	0,25	0,25	0,24	0,24
allocations annuelles d'émissions ajustées (Art. 10) - Décision 2013/634/UE					9,46	9,27	9,07	8,87	8,68	8,48	8,28	8,08
Source: DG CLIMA, sur base de la soumission 2012v1.2 corrigée des recommandations et ajustements de l'examen européen 2012 de l'inventaire.												

Les "allocations annuelles d'émissions" sont publiées à l'Annexe I de la Décision de la Commission 2013/162/UE du 26 mars 2013 relative à la détermination des allocations annuelles de quotas d'émission des États membres pour la période 2013-2020 conformément à la décision 406/2009/CE du Parlement européen et du Conseil (ESD). Les données ajustées pour l'Art. 10 de la décision 406/2009/CE ont été publiées dans la décision d'exécution 2013/634/UE du 31 octobre 2013.

Table 12: Expected change of GHG emissions, excluding LULUCF & ETS, between now and 2020 and comparison with the trajectory under decision 406/2009/EC (in million tons of CO2e)

	2013	2014	2015	2016	2017	2018	2019	2020	icit sur la péri	
avec mesures existantes										
transports routiers	:	:	6,82	:	:	:	:	7,33		
ménages, commerces et services	:	:	1,45	:	:	:	:	1,31		
autres sources non ETS	:	:	1,76	:	:	:	:	1,79		
émissions totales de GES, hors LULUCF & ETS	**10,04**	**10,03**	**10,03**	**10,11**	**10,19**	**10,27**	**10,35**	**10,43**	**11,25**	
avec mesures addtionnelles										
transports routiers	:	:	6,47	:	:	:	:	6,60		
ménages, commerces et services	:	:	1,45	:	:	:	:	1,31		
autres sources non ETS	:	:	1,76	:	:	:	:	1,79		
émissions totales de GES, hors LULUCF & ETS	**9,86**	**9,77**	**9,67**	**9,68**	**9,68**	**9,69**	**9,69**	**9,70**	**7,55**	
allocations annuelles d'émissions ajustées (Art. 10) - Décision 2013/634/UE	9,46	9,27	9,07	8,87	8,68	8,48	8,28	8,08		
écart en % - avec mesures existantes	:	:	10,6%	:	:	:	:	29,0%		
écart en % - avec mesures additionnelles	:	:	6,7%	:	:	:	:	19,9%		

Source pour les projections d'émissions de GES: Ministère du Développement durable et des Infrastructures, sixième Communication Nationale dans le cadre de la CCNUCC. Les totaux d'émissions des années 2013, 2014, 2016 à 2019 sont des interpolations linéaires.

"Allocations annuelles d'émissions" ajustées: voir tableau X2. Le "déficit sur la période" 2013-2020 est simplement la différence entre la somme des émissions attendues avec ou sans mesures additionnelles et la somme des allocations annuelles ajustées.

La différence entre les projections avec mesures existantes et avec mesures additionnelles réside dans l'utilisation de biocarburants à hauteur de 7,5% des ventes en 2015 et de 10% des ventes en 2020; ainsi que du développement de la mobilité électrique qui atteindrait 10% du parc automobile en 2020.

Source: Ministry of Sustainable Development and Infrastructures

4.3.1.2 Key measures for achieving the national objective [44]

The year 2014 featured the continuation of the implementation of the first "CO2 Emissions Reduction Action Plan" adopted by the government in April, 2006 and supplemented in 2007, and the adoption of its successor plan in May 2013, which is the result of work undertaken in 2010 as part of the "Partnership for the Environment and Climate". This second action plan contains numerous measures in the area of transportation, construction, renewable energies, industry, information, awareness, consulting and energy training.

- In the area of energy, the principal measures determined include the support of renewable electric energy through purchase obligations, heat production by means of renewable energy sources and the promotion of energy efficiency.
- In industry, the principal measures are the EU ETS quota exchange system, energy audits in major companies and promotion of eco-technologies.
- Regarding transportation, the principal measures include the implementation of actions and projects recommended by the overall MoDu sustainable mobility strategy, which seek to develop public transportation, more intensive use of "soft mobility" through walking and non-motorised transportation and the drawing up of a quasi real-time telematic information system for public transportation. This MoDu strategy for sustainable mobility of residents and cross-border workers was published in April, 2012. In 2013-2014, the new government confirmed the priority of the MoDu concept and dedicated itself to implementing it.

    - An essential link in the chain of this strategy is the setting up transfer points and implementing the tram project. The principal task of the transfer points is to better distribute traffic flows at the entry and inside the capital. They will be linked with each other and with the tramway. This project will break up the bottleneck choking public transportation in the main avenue of the capital and accommodate increased passenger flows toward the city in the medium and long terms. In June 2014, the finance law for completing the trunk line linking the Central Station to the International Fair Circuit was approved. LUXTRAM S.A. is continuing plans and will then complete and operate the project. The first trunk line is expected to be commissioned in 2017. Commissioning of the entire line with the Findel and Howald/Cloche d'Or connections is planned for 2020-2021.

    - Another principal pillar is soft mobility, i.e. walking or riding a bicycle, where the objective is to carry out 25% of daily travel using soft mobility. Soft mobility must have high performance, consistent and complete networks. The Soft Mobility Unit (CMD), was set up in early 2014 and has traversed four fields of action in the area of soft mobility: Strategic planning and regulations, awareness and coordination of all entities, quality control on infrastructure projects such as roads, railways, etc., and research and participation in producing international files on soft mobility.

    - Efforts to increase the modal share of public transportation and soft mobility are transposed by a significant improvement in products for this phenomenon and a progressive extension of infrastructure on the domestic and cross-border level. As an example, the share of cross-border commuters using public transportation increased from 9% in 2007 to 14% between 2007 and 2010. Domestically, a 25% increase in the number of rail passengers was achieved in the period 2009-2014.

[44] Cf. Chapter 3.5 (recommendation 5)

While the MoDu strategy describes interaction and integration of certain projects and measures, the Transportation Sector Plan (PST) states the infrastructure projects for individual and public transportation as well as measures of the strategy. This provides a regulatory framework to the strategy, including primarily the preparation of corridors for infrastructure projects, the implementation of a parking management system and promotion of the soft mobility concept. In 2014, the PST, together with the landscaping, housing and economic activity area sector plans was submitted to Parliament and to the Municipalities and is in procedure. Because of challenges to several of the provisions and a number of formal objections by the State Council, the government decided to remove the draft Grand-ducal regulations stating that sector plans were mandatory from the proceedings phase and to first amend the law on territorial planning in 2015 in order to then rework the PST project calmly, transparently and in legal certainty.

With the PST and the Landscaping, Housing and Economic Activities Zone sector plans, the role of territorial development is strengthened, highlighting the principal objective in the area of mobility, the reduction of distances between work and home. These instruments will result in more compact urban planning, a good mix of functions and activities and a reduction in traffic demand, leading to the attainment of sustainable development in the domain of territorial development.

Apart for the development of sustainable mobility on the national level, the government is persisting in its strategy of developing alternative systems for cross-border traffic An initial section of this strategy took solid form through the development with French authorities of a Cross-border mobility scheme (SMOT) in 2009, which since then has continued to exist in the form of a bilateral cooperation agreement between Lorraine and Luxembourg. More precisely, the process seeks to facilitate mobility of cross-border workers in Lorraine and contains a specific action programme and shared strategic directions. It is based on the implementation of a series of actions concerning the use of soft parameters in terms of rates, means of communications, etc. It also addresses developing the organisation of public transportation systems for rolling stock, timing of railway service, etc. and completion of infrastructure projects including rail projects, stations and Park and Ride facilities, etc. It should be noted that the construction of a new rail line between Luxembourg and Bettembourg, which will increase the capacity of the rail network between Luxembourg and France, began in January 2015. A similar process was undertaken with the Belgian and German partners and was formalised by the signature in 2013 of protocols. The two SMOT programmes were launched at the end of 2013 and continued throughout 2014.

Since the introduction of subsidies for the PRIMe CAR-e programme for fuel saving vehicles in 2007, market share of vehicles with low fuel consumption has increased significantly. More than 25% of cars registered in 2013 produce emissions lower or equal to 120 grams of CO_2/km, compared to only 11.9% in 2007. A rapid drop in average CO_2 emissions of new vehicles registered each year has also been noted, with 135g of CO_2 released per kilometre operated in 2013, a drop of 18.7% compared to the average value in 2007. In acknowledgement of the determination to promote the development of electric-powered mobility, a Grand-ducal regulation extended the aid scheme two years in February 2013 through the end of 2014, amounting to € 5,000 for vehicles powered exclusively by an electric motor, as well as for externally chargeable electric hybrid plug-ins, provided that they release no more than 60 grams of CO_2/km travelled. However, this programme ended in 2014[45].

Other scheduled actions include the introduction of an ecological mobility label for companies, the development of biofuels and adaptations to vehicle taxes.

- In the area of housing, apart from the implementation of the Housing Sector Plan (PSL), a Grand-ducal regulation[46] that went into effect on 1 January 2013 introduces an ambitious schedule for the progressive improvement of energy performance requirements in new and existing residential buildings. It offers a new aid scheme for energy savings and the use of renewable energy, thus perpetuating the previous scheme used from 2008-2012. It is a fundamental revaluing of measures implemented in the area of energy renovations aimed at potentially major energy savings that could be acquired through improvements in existing homes[47]. All of these housing measures together fall under the PRIMe House moniker. The government expects to adopt an ambitious agenda for the application of strict standards for residential and commercial buildings. It will establish new financing methods to achieve progressive improvement on all existing construction[48] and will establish an inventory of central government buildings impacted by the European energy efficiency directive.

Another cornerstone of the measures in place for limiting GHG emissions is the Climate Pact with municipalities. This law[49] authorises the government to financially and technically support municipalities that are members to it between 2013-2020. The goals to be achieved consist in strengthening communities' roles in climate policy, reducing GHG emissions and the energy bill in municipality territories and stimulating local and regional investment. Concluding the Climate Pact contract implies commitments by both parties to the agreement. Each participating municipality must commit to implementing a quality management system of its energy and climate policy, to wit, the European Energy Award® – EEA. The EEA is supplemented by quantifiable measures for reducing CO_2 emissions. Furthermore, each participating community agrees to set up an energy accountability system for its infrastructure and municipal departments within two years. The State provides a guarantee of financial support and technical assistance through the *myenergy* programme[50]. The municipality may subsequently be awarded a certification depending on the extent to which the EEA measures catalogue has been achieved. Financial aid provided by the State under the Climate Pact is comprised of five elements:

- A fixed annual grant of € 10,000 for operating expenses
- The State bears the cost of fees of internal and external climate consultants
- A variable annual subsidy, called the "Climate Pact Bonus", varying between € 5 to 35 per inhabitant with a ceiling of 10,000 inhabitants granted to communities that have achieved the three certification levels. This bonus, which depends on the number of inhabitants of a municipality, the level of certification achieved and time the certification takes place, is

[45] For more details see: http://www.car-e.lu/
Cf. 4.3.2.2 The renewable energies objective
[46] Grand-ducal regulation dated 5 May, 2012 amending: 1. Grand-ducal regulation dated 30 November, 2007 concerning energy performance in residential buildings, 2. The Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings.
For more details see: http://www.legilux.public.lu/leg/a/archives/2012/0096/2012A1096A.html?highlight
[47] For more details see: http://particuliers.myenergy.lu/files/Aides%20financieres_PRIMe%20House%202013-2016_V2.pdf
[48] Draft law relating to the promotion of housing and sustainable habitat submitted to Parliament on 20 June 2013.
[49] Law dated 13 September 2012 establishing 1. the Climate Pact with municipalities 2. Amendment to the amended law dated 31 May 1999 establishing a fund for the protection of the environment.
For more details see: http://www.legilux.public.lu/leg/a/archives/2012/0205/a205.pdf#page=2
[50] For more details see: http://www.myenergy.lu/

intended to encourage communities to implement the measures in the work programme and is a reward for achieving these measures.

- Financing of municipal projects through environmental protection funds, for which budget resources will be increased
- Assumption by the State of the costs for administration and technical assistance under the “Climate Pact” project provided by myenergy.

Excluding the Climate Pact, a large part of the expenditure for measures incorporated into the second CO2 Emissions Reduction Action Plan will be financed by the Climate and Energy Fund established by law[51] in December 2004 to address the cost of using flexible mechanisms, then to finance energy efficiency and renewable energy measures. This Fund, which was started with an annual budgetary allocation through 2012, is replenished primarily from receipts of an additional tax on gasoline and diesel fuel, the "Kyoto-cents" and from a 40% portion of the annual road tax on vehicles based on their CO2 emissions.

In conclusion, it is nonetheless dangerous to attempt to accurately estimate the cost of domestic measures in coming years and costs related to emissions taxes that it will be necessary to incur in order to achieve the objective of a 20% reduction of emissions by 2020. In recent years, of total GHG emissions, excluding LULUCF, 55% originate with road fuel sales, of which 15% from residents and 40% from non-residents. Future changes in the price differential with neighboring countries are highly uncertain. The same is true with regard to carbon pricing, which is currently very low, but which will have to increase substantially for the carbon market to be effective economically. The possibilities of cooperation are marked by a wide degree of unpredictability under Decision 406/2009/EC with regard to use of external credits by other Member states and under the Kyoto Protocol, which was extended to 2020 by a limited number of Member States at the UNFCCC conference in December, 2012. Based on very conservative assumptions, the government is expecting a deficit in emission rights approaching 11.5 to 12 million tons of CO2-equivalent for the period 2013-2020[52], which will be multiplied by a price per ton of CO2 that could reach up to €57 in 2035 according to the forecasts used in building a Climate and Energy Package reference scenario in 2013 by the Commission[53]. Yet if Luxembourg concentrates on quality clean development mechanism (CDM) projects like Gold Standard that the new government has indicated, the price per ton of CO2 will be higher than the cost for emission credits between 2008-2012, which was around €9.5 per metric ton.

In all, forecasts for annual costs of the Climate and Energy Fund come in at between € 134 million for the period 2015-2018, totaling € 535 million for the entire period. The part of these expenditures related to the Climate section of the fund are broken down as follows for 2015-2018: around €110 million for national policies and measures, €154 million for the purchase of emissions rights and €35 million to finance developing international climate change projects in developing countries, such as the contribution to the Green Climate Fund (GCF). The Climate Pact budget envelope, including projects implementation, is recorded under "Environment Protection Funds" and amounts to € 110 million between 2013-2020.

[51] Law dated 23 December 2004: 1) Establishing an emissions trading system for greenhouse gases, 2) Setting up a fund for financing Kyoto mechanisms, 3) Amending Article 13bis of the amended law dated 10 June 1999 on classified establishments. For more details see: http://www.legilux.public.lu/leg/a/archives/2004/0210/a210.pdf (3792-3799) 3792-3799).

[52] Compared to 14.2 Mt CO2e for the first commitment period under the Kyoto Protocol (see supra) The latest calculation indicates a deficit of 11.3 Mt CO2e (see section 4.3.1.1), adjusted up for prudential budget reasons.

[53] According to the results of the last PRIMES year in 2013, the reference scenario: 2015 = €17 per metric ton; 2020 = € 10; 2025 = € 14, 2030 = € 35 and in 2035 €57 (stated in 2010 prices).

4.3.2 Renewable energies objective

4.3.2.1 National objective

Directive 2009/28/EC dated 23 April 2009 for promoting the use of energy produced from renewable resources calls for Luxembourg **achieving an 11% share of energy from renewable sources in its gross final consumption for 2020** as well as an objective of 10% share of fuel energy from renewable resources in the transport sector for 2020.

Table 13: Indicative trajectory for energy produced from renewable sources

Year	Percentage
Average 2011/2012	2.92 %
Average 2013/2014	3.93 %
Average 2015/2016	5.45 %
Average 2017/2018	7.47 %

Source: Ministry of the Economy

The share of renewable energy in final consumption calculated according to the method set out by EC directive 2009/28/EC amounted to 3.57% for 2013. The contributions to this objective by the various sectors were 5.31% for electrical energy and 5.65% for heat and cooling production. The portion of renewable energy used in transportation came to 3.88%.

4.3.2.2 Key measures for achieving the national objective

The Member States had to present their national renewable energy action plans to the Commission by 30 June 2010. The Luxembourg plan calls for achieving the national renewable energies objective through the following measures:

- Developing renewable energy within the country by means of producing electricity and heat/cooling from renewable sources
- Adding biofuels into fuels for use domestically as well as developing public and private electric mobility
- Use of the cooperation mechanisms, primarily through statistical transfers and joint projects with other Member States and third countries

The Development of energy efficiency between 2010 and 2020 will result in a reduction in absolute terms of the nation's objective in the area of renewable energies. The Action Plan takes up thirty-seven measures to achieve the national objective set by Directive 2009/28/EC. These measures will take specific shape and be adapted depending on progress achieved for meeting intermediary objectives. A description of these measures, as well as the schedule for implementing them, is described in the national renewable energy action plan. The principal recent actions as part of these measures that have an impact on the development of renewable energies are mentioned hereafter.

a. Developing renewable energies

The government has put in place a mechanism for supporting biogas production installations that provide biogas to the natural gas networks in Luxembourg. A Grand-ducal regulation[54] was published in December, 2011. At this stage, three installations are injecting biogas in the natural gas networks in Luxembourg and in 2013 some 49 million kWh equivalent of biogas were injected into the natural gas system. In 2013 and 2014, the government carried out profitability analyses of these

[54] Grand-ducal regulation dated 15 December, 2011 concerning the production, income and marketing of biogas.

existing plants. This study, which takes into account specific data from each plant, concluded that an increase in the price of injected biogas was necessary to guarantee the medium term functioning of the plants concerned. A Grand-ducal regulation taking into account the results of this profitability study was introduced into the regulatory procedure at end-2014 and submitted to the European Commission for authorization in the area of state grants.

Analyses were done in 2013 and 2014 regarding the possibility of introducing a feed-in tariff for heat produced by biomass use combustion installations with the purpose of enhancing renewable energy potential to its maximum limits. The study will be finalised in 2015.

A Grand-ducal regulation[55] sets a clear schedule for increasing requirements in the area of energy performance in new residential buildings and additions to existing residential buildings. The new requirements are an implicit incentive to implement renewable energies. As such, all new construction beginning after 1 July 2012 must implicitly incorporate renewable energies and as from 2017, new residential buildings must meet the highest performance standards of the energy performance certificate, A-A. Beginning in 2015, stricter requirements for residential buildings entered into effect. On the average, these included Classes B – A.

The amended Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings was modified in 2014 by a Grand-ducal regulation[56] that introduced the concept of a "Nearly Zero Energy Building", with the date set for achieving this standard and the introduction of a requirement to indicate energy performance in commercial buildings in advertisements. A Grand-ducal regulation[57] went into effect in 2015 to increase energy performance requirements of new commercial buildings beginning on 1 July 2015. Furthermore, in 2015 and in 2016 the government will determine upcoming phases for commercial buildings by 2020.

Since January, 2013, a new regulation has been in effect pertaining to aid schemes that promote the rational use of energy and highlight renewable energy sources in the housing sector for 2013-2016. This regulation creates more advantageous incentives for most of the target technologies and actions and is intended to accelerate the spread of renewable energies and energy efficient technologies in the domestic sector. It will also considerably support the achievement of objectives in the area of renewable energy and energy efficiency. Emphasis has been placed on the development of renewable energy in the area of heat production, especially subsidies more favourable to geo-thermal heat pumps and wood fired furnaces.

The government analyzed the amount and structure of feed-in tariffs regarding electrical production based on renewable energy sources. As part of these analyses, determining compliance of the new tariffs with community rules relating to State subsidies was one priority. Subsequently, a Grand-ducal regulation intended to adapt feed-in tariffs was introduced into the regulatory process and was also notified to the European Commission in order to obtain approval in compliance with the rules for State aid. In 2014, discussions relating to this with the European Commission were finalized and led to the authorisation - with regard to State aid - of the new feed-in tariffs regarding electrical

[55] Grand-ducal regulation dated 5 May, 2012 amending: 1. Grand-ducal regulation dated 30 November, 2007 concerning energy performance in residential buildings, 2. The Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings.
[56] Grand-ducal regulation dated 26 May, 2014 amending: 1. Grand-ducal regulation dated 30 November, 2007 concerning energy performance in residential buildings, 2. The Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings, and 3. The Grand-ducal regulation dated 27 February 2010 concerning gas installations.
[57] Grand-ducal regulation dated 28 January 2015 amending the amended Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings.

production based on renewable energy sources. A Grand-ducal regulation[58] relevant to it was subsequently published.

In 2014, the government began work on updating the study of renewable energy potential in Luxembourg in order to determine progress achieved and attainable of the various production sectors of renewable energy. The results of this study should lead to revising the potential of various technologies by 2020 and to draw the necessary conclusions.

b. Mix of biofuels in fuel available for consumption nationally.

Directive 2009/28/EC calls for implementing sustainability criteria for biofuels and bioliquids nationally. This aspect of the directive was transposed by a Grand-ducal regulation[59]. By way of an amendment to the amended law dated 17 December 2010 setting the excise and other taxes on energy products, electricity, manufactured tobacco products, alcohol and alcoholic beverages, the percentage of biofuels added to gasoline and diesel fuel was increased to 4.75% of energy content for 2014. For 2015, this percentage will be raised to 5.4%. The directive will make it mandatory to include a minimum of 10% of biofuels in all gasoline and diesel for transportation use by 2020, with the result that percentages of biofuels in fuel will increase continually.

c. Electric mobility

A technical-economic study carried out by the government and the Institut Luxembourgeois de Régulation (ILR) resulted in setting out a shared national concept for implementing electric mobility in Luxembourg. The following conclusions were adopted on the basis of this study: Operation and maintenance of the public infrastructure provided by network managers; use of a shared central system; users have free choice of electricity supplier; a uniform payment on national territory; a Grand-ducal regulation will determine the technical functionalities and specifications, the number of load points and the schedule, as well as the overall implementation structure. On the basis of these conclusions, the government set an objective of achieving a rate of around 10% of electric powered cars in Luxembourg's automobile fleet by 2020, the equivalent of 40,000 cars. Some 850 public recharging stations for electric cars are to be installed by 2020. The conclusions of this study are in a law determining the major principles for the development of electro-mobility in Luxembourg[60].

The government supported the distribution grid operators and other stakeholders in electric mobility with the objective of clarifying the details of future charging infrastructure for electric vehicles, as well as the principles underpinning their installation, operation and financing. In 2014, the government drew up a draft Grand-ducal regulation in concert with the ILR to determine the functionalities and technical specifications, the number of charging stations, the overall scheduling and the organisation of a charging infrastructure for electric vehicles in Luxembourg. Another objective of the Grand-ducal draft regulation is to specify the public installation, operation and maintenance services that will have to be provided by grid managers and future users of this infrastructure. The draft regulation is currently going through the regulatory procedure process. Discussions with grid managers to be used in the drafting of specifications are underway. This process is accompanied by a consulting procedure with stakeholders.

[58] The Grand-ducal regulation dated 1 August 2014 regarding electrical production based on renewable energy sources.
[59] Grand-ducal regulation dated 27 February, 2011 setting sustainability criteria for biofuels and bioliquids.
[60] The law dated 7 August, 2012 amending the law dated 1 August, 2007 relating to the organization of the electricity market.

In as much as electric mobility is also taking shape beyond our borders the INTERREG IV A "ELEC'TRA project was started in 2012. Under this project, Luxembourg, French and German entities met to draw up a concept in the area of cross-border electric mobility based on complementary electromobility of public transportation. In detail, the concept centres on setting up intermodal e-Hub platforms along major cross-border arteries axes such as Metz-Thionville-Luxembourg, Sarrebruck-Luxembourg, Trèves-Luxembourg and Sarrebruck-Forbach, with the objective of decreasing not only the number of individual vehicles travelling on these roads but also the polluting emissions these vehicles produce. The e-Hubs will be located on the first mile and last mile of a primary link to be used to change transportation mode, preferably electric, to public transportation or e-ride sharing or vice versus. A focused survey was carried out as part of this effort amongst cross-border workers and their employers to analyse the potential of the solutions planned for by the concept and to provide data essential for the study. The survey was carried out at the end of 2014 and targeted 7,000 cross-border workers and 40 companies.

d. Mechanisms for cooperation

An analysis of action plans within the EU has revealed that a number of Member States are likely to exceed their intermediary and/or final objectives for 2020. The government has made contact with a number of these Member States in order to discuss possibilities for cooperation. Discussions and negotiations were pursued during 2014 and Luxembourg hopes to give concrete expression to cooperation initiatives in 2015. It remains clear that the 2020 objective will be achieved by resorting to the maximum levels of national potentials.

4.3.3 National energy efficiency objective

4.3.3.1 National objective

EU directive 2006/32/EC determines a framework for energy efficiency in the final use of energy services that includes an indicative energy savings objective applicable to Member States, obligations for national public authorities in the area of energy savings and purchase of efficient energy fuels and measures for promoting energy efficiency and energy services. The Member States had to adopt and achieve an indicative objective plan (PAEE) in 2007, a second on in 2011 and a third in 2014.

The first PAEE for Luxembourg was submitted to the European Commission in March 2008. In September 2011 the government submitted its second PAEE to the Commission. Following an in-depth analysis and evaluation in 2011 undertaken to establish a second PAEE, the **national indicative objective for energy efficiency in 2016** was increased to its current level of **14.06%.**

The EU adopted a common framework of measures via directive 2012/27/CE dated 25 October 2012 to promote energy efficiency within the EU so as to achieve the 2020 objective and to open the way to new improvements in energy efficiency beyond that date. The objectives set through 2016 by directive 2006/32/EC that pertain to energy efficiency in final use of energy services were retained, but they must be complemented by indicative national energy savings objectives by 2020 that are more ambitious. The directive sets out energy savings and efficiency measures that the Member States must apply. The largest measure stipulates a binding objective of reducing all energy sales by 1.5% per year, with partial or total exclusion of the transportation sector from the calculation. The directive also introduces an annual objective of renovation of 3% of the State's buildings. Furthermore, the Member States must develop a strategy for reducing energy consumption in all of their built edifices for the long term, beyond 2020. A series of measures also include systematic energy audits in major corporations, transparency in invoices and support of co-generation processes.

In July 2013, Luxembourg notified the Commission of the first report on progress achieved in the attainment of national energy efficiency objectives[61]. The administration and implementation of Directive 2012/27/EU are in part assumed in the third action plan, sent to the European Commission in December 2014. The plan covers significant measures aimed at improving energy efficiency and expected and realised energy savings, in particular for the supply, transportation, distribution and final use of energy in 2020. It takes up the following principle elements:

- Measures aimed at improving energy efficiency and expected and realised energy savings, in particular for the supply, transportation, distribution and final use of energy with a view to attaining national energy efficiency objectives.
- **Updated estimates of overall consumption of final and primary energy in 2020,** including an estimate of the levels of final and primary energy use in the principal areas of the economy.

Table 14: Levels of energy use by economic sector and expected energy use in GWh

Sector	Base forecast	Forecast with measures	Expected energy savings
Households	6,661	5,654	1,007
Craft trades, Trade and Service Providers	7,395	6,542	853
Industry	7,048	6,363	685
Transportation	30,297	30,145	152
of which, transportation excluding domestic road transportation	*24,321*	*24,321*	*0*
Agriculture	85	85	0
Total	**51,486**	**48,789**	**2,697**

Source: Ministry of the Economy

Furthermore, the long term strategy for mobilising investment in the renovation of commercial and residential buildings in the country, both public and private, which is to be drawn up by virtue of EC directive 2012/27/EC and by virtue of progress recorded in achieving national energy efficiency objectives, are all included in PAEE III. The specific measures outlined in PAEE III are as follows:

- Introduction of a nationwide system of energy efficiency obligations for suppliers of electricity and natural gas to end users in Luxembourg. Parties obligated under this mechanism are responsible for achieving an objective equivalent to new annual energy savings of 1.5% in volume of annual energy sales to end users calculated on the basis of the average of the last three years (2010-2012) between 1 January 2015 and 31 December 2020. The overall achievable savings objective of energy amounts to 5,993 GWh for the entire period.
- Development of a package of energy savings measures on the domestic level in households, craft trades, trade, services and industry.

[61] As provided for in article 24, paragraph 1 of Directive 2012/27/EU.

- Development of support measures such as increased promotion of energy management systems and energy audits, introducing intelligent metering systems for electricity and natural gas, developing training and certification systems to improve skills amongst professionals, increasing energy efficiency in residential, commercial and public buildings, implementing a national plan to increase the number of nearly zero energy buildings, introducing charging stations to promote electric mobility and implementing measures concerning the transformation, transportation and distribution of energy.

4.3.3.2 Key measures for achieving the national objective

A Grand-ducal regulation[62] sets a clear schedule for shoring up requirements in the area of energy performance for new residential buildings and for some additions to existing buildings, in addition to some clarifications and modifications of various technical factors and requirements. It also prescribes mandatory publication of information regarding energy performance when leasing or selling buildings. This modification also takes into account the schedule in directive 2010/31/EU regarding energy performance in buildings with near zero energy consumption.

In 2014, the points for a full transposition of directive 2010/31/EU were published. The amended Grand-ducal regulation dated 31 August, 2010 concerning energy performance in residential buildings was modified in by a Grand-ducal regulation[63] that introduced the concept of a "Nearly Zero Energy Building", with the date set for achieving this standard.

Work was continued to develop a registry of energy performance certificates for residential buildings in Luxembourg on the basis of a feasibility study carried out in 2011, with a view to completing the task in 2015. Experts who prepare energy certificates have been contacted in order to enter the certificates on buildings they have issued into the registry. This registry will be used for setting up a compliance system and a measuring tool that can produce energy performance statistics for structures in Luxembourg.

A Grand-ducal regulation was introduced into the regulatory procedure to increase energy performance requirements of new commercial buildings beginning on 1 July 2015.

Work to draft a national plan for increasing the number of buildings with near zero energy consumption was finalised in 2013 and the plan mandated by directive 2010/31/EU was sent to the European Commission in August 2013. The plan sets out the guidelines to be used to introduce the concept of a near zero energy consumption structure. Work on the definitive concept was continued in 2014 and will be complete in 2015. Directive 2010/31/EU also requires a report on the calculation of optimal levels depending on the cost for minimal energy performance requirements. It is a question of calculating costs of energy efficiency measure during their expected economic life cycles. Profitability of various minimal energy performance requirements must be evaluated to determine optimal levels as a function of costs for achieving energy performance requirements. Work to draft this report was finalised and the report was sent to the European Commission in April 2014.

Directive 2012/27/EC also calls for preparing an inventory of central government buildings having a total useful surface area in excess of 500 sq. m that are heated and/or cooled and submitting it to

[62] Grand-ducal regulation dated 5 May, 2012 amending: 1. Grand-ducal regulation dated 30 November, 2007 concerning energy performance in residential buildings, 2. The Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings.
[63] Grand-ducal regulation dated 26 May, 2014 amending: 1. Grand-ducal regulation dated 30 November, 2007 concerning energy performance in residential buildings, 2. The Grand-ducal regulation dated 31 August, 2010 concerning energy performance in commercial buildings, and 3. The Grand-ducal regulation dated 27 February 2010 concerning gas installations.

the European Commission. Luxembourg must then renovate 3% of the total surface area of building in this inventory annually, where such buildings do not comply with the minimum energy efficiency requirements. The government sent this inventory to the European Commission in March 2014.

Furthermore, two draft laws[64] to introduce a legal basis in Luxembourg law for the mandatory energy efficiency provision under directive 2012/27/EU were submitted to the legislative procedure in July 2014. A draft Grand-ducal regulation establishing the rules for the functioning of the mandatory energy efficiency provision on Luxembourg territory was submitted to the legislative procedure in December 2014. This regulation sets the portion of the overall objective to be attained by each utility concerned on a prorata basis of the utility's market share and establishes the rules for applying specific and standardised measures. A catalogue of these standardised measures is appended to the regulation.

In the area of cogeneration, the government is supporting the development of cogeneration based on renewable energies as a priority over cogeneration activities based on fossil fuel sources.

As part of its rational use policy for energy, the government continued to promote adherence to voluntary agreements with the industrial sector covering the period 2011-2016. The purpose of this agreement is to further solicit the commitment of signatory companies to improving energy efficiency and to implement new and renewable energy sources. Companies signing the agreement further commit to implementing an energy management system that identifies potential improvements in energy efficiency and establishes an action programme to produce a package of measures to achieve this potential. The economic interest grouping myenergy is taking over the coordination and follow up roles of data provided by companies, as well as information dissemination, consulting and awareness responsibilities.

Intelligent metering systems that determine a framework and schedule for the roll-out of a national shared and interoperable infrastructure of intelligent metering were submitted for legislation[65]. These systems promote active participation of consumers on natural gas and electricity markets based on a shared central system used to communicate data through a single common system, for electricity and natural gas at a minimum. The start of this general implementation is set for 1 July, 2015 at the latest. This type of intelligent metering equipment should be in use by at least 95% of end users of electricity at 31 December 2018, and at 31 December 2020 by end users of natural gas. The government closely monitored preparations for the installation process of intelligent meters in Luxembourg, carried out in concert with the gas and electric companies and coordinated by the ILR. Consequently, a Grand-ducal regulation[66] states the methods and scheduling or rhythm of meter readings, use and communication of metering data, right of access to the meters and how long data is to be conserved.

4.4 The Education objective and key measures for achieving it

European Objective: "*improving education levels, in particular by aiming to reduce school drop-out rates to less than 10% and by increasing the share of 30-34 years old having completed tertiary or equivalent education to at least 40%*"

[64] One amending the amended law dated 1 August, 2007 relating to the organization of the electricity market and the other amending the amended law dated 1 August, 2007 relating to the organisation of the natural gas market.
[65] The laws dated 7 August 2012 amending the amended law dated 1 August 2007 concerning electricity and natural gas.
[66] Grand-ducal regulation dated 27 August 2014 relating to the methods for metering electric energy and natural gas.

4.4.1 Early school leavers objective

4.4.1.1 National objective

Luxembourg is aiming at the European benchmark criteria and has set a **national objective of sustainably maintaining the dropout rate below 10%.** This objective will not be revised in 2015, in as much as it proved impossible to stabilise the dropout rate below 10%, according to national data used by the government[67].

In Luxembourg, the figures resulting from the Labor Forces Survey (LFS), used to calculate the indicator for early school leavers under the Europe 2020 strategy, are subject to strong annual variation due to the limited size of the sampling. Thus the LFS does not help in identifying which students are affected, nor why they drop out. To plug these gaps, the government developed a nationwide study for monitoring the school dropout phenomenon in Luxembourg.

Table 15: National statistics on the rate of school dropouts

Study	School year	Theoretical permanent rate of school leavers
1	2003/2004	17.2%
2	2005/2006	14.9%
3	2006/2007	9.4%
4	2007/2008	11.2%
5	2008/2009	9.0%
6	2009/2010	9.0%
7	2010/2011	9.0%
8	2011/2012	9.2%
9	2012/2013	11.6%

Definition: The concept of 'school dropouts' applies to young people who leave school definitively without receiving a diploma and who have entered the job market through a professional insertion programme or who have no specific occupation. It also includes young people who, after initially dropping out, re-register in a school, then drop out again during the same observation period and for whom no additional information is available regarding their current situation.
Source: Ministry of National Education, Children and Youth

4.4.1.2 Key measures for achieving the national objective

In early 2014, the government established two priority development foci for education policy[68]. A series of measures will contribute to keeping students in school by better adapting teaching to the requirements of students and improving their prospects of academic success.

- Academic and professional guidance

[67] According to the Europe 2020 Eurostat indicator for school dropouts, Luxembourg had a rate of 6.5% in 2014. This rate is relatively low when compared to EU levels, but it has been below the 10% level that the country set as an objective for 2020 for years now.

[68] 1. Provide each child the best chances possible from the beginning: universal access to an education in early childhood based on languages. 2. Redefine the multilingual basis of our society: a new perspective on languages 3. Support the players in the educational and socio-educational system: primary and continuing education based on a reflective practice. 4. Support children and young people: individualised support and guidance 5. Guarantee consistency in services provided to children and young people through organised synergy 6. Allow young people to become responsible citizens by using the right tools and changing them perpetually 7. Involve parents to obtain an institutionalised partnership 8. Provide high quality teaching and welcome to students : the environment, innovative programmes and materials 9. Adapt to the needs of children and young people through heightened autonomy of those on the ground.

A new draft law was adopted in February 2015 in order to better organise guidance for young people in the school system. It concerns the organisational structure of the Guidance Centre (MO) and the reorganisation of academic and professional guidance. It will set up a legal basis for the MO by setting out its mission and functioning details. As guidance is acknowledged to be an integral part of schools' responsibilities, the law will also introduce an obligation for each Lycée to determine its own guidance process. National objectives will be determined in a reference framework, whereas schools will autonomously choose the practices they consider the most suited to the requirements of their student populations.

Recognition of diplomas and qualifications, as well as validation of acquired professional experience will be closely linked to guidance processes. This is particularly important for citizens who have not or only partially completed studies or training programmes in Luxembourg and for adults who wish to augment their level of qualifications. The validation procedure has been streamlined and support for validation applicants will be bolstered. In order to ensure that recognition procedures are more accessible, a synergy between the competent departments of secondary education and university education will be established and put in operation.

- Language instruction

The nation's trilingual tradition probably makes up the greatest challenge to be overcome at present in Luxembourg's school system, because the school population is increasingly diverse. The proportion of students of foreign nationality continues to increase. In primary education, the percentage of children who do not speak Luxembourgish as the native language in their home exceeded 60% in 2012/2013. Difficulties with language of instruction lead to failure in other disciplines for numerous students, thus compromising their changes for academic success.

The government is working to diversify the scholarly offer to address the diversity of linguistic profiles, while ensuring consistency at the beginning and end of academic careers. It is planning to introduce a "linguistic bath" early on in the process for children aged 1 to 3, which will provide new perspectives for French and Luxembourgish. Teaching objectives and language methods or learning processes, consistency between primary and high school programmes, learning to write, the introduction of a second language, vehicular languages and synergies between languages are also all slated for review. These measures also extend both to formal education and to early childhood education. Schools and hosting structures make up the two inseparable pillars of the new language learning policy. Other short term measures pertain to introducing the international Baccalaureat in French and English as well as the introduction of A-Levels.

With the establishment of an international school in the South of the country, the educational system is also responding to growing heterogeneous trends. It is the State's responsibility to offer a public education system in which each student will have a chance to succeed, regardless of the language spoken at home. Apart from efforts to integrate foreign students who will remain in the country, the international school offers a programme adapted to the requirements of young people residing temporarily in the country who will continue their education in another country. The opening of the school is planned for 2016 with one French speaking and one English speaking class in the primary school, two French speaking and two English speaking classes in the first year of secondary school and four preparatory classes.

For many adults, language training is a necessity and a requirement for integration, inclusion and professional insertion. The government's adult training department has revised the procedures for certain target groups to access language training at a reduced rate. A coordinated regulation system was drawn up in 2013. Institutions responsible for these target groups provide a reduced registration voucher of € 10 per course set up by the adult training department or by an authorised commune or association. The courses organises the most frequently are courses of Luxembourgish and French. Out of a total of 15,143 registrations for language training, 41% concern Luxembourgish and 40% French.

- Association of all academic partners for better consistency in services provided to children and young people

Greater involvement of all entities working in daily academics is planned Pursuant to the incorporation of the Childhood and Youth department in the Ministry of National Education in December 2013, another issue is to strengthen the ties between formal and informal education, i.e. early childhood education.

The image of school that parents convey to their children, and their interest in a child's progress, considerably influence the motivation and success of a child. The involvement of parents in academic life will be increased in order to create a genuine aura of cooperation between schools and families. The government is planning to set up a national representation structure of parents in all spheres of education in order to facilitate the participation of parents in the development of schooling and to draw up and implement a process for involving parents in early childhood education, children aged 3-12 and youths of 13-18. Educational family actions are being implemented to favour the academic success of children and to equip parents with the skills they need to better support their children's schooling. The actions must overcome the challenges of socio-economic and socio-cultural imbalances. As the grounds for literacy are establishes at a very young age, it is important to act in nursery environments and to continue to work throughout primary education and into adolescence, with the lower and upper cycles of secondary education.

- Creating an Academic Retention Observatory

A draft law to establish an Academic Retention Observatory to allow a more systematic monitoring of children leaving school and regular coordination of the entities involved has been prepared and the broad lines of the act will be presented in 2015.

Apart for these strategic guidelines for the education system, several projects and actions are being implemented in cooperation with the various entities of the national education system.

New academic offerings for students with difficulties have been set up and the existing offering is being enlarged. This involves the school for second chances, cultural classes for students with behaviour difficulties, special classes for students held back a year, guidance and professional introductory courses and "VTT structures" for students with severe behaviour disorders.

The Guidance and Psychology Centre launched an "Academic Retention" pilot project in 2013-2014, whose pillars are as follows: identifying students at risk of dropping out in intermediate school, providing individualised assistance for a sampling of volunteer high-risk students and specific measures prepared in collaboration with staff of participating schools. In the long term, through collaboration with the University of Luxembourg, this project should also form the basis for developing an early detection system. The purpose of another pilot project is to determine which measures can by implemented in schools to prevent students from dropping out. This involves identifying the elements that promote perseverance in people and the indicators to use for detecting potential dropouts. The two projects are being evaluated under a European project entitled "Team cooperation to fight early school leaving Training Innovation Tools and Actions (TITA)."

The theme of the Greater Region Comenius Regioproject extending from September 2013-July 2015, is to put culture to use in achieving academic success and fighting the school dropout phenomenon in cooperation with the General Council of the Meurthe-et-Moselle region in France.

The law dated 6 February 2009 on mandatory schooling authorised the government to hire social instructors for secondary school projects targeting academic retention. Consequently some fifty projects were implemented in around twenty secondary and trade schools.

An analysis of NEETs was carried out by the National Youth Service (SNJ) to better understand the link between dropping out of school and the situation of NEETs.

The Adult Training Department implemented a group of measures to get young adults back on track with education, to promote insertion into a job and to increase levels of qualifications. The alternative path to qualification course is for persons who were unable to complete their primary education or who have never achieved a level necessary to carry out a professional project to obtain the same diplomas and certificates as those earned in secondary education, secondary technical and initial professional programmes.

Several new mechanisms were developed to better address requirements:

- 9+ (9th grade in adult training)[69]: The 9th grade is decisive for obtaining access to further studies and professional training. However, many young people and adults drop out or never achieve this level, the minimum required to embark on professional projects. The same is true for certain people with immigrant backgrounds who do not have the recognised levels of education or linguistic skills necessary to get into Luxembourg's training programmes. Adult education provides all these persons a new mechanism for completing the 9th grade level or to improve their 9th grade level under the alternative path to qualification.
- In service training for ward aides: In view of the qualification requirements for health sector personnel, both unqualified persons working in the sector and employers are requesting and supporting a qualifying in service training programme. In response to this demand, the profession in service training programme was adapted to the requirements and course programs for the reformed Professional Aptitude Diploma.
- In service Social Instructor project A good number of school leavers want to obtain qualification in this domain or have found an unqualified assistant job in the field and wish to enter a recognised in service qualification training programme. As the need for workers in the field persists and there is a large pool of potential trainees, a new in service training course was developed.
- Basic instruction and general training facilitate the insertion of school dropouts in training or in service programmes. These basic and general skills are required to complete a training programme for insertion into the labour market, for professional development and to participate in lifelong learning programmes. This includes linguistic, e-skills and digital skills. Often the cause for academic failure is linguistic deficiency, which is an obstacle to continuing academics and socio-professional integration for young people with immigrant backgrounds. Basic language courses and instruction as a

[69] This is the 3rd year of secondary school in Luxmbourg.

part of adult training are being seen progressively more as an essential complement to other insertion or reinsertion measures.

- Basic instruction: It is estimated that around 7% of adults and adolescents that leave the school system do not have the basic skills need to fully participate in professional, civic, cultural or social life. Through the "Learn to write, read and calculate better" campaign, the adult education programme seeks to inform public opinion of the breadth of this still-taboo phenomenon in our society, to create a positive image of basic instruction and to encourage the adults and adolescents concerned by it to participate in these courses. A frame of reference describes all skills in written communications, i.e. reading and writing, oral communications, i.e. speaking and listening comprehension and in mathematics that basic instruction courses given by the SFA, the INL and the authorised communes and associations seek to expand. Complementary actions for promoting basic instruction in the professional area have been implemented in cooperation with the social partners.
- The "Learn for Success (L4S)" project: Personalised L4S learning workshops opened their doors in January 2014. This initiative is intended for adults who seek to improve their general knowledge and skills to prepare for a competitive examination or a promotion, to get a job or enter a training programme or to develop on a professional or personal level. The project offers a training course adapted to each personal project with customised structure for content, duration, rhythm and support. Learning programmes focus on languages to include German, French and English, mathematics, sciences and office applications. With regard to school dropouts, it turns out that a good number of young people who meet the formal requirements to enter training programmes have specific deficiencies in languages or in mathematics that are obstacles to their success in examinations, tests or competitive assessments for accessing certain professional training programmes, police academies of the armed forces. Participating in learning programmes will increase the chances of these young people to accede to and successfully complete a qualifying training programme.

4.4.2 Tertiary education objective

4.4.2.1 National objective

The **national objective** consists of **ensuring that 66% of the working population between the ages of 30 and 34 receive university education and earn university degrees by 2020**. This objective reflects the economic development of the country, where two out of three new jobs created require a university education.

4.4.2.2 Key measures for achieving the national objective

The 2013-2014 academic year signalled the implementation of a reform of the State financial aid schemes for higher education in which the children of cross-border workers became eligible for such aid. The new reform of the State financial aid scheme for higher education was carried out for the 2014-2015 academic year, entering into effect in August 2014 via the law dated 24 July 2014 on State financial aid for higher education. In contrast to previous legislation, the new system has a modular structure that introduces an element of social selectivity. Every student has the right to an annual bursary of € 2,000, combined with a basic loan of € 6,500. The second module is a € 2,000 grant consisting of a mobility bursary attributed to students studying in a country other than their home nation who pay rent in that country. The third module, known as the social criteria bursary, amounts to a maximum of € 3,000, with the weighting of the bursary amount and the loan portion within that sum depending on the taxable income of the household the student belongs to. The tuition module provides for assuming these costs up to a maximum ceiling of € 3,700 per academic year. Half of the amount is in the form of a grant and the other half is a loan. As with prior legislation, an anti-overlap mechanism is present to avoid discrimination between the various target groups. The financial aid is moveable in the sense that Luxembourg students are free to choose the nature and location of their studies.

The significant increase in aid for the 2013-2014 academic year is due to the European Court of Justice decision making the children of cross-border workers eligible for grants.

Table 16: Table of financial aid awarded since the 2009-2010 academic year

Academic year	Total number of students receiving aid	Total amount paid out as grants, in Mn €	Total amounts allocated as loans in Mn €
2009/2010	8,562	14.8	55.0
2010/2011	13,324	83.8	87.1
2011/2012	14,382	90.8	94.0
2012/2013	15,587	98.7	102.5
2013/2014	25,205	154.3	161.6

Source: Ministry of Higher Education and Research

Another way of achieving the national objective is to expand the offer of public and private higher education programmes. At the beginning of the 2014-2015 academic year, 26 accredited higher education programmes were offered, compared to 17 programs for the 2013-2014 academic year. At the end of 2014, three out of seven requests for programme accreditation in higher education were deemed eligible for review and will be assessed for possible accreditation during 2015. In May 2014, four additional short-cycle professionally oriented programmes of a “Brevet de technicien supérieur (BTS)” technical certificate course were accredited, bringing the number of accredited BTS programmes to 21 for the 2014-2015 academic year, compared to 17 programmes in the 2013-2014 academic year.

The government continues to implement a strong policy regarding higher education and research in terms of financial resources. Financial contributions for the operational side of the Université du Luxembourg have increased considerably. The State's allocations for operating the university increased from € 72 million in 2009 to €101.6 million in 2012 and in 2015 amounts to € 145.4 million. The number of students also increased from 4,934 in the 2009-2010 year to 6,277 in 2014-2015.

The final move of the University of Luxembourg to the Belval site is planned for the 2015-2016 academic year. The higher education infrastructure and research investments in the Belval site are continuing, with a total investment of € 637 million over the period 2010-2019. The total investment for initial furnishings of the institution's buildings amounts to € 140 million for the 2014-2017 period. Over the medium and long terms, accommodations for a total of 7,000 students and 3,000 teachers and researchers are being planned.

Table 17: Total number of students at the University of Luxembourg by academic year

Year	No. of students
2009/2010	4,934
2010/2011	5,177
2011/2012	5,686
2012/2013	6,288
2013/2014	6,157
2014/2015	6,277

Source: Ministry of Higher Education and Research

The Benelux countries drafted an agreement for automatic mutual recognition of higher education diplomas in 2014. At present, getting a diploma from a neighbouring country officially recognised is a lengthy process that is an obstacle seeking cross-border work. This Benelux initiative is intended to facilitate cross-border mobility of workers.

4.4.3 Strengthening the human capital base through adult education and training

The government decided to successively implement the lifelong learning strategy approved in 2012. Technical groups made up of stakeholders including the social partners will draw up specific proposals in the area of quality, access and training of trainer personnel.

The construction of the new National Library in Luxembourg-Kirchberg is underway and the BnL will be transferred to the new building in 2018. The BnL will rationalise and modernise its operations by assembling all of its collections and services together. Strengthening the human capital base and lifelong learning will be driven by the optimisation of the documentary offer intended for all layers of the population. This documentary offer will go hand in hand with high level documentary and consulting services at extended hours of operation. In addition, BnL is working to continuously modernise its bibnet.lu network, through which even small libraries have high performance IT infrastructure. The unified a-z.lu search engine developed by BnL for the network is a powerful tool for permanent training that can be used to access the entire documentary asset base of the country from any location in Luxembourg and the Greater Region.

4.5 The social inclusion objective and key measures for achieving it

European Objective: *"promoting social inclusion, in particular through the reduction of poverty, by aiming to lift at least 20 million people out of the risk of poverty and exclusion. The population is defined as the number of persons who are at risk-of-poverty and exclusion according to three indicators (at-risk-of poverty; material deprivation; jobless household), leaving Member States free to set their national targets on the basis of the most appropriate indicators, taking into account their national circumstances and priorities"*

4.5.1 National objective

In the area of horizontal and transversal approaches, measures detailed under the national employment and education objective headings are, together with the measures outlined below, also measures for contributing to promoting social inclusion, particularly by reducing poverty. The government upholds the European Council conclusions through its objective of promoting social inclusion through reduction of poverty with measures contributing to increase the employment rate of women and of single parent families in order to achieve an employment rate of 73% in 2020. Access to employment creates conditions favourable to social inclusion and provides a rampart against poverty and social exclusion. The government is currently taking steps intended to modernise family policy by promoting employment, especially for women, and keeping people in jobs so that both parents, and above all, single parents, have financial independence. In the law dated 19 December 2014 on the implementation of the future package, the government eliminated the education and maternity benefits, two items that were initially designed for women who had no profession and for which the purposes do not correspond to the realities of family situations or the requirements of the working world today. According to STATEC[70], single parent families are especially exposed to the risk of poverty. In 2013, 46.1% of these households had revenues below the poverty level, while for all households with dependent children, 20.7% of households were at risk of poverty. The person of reference in single parent families is a woman in 83% of cases. Full-time employment is the most widespread type of activity in general. In 57% of households with two adults and dependent children, the reference person has a full-time job, while the percentage of full-time employment amongst single parent households was only 50%, in 2013. With regard to part-time work, this was the case for 29% of single-parent households in 23%, compared to only 2 of households with dependent children and 7% of persons living alone. Of the single family households, the proportion of persons living in very low work intensity households reached 20%, whereas for all households with children, this figure amounted to only 5%.

Through consistency amongst policies of all NRP measures, Luxembourg aims to **reduce the number of persons under the threat of poverty or social exclusion by 6,000 people by 2020**[71].

In 2014, a Steering Committee met to support the project of building a minimal food consumption basket for Luxembourg. The Steering Committee submitted the project to the ESC, the Social Offices and to the non-government organisations. The project objective is to prepare a group of consumables that represents the minimum requirements of households in terms of goods and services.

4.5.2 Key measures for achieving the national objective

Achieving the national objective is supported by the measures described below[72], and by measures outlined in the national employment and education objective. The law on social aid has helped maintain a good performance level for Luxembourg's material deprivation indicator.

- Continue the policy of providing socio – educational welcoming structures to children

The existence of services providing socio-educational welcoming structures to children between the ages of 0 and 12 years is intended to break the cycle of inter-generational transmission of poverty by making an appropriate service available to children exposed to the risk of poverty. Indeed, providing a place and education for small children is an effective way to develop the basis for subsequent learning, to prevent leaving school early and to uphold diversity in all its forms. The measure contributes to improving social inclusion of children and social cohesion within a multi-cultural Luxembourg society. It aims at continuing quantitative and qualitative socio-educational welcoming structures for children to facilitate access of parents to the employment market. The

[70] For more details see: http://www.statistiques.public.lu/catalogue-publications/regards/2011/PDF-16-2011.pdf

[71] In March 2015 a working group made up of representatives of the government, STATEC, IGSS and LISER was established to do an in-depth study of trends of the "At risk of poverty and exclusion" indicator of the Europe 2020 strategy. This group will be able to analyse the possibility of adapting Luxembourg's numerical objective at the midway point of the Europe 2020 strategy in order to take into account specific national circumstances, especially with relation to the sustained changes in demographics occurring since the objective was set. The AROPE indicator does not account for demographic factors and Luxembourg's demographics continue to increase significantly, even during crisis periods, such that the relative nature of the indicator as a percentage of the population inevitably gives rise to an increase in the absolute number of persons.

[72] Measures 1 to 3 hold particular importance for women and single parent families.

number[73] of authorized places in socio-educational welcoming structures grew by 6,1% from 2013-2014 to .

Table 18: Changes in different types of welcoming structures (31 December, 2014)

Situation as of 31 December 2014	Places in 2009	Places in 2013	Places in 2014	Difference 2013-2014	Increase between 2013-2014
Education and hosting services (Reception centres, day care centres, nurseries and private child care centres) **authorised by social security[1]**	20,308 places	34,053 places	35,579 places	1,526 places	4.48 %
Education and hosting services, (Reception centres, day care centres, nurseries and private child care centres) **commercial**	2,734 places	9,194 places	10,371 places	1,177 places	12.80 %
Nanny services	1,606 places	3,130 places	3,258 places	128 places	4.09 %
TOTAL	24,648 places	46,377 places	49,208 places	2.831 places	6.10 %

Source: Ministry of National Education, Childhood and Youth / Education and Hosting Service

- Making beneficiary parents aware of the Guaranteed Minimum Income (GMI) mechanism for using welcome center checks.

The child care voucher system is becoming increasingly well-known amongst the target population. The downward trend in the number of households eligible for the GMI system was confirmed in 2014, where justification for not seeking employment or participating in an insertion activity is required in exchange for childcare programmes[74].

- Increasing activation rates as part of the GMI mechanism

Activation as a part of the GMI mechanism is one of the pillars of the active inclusion policy on the national scale. The number of professional insertion activities set up under this framework[75] has increased by over 81% since 2007. While administrative statistics assembled by the SNAS for 2013 revealed a significant increase in the number of persons not exempted from professional insertion activities[76], data for 2014 indicate a new high. Due to this and notwithstanding the above-cited efforts toward activation, the 2014 activation rate of 58.7% has fallen compared with the 2013 rate of 61.8%. In view of this result halfway through the Europe 2020 strategy period, the objective of increasing this activation rate by two percentage points with relation to the rate of 62.3% set for 2010 by 2020 will be upheld.

- Promote measures favoring the transition of young people from academic to professional life and those motivating them to return to school

[73] The national indicator for monitoring the implementation of this measure is the change in number of places in socio-educational welcoming structures for children and the measure has a yearly budget allocation of approximately €278 million.

[74] 197 households in 2011, 142 in 2012, 119 in 2013 and 86 in 2014.

[75] 2007: 835 ; 2008: 925 ; 2009: 1134 ; 2010: 1239 ; 2011: 1380 ; 2012: 1391 ; 2013: 1440 ; 2014: 1509.

[76] 2007: 1288 ; 2008: 1425 ; 2009: 1845 ; 2010: 1987 ; 2011: 2180 ; 2012: 2018 ; 2013: 2329 ; 2014: 2570

The government delved into the problematic of disadvantaged young people through the National Youth Service (SNJ), particularly qualified young people with NEET profiles (Not in Education, Employment or Training). It acted in four areas that form part of the "Guarantee for Youth / Activation section" programme coordinate by SNJ.

- Line 1: Develop an activation and information platform. Since 2012, the ESF has supported adapting the internet portal to the requirements of unprivileged youth[77]. Numerous modules and tools have been added since its launch. These efforts will continue up until 2015. The following modules were launched in 2014 and target more specifically professionals working with these young people, as well as the youths themselves: Restructuring of the module that collects all information on trades and respective training in Luxembourg and getting an electronic portfolio online that includes numerous functionalities. In 2015, the offer will be rounded out by a certification tool for acquired skills in an informal, online framework that will highlight learning achieved outside of school and training programmes. It is being planned to integrate the portal into the Guidance Centre structure, with a draft law approved in this area in early 2015. Different departments already existing in the Guidance Centre already cooperate well, especially in favour of young people who need individualised and in-depth support.

- Line 2: Activate NEET youth – the Level Up projects In the wake of the pilot programme experiments carried out on a small scale since 2013, projects intended to activate youths with no occupation in terms of training or work were pursued. This involves offering sensible occupations, individual help or even international mobility and added regional information sessions to young people categorised as NEET. Heightened cooperation between partner services involving the Guidance Center, municipalities, youth centres, social services and ADEM is carried out on a regional level to reach young NEET persons and their parents. In 2014, 1,355 participants received information about opportunities available to them in 66 regional and local sessions.

  The workshops help youths to make a break from periods of idleness and to get them involved with other young people in creative and manual settings. A recent example of this type of workshop is the Upcycling project, which hosts young people throughout the year, getting them to take part in the design, production and marketing of objects created from sub-products and scrap. The young people are supervised by socio-educational staff in developing a project for life. Similar workshops are being planned under the Guarantee for Youth programme throughout the country in 2015.

  The Buddy project involves individual support provided to a young person going through a transition to working life. In 2014, young volunteers were recruited to be trained as guides. Profile matches of guides and subject youth took place in April and individual mentoring was conducted in pairs. These tandems are supervised by a professional. The project will be extended in 2015 and will emphasise the recruitment of young people working more with the partner Guidance and Youth Centre departments.

  An example of a project intended to promote mobility of young people is the "Let's go abroad" project, involving a short-term commitment as a volunteer beyond the nation's borders. It is intended particularly for young people who are not yet ready to attempt a long-term adventure on their own. In 2014, young people were able to go as a group for one month away from home. The young people worked in two different projects supervising children and on an

[77] For more details see: www.anelo.lu

environmental project. An on-site mentor supervised the group. A third edition of this programme is set for 2015.

Since the end of 2013, Level Up offers can be consulted online[78]. This site shows the four lines of the activation project and gives an overview of activities carried out and upcoming events.

- Line 3 – More inclusive volunteer programmes: As the maximum capacity for the programmes targeting young people with fewer opportunities offered through the Voluntary Guidance Service (SVO) has been reached, SNJ will expand the SVCi civic service programme and the European Volunteer Service (EVS) so as to make room for all youths to participate regardless of profile. The SVCi is an opportunity for persons who stopped university studies to avoid a period of forced idleness while reorienting their studies options. In order to promote youth mobility, SNJ signed a framework agreement with the French Civic Service Agency that allows young Luxembourg residents to perform volunteer service. Cooperation with the Lorraine region is emphasized in order to include young people in a programme that requires more significant supervision.

  The experience of the Let's go abroad project will be analysed in view of offering more scope. In this context, SNJ is a partner in the European IVO4ALL project, financed by the Erasmus+ programme with a €1.9 million grant over three years by the European Commission, to try a large-scale experiment deploying 500 NEETs in volunteer service abroad. The good practices gathered will serve to make volunteer programmes accessible to all young people.

  The SNJ is also a partner in the "Greater Region Ecologic Volunteer Service" where residents will have the opportunity to perform volunteer service in a region other than their home one in the environmental field. A pilot project will take off in September 2015.

  In 2014, 300 young people participated in an SVCi, an ESV or an SVO programme. There will be twenty more assignments under international cooperation programmes in 2015 and international jobs will expand further if the pilot programmes are conclusive.

- Line 4: Get to know NEET youth better The NEET project, supported by ESF and targeting persons aged from 16-30 who are far removed from the labour market and any training programme, concerns a public policy target population at both the national and European levels. It is vital to support this group of young people in such a way as to give them the means of achieving satisfactory integration into society and the job market. For this reason the government seeks to develop better understanding the population of young people in difficulty in Luxembourg; it wants to expand its action and offer measures that are more suitable to the characteristics of these youths. At present, the only information available about NEET is what came out of the LFS. However, the information provided by this survey is insufficient. First, in the age group 16-30, there are few respondents and an in-depth analysis of NEET is not possible, and secondly, the survey does not address NEET trajectories. From the perspective of the authorities, the problem is not necessarily that at any given moment a person qualifies as a NEET but rather that the person remains in that situation for a more or less prolonged period. To address this, the objective is to create a dynamic database on NEETs using existing administrative data. A survey carried out on a representative sampling of NEET persons will round out this administrative approach.

• The Social Aid law

[78] For more details see: www.levelup.lu

During 2014, the 30 Social Offices gave out a total of €2.6 million in non-repayble financial aid. Aid granted for housing costs represents the largest category of aid at 28% of the total. These figures confirm the high percentage of household budget allocations for housing amongst households exposed to the risk of poverty. Aid for daily necessities represented 14% of the total aid, while 16% were used for health costs. Aid allocated for utilities and food costs represented 24% of the total of these costs. The measure will be allocated an annual budget of approximately €17 million, 50% of which is furnished by the State and 50% by the communes.

The third party payer system under the law dated 17 December 2010 reforming the health care system entered into effect in January, 2013. The third party payer system is for insured persons officially declared to be in a precarious situation by the competent Social Office for a determined period of time. These persons can claim benefits under the social aid system for direct payment of costs and applicable to services approved in the reference documents of consultations and services of doctors and dentists. In 2014, the amounts invoiced by care providers was € 1.3 million and a total of 2,300 persons received benefits.

- National strategy to counter homelessness and social exclusion linked to housing

In 2014, the government continued its coordination of the implementation of a national strategy to counter homelessness and exclusion linked to housing for 2013-2020.

An initial section containing actions pertained to study elements of exclusion phenomena related to housing. The government continued to survey the number of persons lodged at twenty adult accommodation facilities. Two surveys were carried out in 2014. Furthermore, the government continued to monitor the implementation of a watch on housing-related exclusion. A second area targeted exclusion related to youth housing. In June 2014, a day-long brainstorming session was set up as part of the Youth Pact focusing on the theme "Youth and Housing: Difficult Transition and Social Exclusion". Contributions to the session revealed that around 250 young people are accommodated in supervised lodging and that a need for more space is apparent. Two inter-ministry working groups have been set up to analyse the requirements and the consistency of measure targeting young people. One other area of action involved the signature of an agreement with the National Social Defense Committee for a "Housing First" pilot project, whose objective is to offer long term housing to persons who have long been homeless and living in serious social precariousness. The managing organisation is adopting an approach based on improving the quality of life and reducing risks for these persons, while emphasising stability with regard to housing. This concept will help in the fight against homelessness by offering an alternative to standard structures for the most socially marginalised persons. The pilot project agreement concerns supporting adult persons. The first persons to benefit from the programme moved into their private studios in October 2014.

- Fund for European aid to the most deprived

The Fund for European Aid to the most deprived (FEAD) supports actions by Member States to provide food aid and/or basic material assistance to the most deprived. The operational food aid and/or basic material assistance programme in Luxembourg was approved by the European Commission at the end of 2014. Agreements with national partners were also signed at the end of 2014. The FEAD will address distress situations involving both food and basic material necessities.

5. Use of Structural Funds

5.1 Coordination with structural funds

Coordination between the NRP and the Structural Fund is required because the Europe 2020 strategy also has a Community action programme. Projects developed and supported by Community finances under Structural Funds programmes must contribute to achieving Europe 2020 objectives. With regard to the FEDER 2007-2013 Regional Competitiveness and Employment programme (RCE), efforts to support European objectives and national objectives determined by Luxembourg have been made, particularly from the Priority 1-Objective 1 and Priority 2-Objective 3 standpoints. The RCE FEDER programme represents total public eligible commitments and investments of € 82,000,000, of which € 21,000,000 in Community funds amassed during the programming period of 2007-2013 concerning the above priorities of the Luxembourg NRP and the Europe 2020 Strategy. These investments, in line with NRP objectives, correspond to 81.7% of the FEDER CRE envelope for Luxembourg for the programming period of 2007-2013. In this way, 48 projects were co-financed in the area of research and innovation by FEDER in the amount of € 13 million and 13 Priority 2-Objective 3 projects in the area of renewable energy in the amount of € 7 million.

The themes and programmes for European Territorial Cooperation were hammered out on the basis of the Europe 2020 strategy. With regard to the trans-national and inter-regional projects slated for Luxembourg participation that were approved by the INTERREG A, B and C programmes, the main areas of intervention with relation to the NRP are in R&D innovation with thirteen projects under FEDER in the amount of € 2.6 million, and Climate Change and Energy areas of climate, environment and transportation, with twenty-two projects garnering total grants of € 5.0 million, an amount approved in favour of the Luxembourg partner.

5.2 Financing priorities for the period 2014-2020

Under the common strategic framework for 2014-2020 and in accordance with European Commission recommendations, the FEDER Management Authority decided to concentrate its interventions on two priority areas focusing on thematic objectives No. 1 "Strengthening research, technological development and innovation" and No. 4 "Supporting the shift towards a low-carbon economy in all sectors". In addition, it has been decided to use an Integrated Territorial Investment (ITI) based on themes in the two areas in compliance with regulations and sustainable urban development concepts. The areas of intervention recommended by Luxembourg are consistent with the European Commission's position and will ensure continuity with the current programming period, which is already in line with the Europe 2020 strategy. The operational programme "Investment for Growth and Employment" for the period 2014-2020 was adopted by the European Commission on 15 December 2014.

European Territorial Cooperation programmes for 2014-2020 are already in development. The themes relevant to the Europe 2020 strategy selected for the INTERREG North-West Europe trans-national programme with a FEDER budget of €396 million are the following: Innovation, Low carbon emissions and Effective use of materials and resources The themes relevant to the Europe 2020 strategy selected for the INTERREG Europe inter-regional programme with a FEDER budget of €359 million are the following: Strengthening research, technological development and innovation, improving competitiveness of SMEs, supporting the shift towards a low-carbon economy in all sectors, protecting the environment and promoting the rational use of resources.

6. Institutional issues and the role of stakeholders

6.1 Coordination of the distribution of spatial resources

In order to promote better use of resources and to reduce greenhouse gas emissions, it is appropriate to coordinate the distribution of spatial resources and their functions with impacts on primary resources, as well as to optimize the relationships between the various spatial functions. The instruments for this are the four sector plans for housing, transportation, large rural spaces and commercial zones, being drawn up, the reconversion projects in Belval-Ouest and Mersch, as well as the State-Municipality cooperatives that target an equitable and simultaneous assimilation of essential requirements to development of cities and urban areas, through cooperation between the State, local actors, inhabitants and economic players and through a multi-sector approach.

The sector plans went into the adoption procedure at the end of July 2014 in the form of Grand-ducal regulations projects pursuant to the law dated 30 July 2013 for territorial development. On 28 November 2014, the government decided to withdraw the draft Grand-ducal regulations from the procedure phase making sector plans mandatory, which had been intended to provide regulatory tools for territorial planning. This decision was made inevitable after various legal concerns were raised by the State Council. This interruption of the regulatory procedure during which the law on territorial development will be amended will be used to rework the drafts calmly, transparently and in legal certainty while taking into consideration the numerous remarks and suggests submitted by the communes during the public consultation phase.

At present, it may be observed that the economic crisis has hardly diminished pressure on housing, creating new jobs, transportation infrastructure and more generally, land. Luxembourg appears to be growing rapidly but without any significant safety mechanisms in the area of territorial development. Therefore, the major challenges facing land development persist and finalising and getting sector plans into the procedure phase remains the first priority.

In as much as the land development policy of the government is conditioned by prior social-political choices and that it is largely dependent on the various public agencies, a debate was held in Parliament on 19 March 2015 on the process to adopt for sustainable spatial development. The purpose of this was to engage in a broader debate about the possibilities of promoting economic development on sustainable pathways and appropriate with limited territorial resources.

6.2 Ownership on the national level

The government is emphasising a transparent and active information policy and intends to revive the social dialogue that has long been the strength of the country and is a central element of the Luxembourg model.

As an example, several consultations have taken place between the government and the social partners under the aegis of the ESC since the launch of the 2015 European Semester. The first meeting[79] of the Annual Social Dialogue on the European Semester cycle took place in January 2015 and thus inaugurated the new yearly cycle of regular consultation between the

[79] For more details see: http://www.ces.public.lu/fr/actualites/2015/01/semestre-europeen/index.html

government and the social partners. A second meeting[80] took place in March 2015 during which the government presented its principle priorities in drawing up the NRP and the SGP on the basis of the conclusions of the Luxembourg country report published by the European Commission in February 2015.

6.3 Communication

Diverse studies have shown that the resistance that forms to structural reforms is linked to the fact that uncertainty regarding expected future benefits of reforms is often greater than the uncertainty regarding costs incurred. The government attaches particular interest to this challenge and intends to pursue its efforts.

Progress achieved as part of the implementation of the Luxembourg 2020 strategy should have effective follow-up, reporting and evaluation processes. Diverse structural indicators used as part of the Lisbon strategy had a tendency of not taking adequate account of the specific circumstances surrounding Luxembourg, and diverse key indicators of the Europe 2020 strategy still pose a problem. The Tripartite Coordination Committee considered that it would be opportune to publish a "Competitiveness scoreboard" on an annual basis. The latest version of this publication in October, 2014, provides a detailed update of Luxembourg's position relative to the other EU Member countries[81].

[80] For more details see: http://www.ces.public.lu/fr/actualites/2015/03/semestre-europeen/index.html
[81] MINISTERE DE L'ECONOMIE, Bilan compétitivité 2014, Perspectives de politique économique n°29, Luxembourg, octobre 2014. http://www.odc.public.lu/publications/perspectives/PPE_029.pdf

  

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