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WIRTSCHAFTSFORSCHUNG**

**Monitoring of Austria's Efforts
Within the Europe 2020 Strategy**

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September 2013

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Austrian Institute of Economic Research

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Abstract

Following the European Commission's guidelines, WIFO has undertaken a monitoring of the implementation of the Austrian National Reform Programme within the framework of the European 2020 growth strategy. The main components are the development of normative target corridors to assess progress in reaching the five EU 2020 headline goals, the attribution of policy measures within the NRP to a framework of economic growth, the development of a structured analysis for the policy measures, which are assessed following identical criteria, and a more thorough evaluation of selected policy measures. The ultimate objective of the project is to pinpoint Austria's position on its way towards meeting the EU 2020 goals and to assess whether the policies implemented may in principle be sufficient to reach the goals.

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Deutsche Kurzfassung	2
Executive summary	5
1. Introduction: a new European growth strategy	7
2. Target paths for Austria's national Europe 2020 targets	10
2.1 Key target R&D: 3.76% of GDP	10
2.2 Key Target Education: 38% higher education graduates and early school leavers at 9.5%	16
2.3 Key target Employment: 77-78% of the population aged 20-64	22
2.4 Key target Poverty: Number of individuals living in or at risk of poverty -235.000	27
2.5 Key target Environment: The 20-20-20 Targets	30
2.6 Overview of all targets	41
3. How do policies influence economic growth – a short framework for economic growth	47
4. Overview of policies to reach the targets	54
4.1 Analytic grid for assessing the policies put in place to reach the targets	54
4.2 Policies for reaching the R&D target	56
4.3 Improving educational outcomes	60
4.4 Increasing employment	66
4.5 Policies to reduce poverty	69
4.6 Policies for reaching the climate targets	72
4.7 Competition and business framework conditions	77
4.8 Summary assessment	78
5. In-depth analysis of policies	85
6. Conclusions	86
7. References	89
8. Annex: Analytic grid for assessment of measures in the NRP	92

Deutsche Kurzfassung

Die neue Europäische Wachstumsstrategie Europa 2020 versucht, intelligentes, nachhaltiges und integratives Wirtschaftswachstum zu fördern. Österreich hat sich im Rahmen dieser Strategie zur Erreichung von Zielen in fünf Bereichen (Forschung, Bildung, Beschäftigung, Armut und Umwelt) bis zum Jahr 2020 verpflichtet: eine F&E-Quote von 3.76% des BIP, einen Anteil von 38% Hochschulabsolventen an der Bevölkerung im Alter von 30 bis 34 Jahren, einen Anteil der frühen SchulabgängerInnen von weniger als 9.5% an der Bevölkerung im Alter von 18 bis 24, eine Beschäftigungsquote von 77 bis 78% gemessen an der Bevölkerung im Alter von 20 bis 64, eine Reduktion der von Armut betroffenen oder armutsgefährdeten Personen um 235.000, eine Steigerung des Anteils der erneuerbaren Energien auf 34%; die Ziele für Treibhausgasemissionen (vorläufig -16% gegenüber 1990) und Energieeffizienz (vorläufig -7.16 Mtoe) werden offiziell erst 2013 festgelegt.

Österreich befindet sich in fast allen Bereichen beträchtlich über dem EU-Durchschnitt im Sinn eines besseren Niveaus, mit Ausnahme der Hochschulabsolventen, wo Österreich sogar inklusive der Absolventen der berufsbildenden, maturaführenden Schulen (BHS) nicht den Durchschnitt der EU erreicht. Ein Vergleich der historischen Wachstumsraten mit jenen, die notwendig sind, um die Ziele in den einzelnen Bereichen zu erreichen, führt zur in nachfolgender Tabelle zusammengefassten Einschätzung: die F&E-Ausgaben des privaten Sektors befinden sich nicht auf ihrem Zielpfad, während die öffentlichen F&E-Ausgaben, Beschäftigung, Bildung und der Anteil der Erneuerbaren Energien auf ihr Ziel zusteuern. Das Armutsziel ist derzeit auch auf dem Zielpfad, die längerfristigen Trends mahnen aber zur Vorsicht.

Tabelle: Zielerreichung in den fünf Bereichen

Indikator	Ziel	Ziel v.s. aktueller Wert (Ziel = 100)	Zielprognose 2020 (Wachstum letztes Jahr)	Zielprognose 2020 (Wachstum 2000-2012)
F&E-Quote	3.76	74	3.28	3.38
Hochschulabsolventen in 30-34j. Bevölkerung	38	94	38.50	39.40
SchulabgängerInnen in 18-24j. Bevölkerung	9.5	114	Ziel erreicht	Ziel erreicht
Beschäftigungsquote (20-64j. Bevölkerung)	77-78	96-98	77.90	79.52
Zahl der armutsgefährdeten Personen	-235 000	92	181 000	-122 429
Treibhausgasemissionen	na	na	na	na
Erneuerbare Energien (Anteil)	34	91	29.80	42.80
Energieeffizienz	na	na	na	na

Der Zielfortschritt sollte aber nicht eng definiert für die Prioritätensetzung innerhalb der österreichischen Europa 2020 Ziele eingesetzt werden, nicht zuletzt wegen des unterschiedlichen Anspruchsniveaus der Zielsetzungen. Anstrengungen im Bereich Umwelt und Wirtschaft sollten vielmehr auf einer umfassenden Einschätzung der Bestimmungsfaktoren von intelligentem, nachhaltigem und integrativem Wirtschaftswachstum beruhen. Die Interpretation der Zielfortschritte sollte weiter Zielkonflikte und Interdependenzen zwischen den Zielen berücksichtigen. Beispielsweise kann sich das Ziel der Steigerung der Hochschulabsolventen positiv auf die Erreichung der F&E-Quote auswirken, indem es Strukturwandel in Richtung forschungsintensive-

re Sektoren begünstigt. Eine Reduktion der frühen SchulabgängerInnen ergänzt sehr gut die Beschäftigungs- und Armutsziele, nachdem Bildungsleistungen sehr wichtig für die Beschäftigung niedrig Qualifizierter und für die Armutsprävention sind. Zielkonflikte können zwischen dem F&E- und Beschäftigungsziel einerseits und den Umweltzielen andererseits entstehen, nachdem derzeit noch keine absolute Entkopplung von Treibhausgasemissionen und Energieverbrauch vom Wirtschaftswachstum in Österreich verzeichnet werden kann.

Die Maßnahmen im Nationalen Reformprogramm (NRP) werden in einen Wachstumsrahmen eingeordnet. BIP pro Kopf Wachstum lässt sich auf die Beiträge der Arbeitsproduktivität und die Nutzung der potenziell verfügbaren Arbeitsleistung zurückführen. Die meisten Maßnahmen innerhalb des NRP zielen auf eine der beiden Komponenten ab. Sie sollten aber nur als Spitze eines Eisbergs begriffen werden, denn insgesamt ist eine viel größere Zahl von Maßnahmen und institutionellen Rahmenbedingungen an der Förderung von Arbeitsproduktivität- und -nutzung beteiligt (der Teil des Eisbergs unter Wasser). Eine positive Entwicklung von Produktivität und Arbeitsleistung hängt von vielen Faktoren ab, die nur schwer gesamthaft zu erfassen sind. Im Nationalen Reformprogramm sollten idealerweise nur jene Faktoren und Maßnahmen aufgeführt werden, die besonders wichtige Ansatzpunkte bzw. Engpässe für die Verbesserung darstellen, anders ausgedrückt die bedeutsamsten Defizite für eine weitere positive Entwicklung.

Die Einschätzung, ob die Maßnahmen im NRP diese Engpässe adressieren und ob die Maßnahmen ausreichen, die Ziele zu erreichen, beruht auf der Zusammenführung der Maßnahmeneinschätzung selbst und den historischen Wachstumsraten in den einzelnen Bereichen. Im Bereich F&E besteht eine umfassende Strategie (FTI Strategie 2020), die fast alle Engpässe berücksichtigt, um sowohl die F&E-Quote als auch intelligentes Wachstum insgesamt zu fördern. Dementsprechend kommt es hier auf die Umsetzung an.

In den anderen Bereichen gibt es in der Regel signifikante Maßnahmen, die auf die Beseitigung wesentlicher Engpässe abzielen. Einige Engpässe werden derzeit aber noch nicht adressiert, wie z.B. die frühe Trennung nach Fähigkeiten von Schulkindern im Alter von 10 für das Hochschulabsolventenziel, die Vorverlegung der Pensionsalterharmonisierung zwischen Männern und Frauen für das Beschäftigungsziel und Umweltmaßnahmen, die auf einer Veränderung von Preissignalen beruhen, etc. Die Maßnahmen sollten dennoch ausreichend für die Zielerreichung im Bereich Beschäftigung, Bildung und erneuerbare Energien sein. Die Maßnahmen für die Armutsreduktion sollten aus heutiger Sicht ebenfalls zum Ziel führen, unter der Voraussetzung einer effektiven Umsetzung. Trotz der umfassenden Strategie wird die F&E-Quote bis 2020 aber kaum erreicht werden können, nachdem Strukturwandel nur langsam vor sich geht. Hier ist eine möglichst rasche Umsetzung und ehestmögliche Wirkungsevaluierung angezeigt, um noch rechtzeitig gegensteuern zu können. Besonders mit Blick auf das F&E-Quotenziel sollten die Ziele nicht eng interpretiert werden, sondern aus einer breiten Wachstumssicht. Treibhausgasemissions- und Energieeffizienzziele werden offiziell erst 2013 gesetzt, ihre Erreichung wird wahrscheinlich herausfordernd, nachdem die Wachstumsschuldynamik in den letzten Jahren ungünstig verlief.

Diese Einschätzung sollte mit sehr großer Vorsicht interpretiert werden. Sie beruht nicht auf einer vertiefenden Analyse der Maßnahmen. Zudem ist die Vergangenheit in der Regel kein besonders guter Projektionsfaktor und externe Ereignisse wie z.B. eine sich vertiefende Krise des Euroraums könnten schwerwiegende Folgen auf die Zielerreichung haben. Selbst wenn Ziele sich auf ihren Zielpfaden befinden, sollte dies daher kein Grund für ein Nachlassen der Anstrengungen darstellen. Die Einschätzung des NRP sollte aber eine breite Orientierung für Maßnahmenrichtungsentscheidungen liefern, im Sinn von welche Hauptansatzpunkte bestehen für Maßnahmen zur Zielerreichung, werden diese Hauptansatzpunkte prinzipiell durch das NRP adressiert.

Insgesamt zeichnen sich Österreichs Anstrengungen, die Europa 2020-Ziele zu erreichen, durch eine Vielzahl von Maßnahmen aus; wo sich Ziele nicht auf ihren Zielpfaden befinden, bestehen ausgewogene Maßnahmenpakete (F&E); wo sich Ziele auf ihren Zielpfaden befinden, werden einige Engpässe nicht adressiert. Ein in-Angriff-nehmen dieser Engpässe könnte in diesen Bereichen daher sogar zu einer Zielübererfüllung führen. Besonders im Bereich der Hochschulabsolventen könnte dies dazu führen, dass sich Österreich auch in diesem Bereich über dem EU-Durchschnitt positioniert, allerdings aufgrund der zeitlichen Wirkungsverzögerungen erst nach 2020. Der Bildungsbereich insgesamt ergänzt sich sehr positiv mit anderen Zielbereichen wie z.B. F&E, Beschäftigung und Armut, sodass Maßnahmen im Bereich Bildung selbst als die Beseitigung eines wesentlichen Engpasses interpretiert werden können.

Executive summary

The new European growth strategy Europe 2020 aims to foster smart, sustainable and inclusive growth. Within this strategy, Austria has committed to headline targets in five areas: R&D of 3.76% of GDP, a share of higher education graduates in the population aged 30-34 of 38%, a share of early school leaving of 9.5%, 77-78% employment rate of the population aged 20-64, a reduction of 235.000 individuals living in or at risk of poverty, and a share of renewable energies of 34%. The targets for greenhouse gases (-16%) and for energy efficiency (-7.16 Mtoe compared with baseline) will officially only be set in 2013.

Overall Austria performs well as regards (above the EU average) R&D levels, employment, early school leavers, poverty and the environmental goals (greenhouse gas emissions' intensity, energy efficiency, share of renewables). Only in higher education is Austria below the EU average, even when graduates from upper secondary vocational education (Isced 4a) are included.

The analysis of previous trends and the comparison with growth rates required to reach the targets belie the fact that private R&D expenditure is not on track, while public R&D expenditure, employment, education and the share of renewables are on track. This is not least related to the fact that targets differ in their level of ambition. Poverty is currently better than target, but trends need to be monitored closely.

Progress towards reaching the targets should not be viewed in a narrow sense to merely guide priority-setting in efforts towards reaching Europe 2020 goals and nothing more. Economic and environmental efforts should be based on a comprehensive assessment of the determinants and drivers of smart, sustainable and inclusive growth. Interpretation of targets should take account of conflicts but also areas where targets overlap or indeed complement each other (complementarities).

There is high complementarity between R&D and higher education; higher education nudges structural change towards more R&D intensive industries. There is also high complementarity between early school leavers, employment and poverty, as educational outcomes are crucial to fostering the employment of the low-qualified and to prevent people from becoming poor. There may be conflicts between performance goals such as R&D and employment, which tend to go hand in hand with GDP growth, and environmental goals: so far, no absolute decoupling of growth from greenhouse gases or energy consumption has been observed in Austria.

The policies contained in the National Reform Programme (NRP) are assigned to a framework explaining factors behind economic growth. GDP per head growth can be broken down into labour productivity and labour utilisation. Basically, most measures in the NRP drive either labour productivity or labour utilisation. The measures in the NRP should be seen as the tip of an iceberg. The bulk and indeed the foundation might not be visible under water but is absolutely essential (not mentioned in the NRP) and here equates to the large variety of policies

and institutional settings underpinning performance in the various areas in terms of labour productivity and labour utilisation. The NRP should ideally concentrate on the most important key policy options for or bottlenecks on the way to reaching the targets.

Assessing whether the NRP measures address key policy options and whether the measures announced are sufficient to reach the targets is based on a combination of policy assessment and past performance trends. In R&D, there is a comprehensive innovation strategy by the Austrian government which addresses almost all key policy options to both increase R&D intensity and to foster smart growth. Hence here the focus should be on implementation. In the other areas, there are usually several substantial measures addressing important bottlenecks, but also key policy options left unaddressed, such as e.g. early streaming for the higher education target, no earlier harmonisation of the statutory retirement age between men and women for the employment target, few policies affecting price signals in the environmental domain etc. Currently the envisaged measures should be sufficient in the case of the targets for employment, education and renewables; in poverty, an effective implementation of measures will be particularly important. However, the measures for R&D are probably insufficient (given the target horizon of 2020, as structural change is slow). However, a comprehensive policy set has been announced which if implemented should significantly boost smart and inclusive growth. Especially as regards R&D, targets should not be interpreted narrowly but seen from a broader angle of smart growth. Greenhouse gases and energy efficiency are only setting their targets officially in 2013, but reaching them will be challenging as the growth dynamics have been unfavourable.

Of course, such an assessment has to be regarded with extreme caution. First of all, it is not based on an in-depth evaluation of policies. Furthermore, the past is rarely a good guide to the future. External events such as a deepening euro crisis may at any time knock the current trends off track leaving the target unachievable. Even if efforts are on track, we must guard against complacency. The assessment should merely broadly orientate policy makers in their decisions.

Overall, Austria's efforts to reach the Europe 2020 targets have led to the implementation of a multitude of measures; where targets are not on track, there are well-balanced policy packages in place (R&D); where targets are on track a couple of key policy options have not as yet been addressed which, if addressed, could lead to going above and beyond the target. Particularly in higher education, this could lead to Austria positioning itself above the EU average also in this area, as it is above the EU average in all the other areas. Education in general complements and is linked to so many other target areas, such as R&D, employment and poverty, that it should be regarded as a key policy option in itself.

1. Introduction: a new European growth strategy

In March 2010, the European Commission proposed a new European growth strategy called "Europe 2020 – A European strategy for smart, sustainable and inclusive growth", succeeding the Lisbon Strategy which covered the first decade of the new millennium. There are several components for each country – 3 growth priorities, key performance targets in five areas and seven flagship initiatives or core policy initiatives containing policy proposals aimed at reaching the targets.¹

The three growth priorities qualify the kind of growth the European Union has in mind. First, growth should be smart through investments in education, research and innovation; second, it should be sustainable both from an environmental and a competitiveness point of view; third, it should be inclusive, i.e. lead to rising employment and lower poverty. The targets in five key areas and the flagship initiatives mirror the efforts to achieve these three priorities.

- Smart growth
 - Targets
 - R&D: 3% of the EU's GDP to be invested in R&D
 - Education: at least 40% of 30-34-year-olds completing third level education, Reducing school drop-out rates below 10%
 - Flagship initiatives
 - Digital agenda for Europe
 - Innovation Union
 - Youth on the move
- Inclusive growth
 - Targets
 - Employment: 75% of the 20-64 year-olds to be employed
 - Poverty: at least 20 million fewer people in or at risk of poverty and social exclusion
 - Flagship initiatives
 - An agenda for new skills and jobs
 - European platform against poverty
- Sustainable growth
 - Targets
 - greenhouse gas emissions 20% lower than 1990 levels
 - 20% of energy from renewables
 - 20% increase in energy efficiency

¹ For a comprehensive yet concise presentation of the Europe 2020 strategy see http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/index_en.htm

- Flagship initiatives
 - Resource efficient Europe
 - An industrial policy for the globalisation era

A key weakness of the Lisbon Strategy, only partially addressed by the mid-term changes in 2005, was the lack of commitment to implement reforms at the national level. As a result, the Europe 2020 strategy is implemented using a much more complex governance model supposed to foster commitment to reforms at the national level. At the outset of the new strategy, the European Commission and the Member States formulated the so-called Integrated Guidelines, or guidelines for overall economic policy coordination. As opposed to the Lisbon Strategy, the Member States choose national adaptations of the European key targets, so that there are national goals for each Member State. These of course are more tailored and take account of the large differences between Member States' economic, social and environmental development. The result is that the targets should also be more realistic and increase commitment at the national level to their achievement, rather than prescribing, e.g. an R&D ratio of 3% of GDP to a country currently featuring a ratio of 0.6% of GDP (Bulgaria) and to a country featuring a ratio of 3.9% (Finland). Average, European-wide targets are too ambitious for some and not ambitious enough for others. As a consequence of the key targets and the other common European components (flagship initiatives integrated guidelines), the National Reform Programmes remain coordinated, without failing to address national issues.

The yearly governance mechanism is referred to as the European Semester². This starts at the end of each year with the annual growth survey – which doubles up as a progress report on reaching the targets at the European level and as a report outlining reform priorities again at the European level. In April of the following year, the EU Member States submit their plans for sound public finances (Stability or Convergence Programmes SCP) and reforms and measures to make progress towards smart, sustainable and inclusive growth (the National Reform Programmes NRP). In June, the European Commission assesses these programmes and provides country-specific recommendations as and where appropriate. The Council discusses and the European Council endorses the recommendations. Finally, at the end of June or in early July, the Council formally adopts the country-specific recommendations (CSR).

In addition to the SCPs, NRPs and the CSRs, reform commitments by Member States are pledged or required in the Euro Plus Pact (concerning Euro Area Member States plus a number of non-Euro Area Member States participating voluntarily). Judging by the necessary elements in a strategy to guarantee its success, the Europe 2020 strategy has definitely made great progress in comparison with Lisbon 2020: there are a handful of core targets, a vision for the future and at the same time a very detailed governance mechanism outlining possible ways to reach these targets. The overall success of the strategy will depend on solving the

² See http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/economic-governance/index_en.htm.

current financial and debt crisis; and on the Member States' efforts to implement reforms at the national level.

In this report, WIFO assesses the implementation of the Austrian National Reform Programmes, i.e. the measures implemented/suggested in order to reach the targets. The main components of this report are the developing of target paths to assess the progress in reaching the EU 2020 headline goals; showing the relationship between policy measures within the NRP and a framework of economic growth; and developing a structured analysis for the policy measures. The ultimate objective of the analysis is to pinpoint Austria's position on its way towards meeting the EU2020 goals and to assess whether the policies implemented or proposed are in principle sufficient to reach the goals, or whether important policies needed to reach the targets are lacking. As such, the report wants to support Austria's efforts to reach the targets by providing timely information to policy makers on where additional efforts are needed and on where the efforts in place seem to be well on track.

2. Target paths for Austria's national Europe 2020 targets

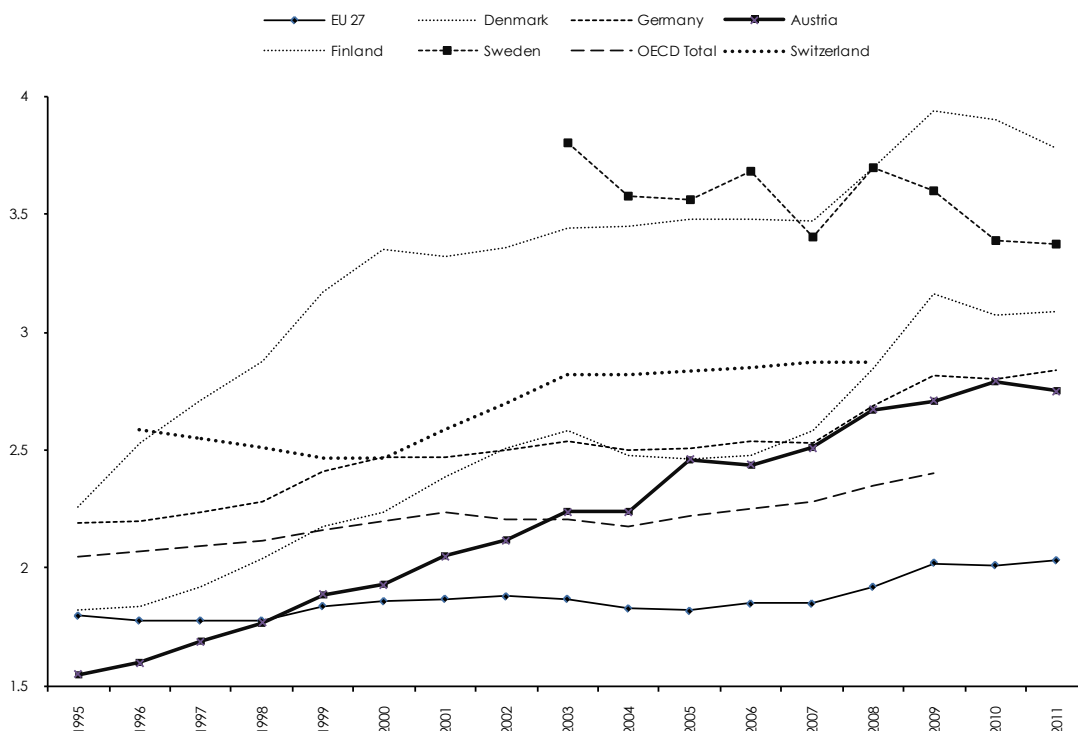
This chapter illustrates the implementation of the European headline targets at the national level. For each target area – R&D, education, employment, poverty and environment – we first outline past trends before we show target paths. These target paths are normative paths based on constant growth rates, i.e. the distance to the target from the actual value in 2010 shrinks each year by the same relative amount. They are not forecasts of target values, which would be highly questionable given the long time horizon (2020). Their simple purpose is to provide a yardstick against which actual values can be compared. The yearly target values should not be taken as an economic goal per se, what matters is the goal for the year 2020. The yearly comparison between target and actual value however indicates Austria's current position which can inform policy making. The dynamics necessary for reaching the goals will be compared with past trends to assess the probability of reaching the targets. From this analysis, it is in principle possible to prioritise policy areas needed to catch up on targets where current or past performance is well below the required performance. By the same token policies for reaching targets where current performance is on track do not need special emphasis or intensification. Of course, such decisions should not be made only on the basis of the targets but against the background of a comprehensive assessment of the requirements for smart, inclusive and sustainable growth.

2.1 Key target R&D: 3.76% of GDP

- Past trends

Austria's share of R&D in GDP has risen substantially over the past 10-15 years, faster than any other EU Member State in terms of percentage points. In the year 2000, it stood at about 1.9%, approximately the same as the EU-27 average. The latest data shows a share of about 2.8%, well above the European average by almost a full percentage point (Figure 1). Austria is now, in terms of its R&D ratio, among the so-called innovation leaders of Finland, Sweden, Denmark and Germany. This development comes as a result of pronounced efforts to increase public promotion of R&D expenditure by firms, and probably also as a result of Austria's joining the European Union, where firms had to improve their competitiveness facing both sophisticated firms from Germany and Italy, but also increasing competition from firms in the new EU member states to the east of Austria, which have a labour cost advantage.

Figure 1: R&D ratios in comparison, 1995-2011



Source: Eurostat, OECD, WIFO.

- Target path 2020

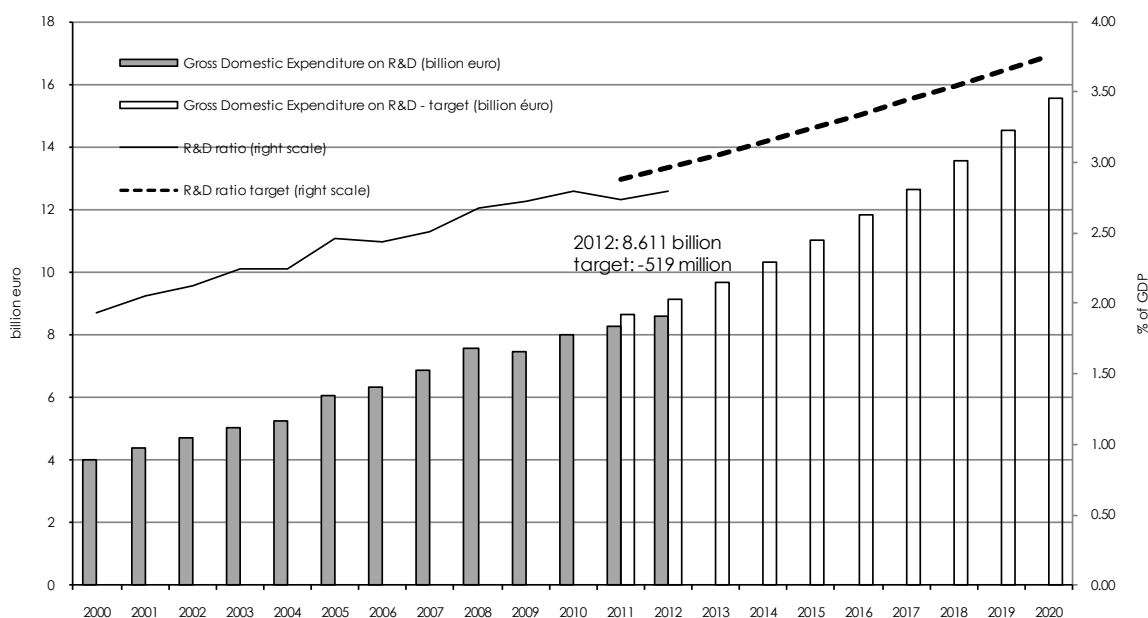
Austria intends to repeat its impressive R&D growth performance in the current decade to reach the Europe 2020 target, judging from its target of 3.76% which is another percentage point higher than the current level. How do R&D expenditures have to increase to reach this target? Figure 2 and Table 2 show the target path for gross domestic expenditure on R&D. The target path is based on i) the actual R&D ratio in the year 2010, the target value in the year 2020 and the cumulative annual growth rate between those two values. It needs to be mentioned that the R&D ratios from 2010 to 2012 are flagged as actual, whereas they are based on estimation by Statistik Austria. However, previous experience shows that the difference between this and the final figure is not large. Final data for 2011 will be published in 2013. The corridor is also based on ii) short- and medium-term GDP projections by WIFO up to 2016 (Glocker, 2012; Ederer et al., 2012); for the years 2017-2020 a nominal GDP growth of 4% per year is assumed according to empirical studies of Austria's real trend growth rate of close to 2% and according to the ECB's inflation target of below, but close to 2% (Gaggl - Janger, 2009). The impact of deviations from this assumption on R&D expenditures is shown in Figure 5 to be limited.

Based on these data, Austrian R&D expenditures would have to almost double from € 7.9 bn in 2010 to €15.5 bn in 2020. The growth rate of expenditure in 2010-2020 would be almost as

high (6.9%) as during 2000-2010 (7.1%). As is obvious from Figure 2 and Table 2: R&D expenditures and expenditure targets, 2000-2020, Austria is currently not on track to meet this target, as the actual R&D ratio is 0.16 percentage points below the target value for 2012; R&D expenditure is approx. € 0.5bn behind the target.

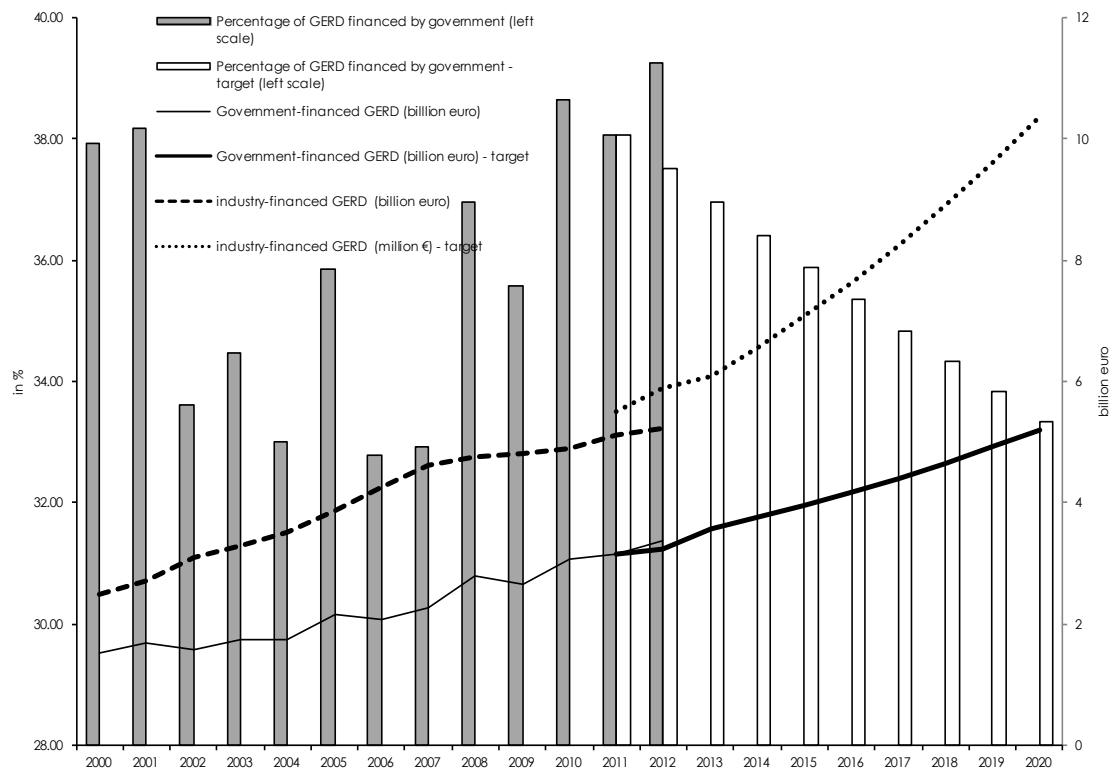
In addition to the target for the R&D ratio which mirrors the European-wide target, the Austrian government has set itself a target for the distribution of R&D expenditure between the public (30-33%) and the private sector (67-70%), inspired by a similar European target during the Lisbon Agenda. Table 2 and figure 3 show that the reason for R&D expenditure being below target is the private sector. The public sector is actually slightly above target. Public expenditure share is at 39.2% compared with a target value of 35.4%. As is also obvious from Figure 2, the increase in the R&D ratio has significantly slowed down recently. Provided that R&D ratios for 2010 to 2012 are not substantially revised, bringing R&D expenditure back to the target track will be challenging, as public expenditure is already above target and public financing of business R&D is quite high in Austria (see Figure 4, based on data from 2007; since then, Austria has further increased direct and fiscal support for business R&D). In fact, the national targets for the share of public R&D expenditure would imply the much slower growth of public expenditure over the period 2010 to 2020 (5.3%, or 4.8% for the remaining period 2012-2020, rather than 7.3% in 2000-2010), whereas business expenditure growth would have to accelerate significantly (from 7 to 8.9% for the remainder of the Europe 2020 timeframe, 2012-2020).

Figure 2: Target path for R&D expenditures, 2010-2020



Source: Statistik Austria, WIFO. R&D ratios 2010-2012 are estimations by Statistik Austria, so may be subject to revisions.

Figure 3: Target path for R&D expenditures, public vs. private financing of R&D, 2010-2020



Source: Statistik Austria, WIFO. R&D ratios 2010-2012 are estimations by Statistik Austria, so may be due to revisions.

- Past vs. required growth dynamics

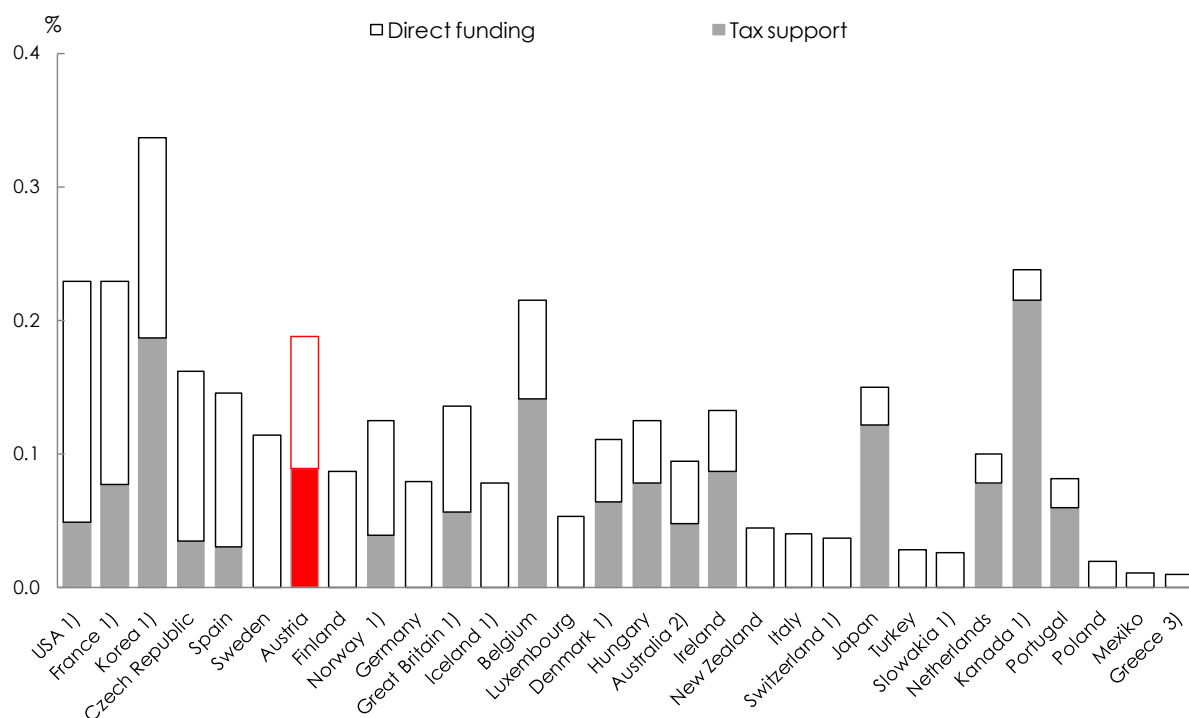
Table 1 further documents the extent of the challenge. A “growth” differential between the past period 2000 to 2012 and the remaining period 2012-2020 is calculated to show how past dynamics compare with the dynamics required for reaching the targets (“probability of reaching target”). A negative number indicates that past trends are below the required growth and would point to the need for increasing efforts. Past dynamics are 0.03 percentage points behind the dynamics required; in the next column of table 1, current performance is shown as a comparison between last year’s growth of the R&D ratio and required dynamics. This could be useful to pick up more positive recent trends; in this case, current performance is not better. Based on the growth performance of the latest available year and of the period 2000-2012, target forecasts of R&D as a % of GDP amount to 3.28% and 3.38%, respectively.

Table 1: Assessment of growth dynamics and target forecasts based on past trends, in percentage points

Indicator	actual v alue 2012(1)	target v alue 2020 (2)	past growth rate per year 2000-2012(3)	required growth rate per year 2012-2020 (4)	growth last year 2011 (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast 2020 on the basis of (1) und (5)	target forecast 2020 on the basis of (1) und (3)
R&D ratio	2.80	3.76	0.07	0.10	0.06	-0.03 (70%)	-0.04 (60%)	3.28	3.38

Source: Statistik Austria, WIFO.

Figure 4: Government funding of business enterprise R&D, 2007 direct funding and tax support, % of GDP



Source: OECD. Note: 1) 2008. - 2) 2006. - 3) 2005.

Table 2: R&D expenditures and expenditure targets, 2000-2020

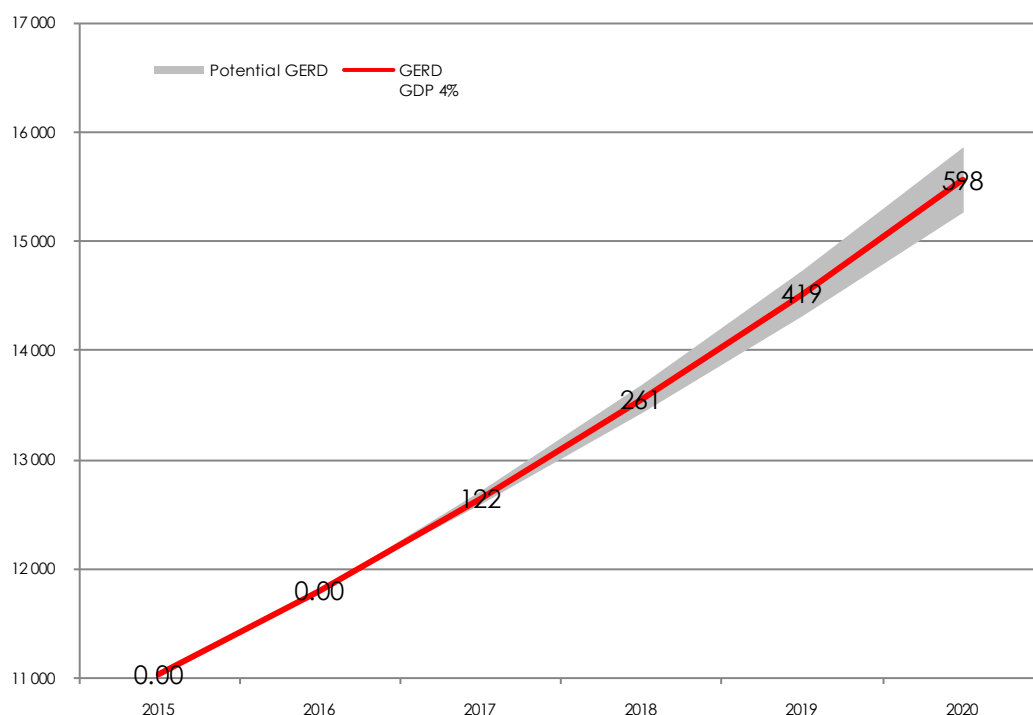
	nominal GDP (million €)	Gross Domestic Expenditure on R&D - GERD (million €)		R&D ratio (of GDP)		Government- financed GERD (million €)		Percentage of GERD financed by government		Industry- financed GERD (million €)	
		target	actual	target	actual	target	actual	target	actual	target	actual
1998	191,910	3,400		1.77%		1,285		37.78%		2,115	
1999	199,270	3,762		1.89%		1,463		38.88%		2,299	
2000	208,470	4,029		1.93%		1,528		37.93%		2,501	
2001	214,200	4,393		2.05%		1,677		38.18%		2,716	
2002	220,530	4,684		2.12%		1,574		33.61%		3,110	
2003	225,000	5,042		2.24%		1,738		34.46%		3,304	
2004	234,710	5,250		2.24%		1,732		33.00%		3,517	
2005	245,240	6,030		2.46%		2,161		35.84%		3,869	
2006	259,030	6,319		2.44%		2,071		32.78%		4,247	
2007	274,020	6,868		2.51%		2,261		32.92%		4,607	
2008	282,750	7,548		2.67%		2,789		36.95%		4,759	
2009	274,820	7,480		2.72%		2,662		35.58%		4,818	
2010	286,400	7,984		2.79%		3,085		38.64%		4,899	
2011	300,710	8,644	8,263	2.87%	2.74%	3,146	3,146	36.39%	38.07%	5,498	5,117
2012	308,270	9,130	8,611	2.96%	2.80%	3,230	3,381	35.38%	39.27%	5,900	5,229
2013	316,902	9,669		3.05%		3,574		36.96%		6,095	
2014	328,310	10,321		3.14%		3,759		36.42%		6,562	
2015	340,786	11,038		3.24%		3,961		35.89%		7,077	
2016	353,736	11,804		3.34%		4,174		35.36%		7,630	
2017	367,885	12,648		3.44%		4,407		34.84%		8,241	
2018	382,600	13,552		3.54%		4,653		34.33%		8,900	
2019	397,905	14,521		3.65%		4,912		33.83%		9,609	
2020	413,821	15,560		3.76%		5,187		33.33%		10,373	
growth rate 2000-2010	3.2%	7.1%				7.3%				7.0%	
growth rate 2010-2020		6.9%				5.3%				7.8%	
growth rate 2011-2012	2.5%	4.2%				7.5%				2.2%	
growth rate 2012-2020	3.7%	7.7%				4.8%				8.9%	

Source: Statistik Austria, WIFO.

Figure 5 illustrates the impact of GDP taking a different course than that assumed for the years 2015 to 2020. Of course, this is a purely hypothetical exercise as it treats R&D as being exogenous; the crisis from 2008-2010 has shown that R&D financing by firms reacts procyclically. Also, it takes WIFO GDP projections as given, but of course deviations are possible here too. The point of showing different paths for GDP is merely to give an idea about possible orders of magnitude. Figure 5 shows that these are rather small (approx. 4% of the main R&D

expenditure scenario, € 598 million between the minimum and the maximum GDP deviation assumed).

Figure 5: Impact of GDP deviation from trend path, 3.5 to 4.5%, 2015-2020



Source: WIFO.

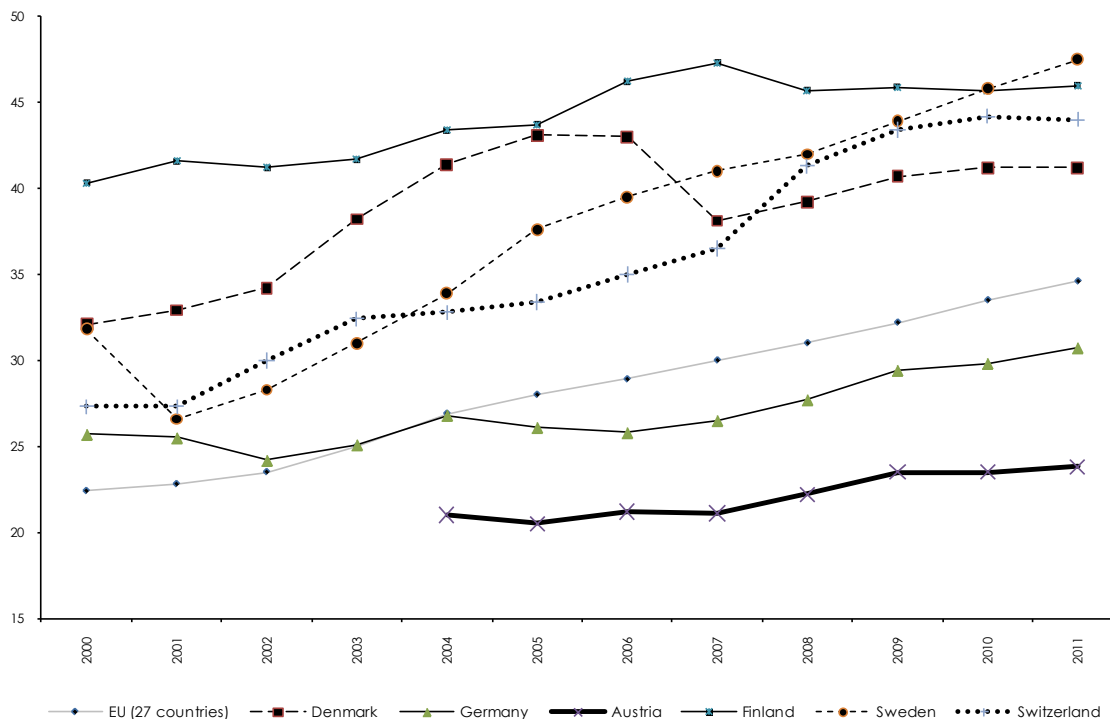
2.2 Key Target Education: 38% higher education graduates and early school leavers at 9.5%

- Past trends

Table 4, Figure 6 and Figure 7 show past trends for higher education and early school leavers. Fewer people obtain a tertiary education qualification in comparison with the EU/OECD average (ISCED 5, 6; Figure 6): in 2009, the share of the highly skilled adult population amounted to 19% compared to the 30% OECD average and 27% EU 21 average (OECD Education at a glance, 2011). When discussing higher education in Austria, one needs to point out Austria's vocational education system which leads to professional qualification early on and a relatively low share of higher education graduates. Nearly 60% of 25-64 year olds have an upper secondary qualification (18% below upper secondary, 19% tertiary education, i.e. 82% at least upper secondary education), and over 90% with upper secondary education have a vocational education (ISCED 3, 4). In particular, the Austrian government has often argued that

graduates from upper secondary vocational schools such as HTL, HAK etc. which take five years to complete and lead to A-levels at the age of 19, are equivalent to shorter tertiary studies in other countries. This is why the government (together with Germany) included this qualification level (ISCED 4a: 12% in 2011) in its national target.

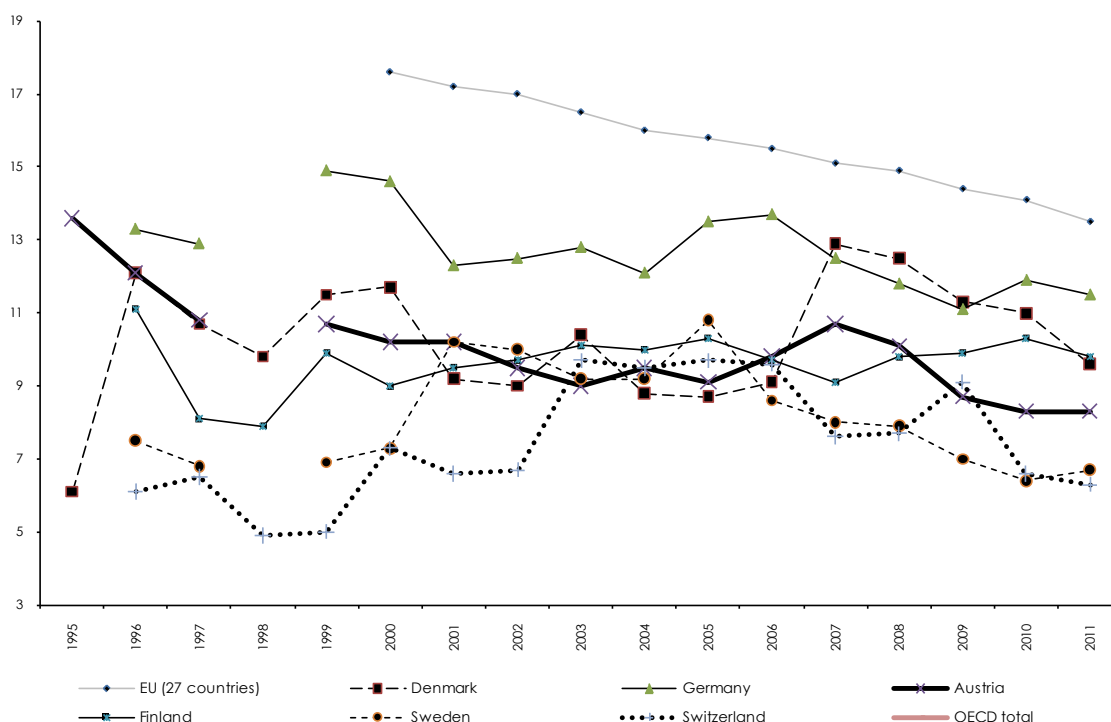
Figure 6: Population aged 30-34 with tertiary educational attainment level, 2000-2011



Source: EUROSTAT.

As regards early school leavers, between 2000 and 2008, early school leaving (ESL) fluctuated at around 10% in Austria, but decreased to 8.3% in 2010 and 2011, well below the EU average (2011: 13.5 %; Figure 7). Nevertheless, socio-economic background has a strong influence on achievement in the Austrian education system, and pupils from a disadvantaged background face a much higher risk of dropping out “early” than their richer peers.

Figure 7: Early leavers from education and training aged 18-24, 1995-2011



Source: EUROSTAT.

- Target path 2020

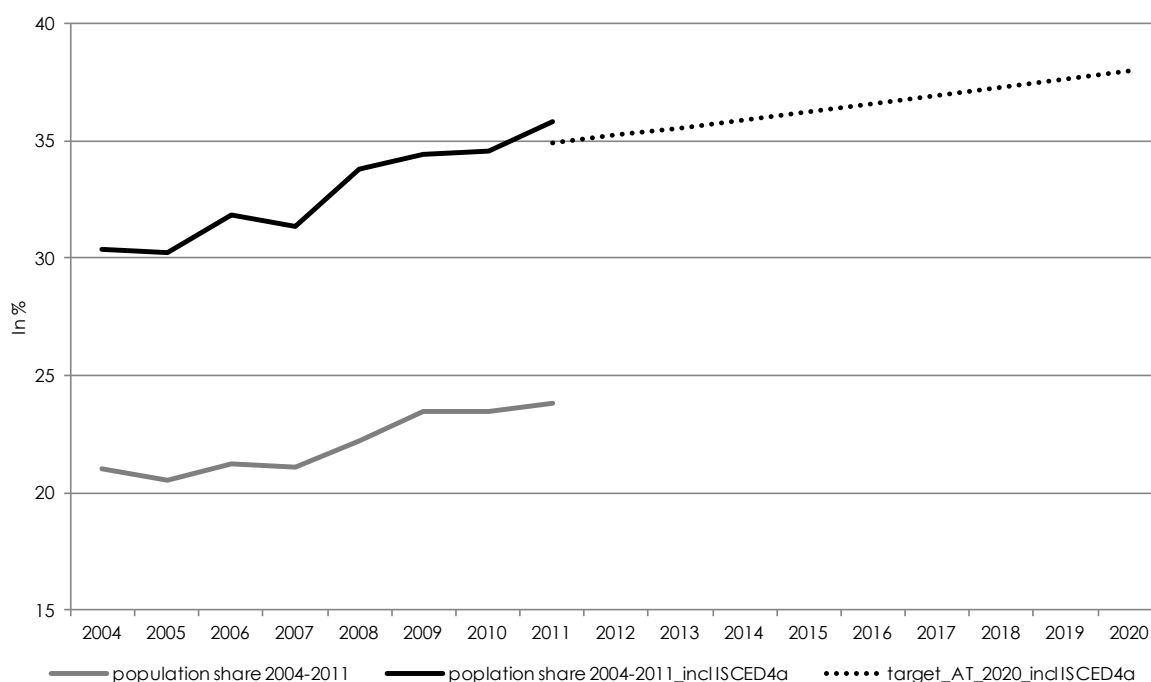
Education is one of the five targets of the Europe 2020 Strategy, its aim being to prevent skills bottlenecks in knowledge-intensive economic sectors. The Europe 2020 Strategy set two headline targets for education, one for the highly skilled and one for early school leavers. In the area of higher education, at least 40% of 30-34 year olds should have a tertiary degree or an equivalent qualification in the EU by 2020 to keep up with technological progress and global competition. Another obstacle to economic growth is early school leaving which hampers not only productivity and competitiveness but also leads to fewer job opportunities, higher unemployment risk, poverty and social exclusion. As regards early school leaving, school drop-out rates should be reduced to below 10% by 2020. Translated into national targets Austria has committed itself to increase the share of 30-34 year olds with a tertiary degree or an equivalent qualification to 38% by 2020. The second headline target is to bring down the rate of early school leavers to 9.5% by 2020.

Higher education target

Between 2005 and 2010 the share of the highly skilled population aged 30-34 grew on average by 0.7 percentage points per year. In 2011, the share of the population aged 30-34 having completed a tertiary education or equivalent was 35.8% in Austria (including ISCED 4a), i.e. 2.2 percentage points below the national target for 2020, but 0.9 percentage points

above the target value for the year 2011 which follows from a constant growth approximation to the target value in 2020. Table 4 and figure 8 show the evolution of the share of the highly skilled population aged 30-34 between 2004 and 2011 with and without ISCED4a, together with the line (ISCED 5/6 plus ISCED 4a) projecting the necessary growth pattern that is needed to achieve the national target of 38% in 2020.

Figure 8: Population aged 30-34 with tertiary educational attainment level (or equivalent qualification; including ISCED 4a)



Source: EUROSTAT, WIFO-calculations.

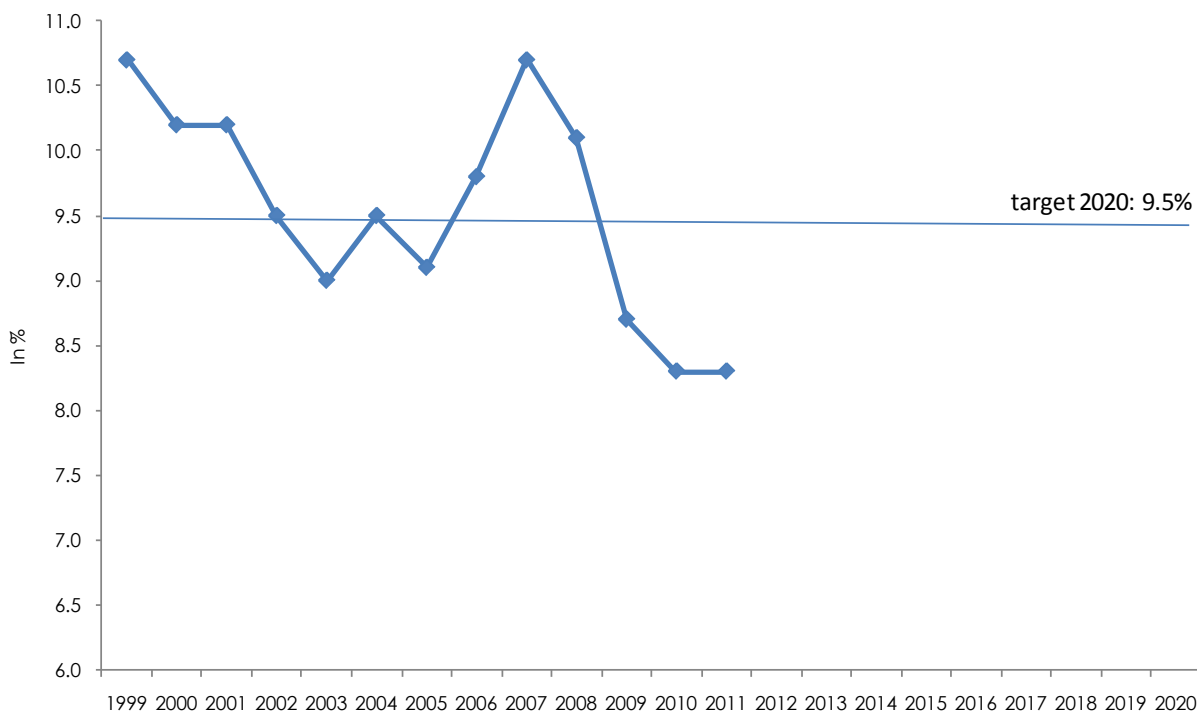
Early school leaving³

Between 2000 and 2008, early school leaving (ESL) fluctuated at around 10% in Austria, but decreased to 8.3% in 2010 and 2011, well below the EU average (2008: 10.1 %). The reasons for the fluctuations are not precisely known, it may be a statistical artefact as the data are based on the labour force survey which draws on a sample of the population (for details see Steiner, 2009). So Austria has actually already reached the core objective for the drop-out ratio (9.5 per cent). However, data on early school leaving according to migrant status still show very high gaps in Austria; this group is 3.5 times more likely to leave school early than

³ Early leavers from education and training refers to persons aged 18 to 24 fulfilling the following two conditions: first, the highest level of education or training attained is ISCED 0, 1, 2 or 3c short, second, respondents declared not having received any education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding no answers to the questions "highest level of education or training attained" and "participation to education and training". Both the numerators and the denominators come from the EU Labour Force Survey.

Austrians. The next figure shows the changes in the share of early leavers from education and training aged 18-24 between 1999 and 2011.

Figure 9: Early leavers from education and training in the age cohort 18-24



Source: EUROSTAT, WIFO-calculations

- Past vs. required growth dynamics

To achieve the higher education goal of 38% in 2020, each year an additional .26 percentage points is required (Table 3). If we compare this to last year's growth (.30 percentage points) there is a positive growth differential of 0.04 percentage points; if we compare it to growth over the period 2004-2011, there is a positive differential of 0.14 percentage points. Both the short-term and the medium-term suggest that reaching the higher education target will be possible. This is also obvious from the gradient of the lines representing the previous trend and the trend necessary to reach the target in Figure 8. However, in terms of numbers of graduates (Table 4), an additional 30.000 individuals in the age group 30-34 will have to attain tertiary or ISCED 4a qualifications by 2020. This corresponds to a growth rate of 1.5% over the period 2012-2020 while the growth rate in 2005-2010 amounted to just 0.1%. Nevertheless, given current student number trends and efforts to introduce a formula based unit cost model which should significantly increase the success rate of students, we think that the higher education target is well on track.

We do not calculate required growth dynamics for early school leaving, as here the target is already reached. Table 5 shows past dynamics.

Table 3: Share of population aged 30-34 with tertiary education: Assessment of growth dynamics and target forecasts based on past trends, in percentage points

Indicator	actual value 2011 (1)	target value 2020 (2)	past growth rate per year 2004-2011 (3)	required growth rate per year 2011-2020 (4)	growth last year 2011 (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast 2020 on the basis of (1) und (5)	target forecast 2020 on the basis of (1) und (3)
Tertiary education graduates age 30-34	35.80	38.00	0.40	0.26	0.30	0.14 (154%)	0.04 (117%)	38.5	39.40

Source: EUROSTAT, WIFO-calculations.

Table 4: Share of population aged 30-34 with tertiary education (or equivalent qualification; including ISCED 4a) and qualification targets, 2004-2020

	Population aged 30-34	Population aged 30-34 with ISCED 4a, 5, 6		Share of population aged 30-34 with ISCED 4a, 5, 6 in %	
2004	598036	181540		30.4	
2005	582796	176160		30.2	
2006	566326	180374		31.8	
2007	549559	172255		31.3	
2008	537843	181822		33.8	
2009	530185	182651		34.5	
2010	526024	181863		34.6	
		target	actual	target	actual
2011	533832	186315	191112	34.9	35.8
2012	540999	190610		35.2	
2013	548166	194969		35.6	
2014	555333	199393		35.9	
2015	565181	204856		36.2	
2016	564041	206384		36.6	
2017	562900	207923		36.9	
2018	561760	209472		37.3	
2019	560619	211031		37.6	
2020	559479	212602		38.0	
		ln %		ln percentage points	
Growth rate 2005-2010	-2.1	+0.1		+0.7	
Growth rate 2010-2020	+0.5	+1.4		+0.3	
Growth rate 2011-2012	+1.3	+2.3		+0.3	
Growth rate 2012-2020	+0.5	+1.5		+0.3	

Source: EUROSTAT, WIFO-calculations. Population projections based on Eurostat europop2010.

Table 5: Early leavers from education and training aged 18-24 and targets, 2000-2020

	Population aged 18-24 (January 1)	Early leavers from education and training aged 18-24		Share of early leavers from education and training in % of population 18-24	
1999	663873	71034		10.7	
2000	664649	67794		10.2	
2001	669382	68277		10.2	
2002	678165	64426		9.5	
2003	693482	62413		9.0	
2004	706175	67087		9.5	
2005	719227	65450		9.1	
2006	723465	70900		9.8	
2007	719740	77012		10.7	
2008	718785	72597		10.1	
2009	722040	62817		8.7	
2010	725354	60204		8.3	
		target	actual	target	actual
2011	729699		60565		8.3
2012	735953				
2013					
2014					
2015					
2016					
2017					
2018					
2019					
2020				9,5	
		In %		In percentage points	
Growth rate 2000-2010	+0.8	-1.3		-0.2	
Growth rate 2010-2020					
Growth rate 2011-2012	+0.9				
Growth rate 2012-2020					

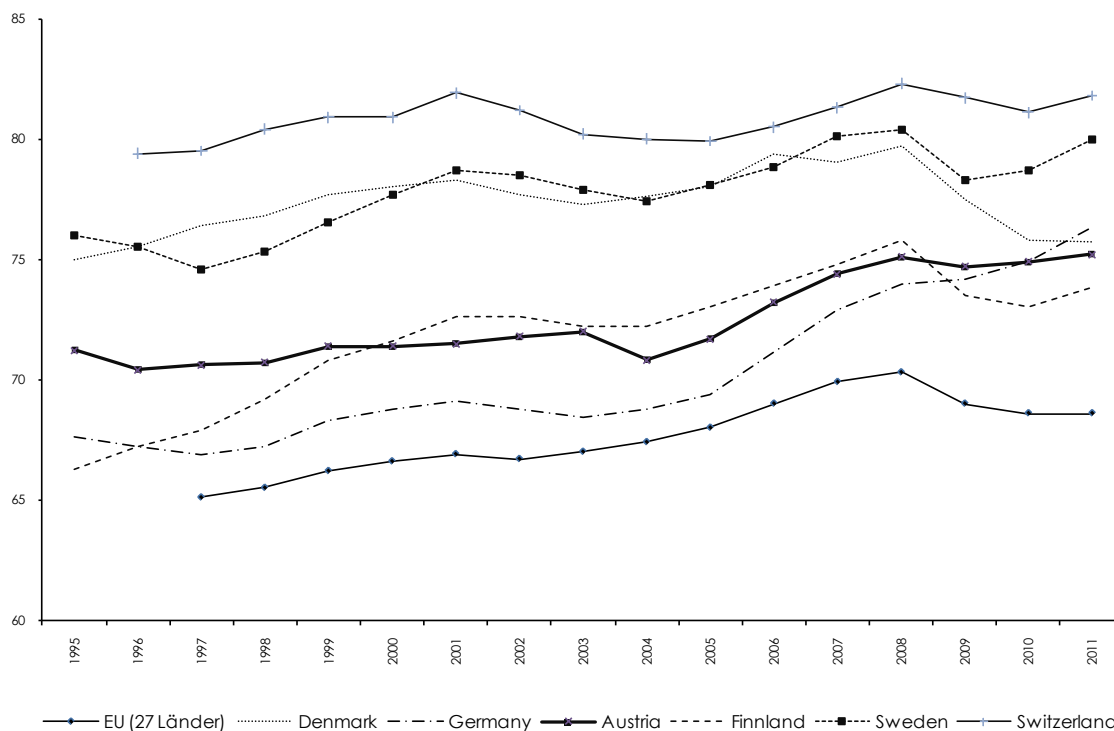
Source: EUROSTAT, WIFO-calculations. Population projections based on Eurostat europop2010.

2.3 Key target Employment: 77-78% of the population aged 20-64

- Past trends

Compared with other EU countries the Austrian labour market is characterized by a relatively low unemployment rate and high employment growth rates (see Figure 10). The unemployment rate of 4.2% (6.7% according to national statistics) in 2011 is the lowest within the EU. As compared with the pre-crisis level in 2008, employment grew by an average rate of 0.4% per year and by 0.8% per year between 2000 and 2011.

Figure 10: Employment rate of population aged 20 to 64, 1995-2011



Source: EUROSTAT.

The ongoing structural change in the economy indicates that the service sector is expanding which, in turn, generally fosters female employment growth, whereby a large part of female employment is part time. In 2011 25.1% of all employees were working part-time, which is clearly above the EU average.

If you analyse employment rates according to age groups you see a comparatively low labour market attachment for older workers in Austria. In 2011 the employment rate of those aged 55 to 64 was 41.5% in 2011 – clearly below the EU average of 47.4%. In particular, older workers with low qualification levels have particularly low employment rates in Austria (see table below). For those workers aged 25-54 Austria boasts a very high employment rate (84.9% compared to 77.6% (EU-average)). At the same time youth unemployment – as in most EU countries – is approximately twice as high as the average unemployment rate, but thus still low in comparison with other EU Member States. Although Austria has introduced programmes to actively reduce unemployment among the young their unemployment rate is still above the pre-crisis level of 2008.

The share of foreign citizens (EU and non-EU) in the labour force in Austria is high by EU standards (12% compared to the EU-average 7.6%; the stock of foreign born is at 16%). The problems faced by migrants on the labour market are twofold: firstly, pupils with a migration background have lower educational attainment than their Austrian peers; sec-

only, migrants are three times more likely to be employed below their qualification level than Austrians.

The current and future economic environment is characterized by a large degree of uncertainty concerning future developments that will also affect future labour market development.

Table 6 summarizes the development of the employment rate over the time period of 1994 to 2011 for people aged 20 to 64 as well as for different subgroups. As can be seen from the table employment rates increased for most groups over time especially for females and older workers. It must be noted, however, that there is a break in the time series in 2004 which in turn calls for caution in interpreting growth rates over a time period that includes 2004 (and to some degree also 2005).

Table 6: Development of employment rates for different groups of workers

	Employment rate (20-64)							
	all	male	female	age 55-64	qualification level			non Austrian citizens
					low	medium	high	
1995	71.2	80.1	61.3	29	58.2	74.7	88.4	73
1996	70.4	78.7	60.9	29.4	55.6	74.2	86.3	68.6
1997	70.6	78.9	60.9	28.5	54.7	73.9	86.9	69.9
1998	70.7	78.9	61.6	28	52.2	74.8	88.7	69.5
1999	71.4	79.6	62.2	29.2	52.9	74.8	85	70.2
2000	71.4	79.2	62.2	29.2	52.9	74	85.8	70.5
2001	71.5	79.1	62.4	27.4	52.5	73.6	86.2	71
2002	71.8	78.3	63.7	28	53.6	73.2	84.9	69.2
2003	72	78.6	64.1	29.1	53.4	74	84.4	70.1
2004	70.8	76	63.3	27.4	51.2	72	81.6	63.8
2005	71.7	78.5	64.9	31.8	53.5	73.8	84.2	64.4
2006	73.2	80	66.4	35.5	55.9	75.2	85.5	64.7
2007	74.4	81.6	67.2	38.6	58.3	76.2	86.5	65.7
2008	75.1	81.7	68.6	41	57.3	77.4	86.1	66
2009	74.7	80.1	69.4	41.1	55.6	76.9	86.1	65.3
2010	74.9	80.2	69.6	42.4	56.1	77	85.1	66.4
2011	75.2	80.8	69.6	41.5	56.4	77.2	86	66.8
avg. growth 1995-2003	0.34	0.05	0.80	2.27	-0.20	0.21	-0.17	-0.55
avg. growth 2000-2011	0.47	0.18	1.03	3.25	0.58	0.39	0.02	-0.49
avg. growth 2004-2011	0.87	0.88	1.36	6.11	1.39	1.00	0.75	0.66

Source: EUROSTAT European labour force survey. (a) Break in the time series.

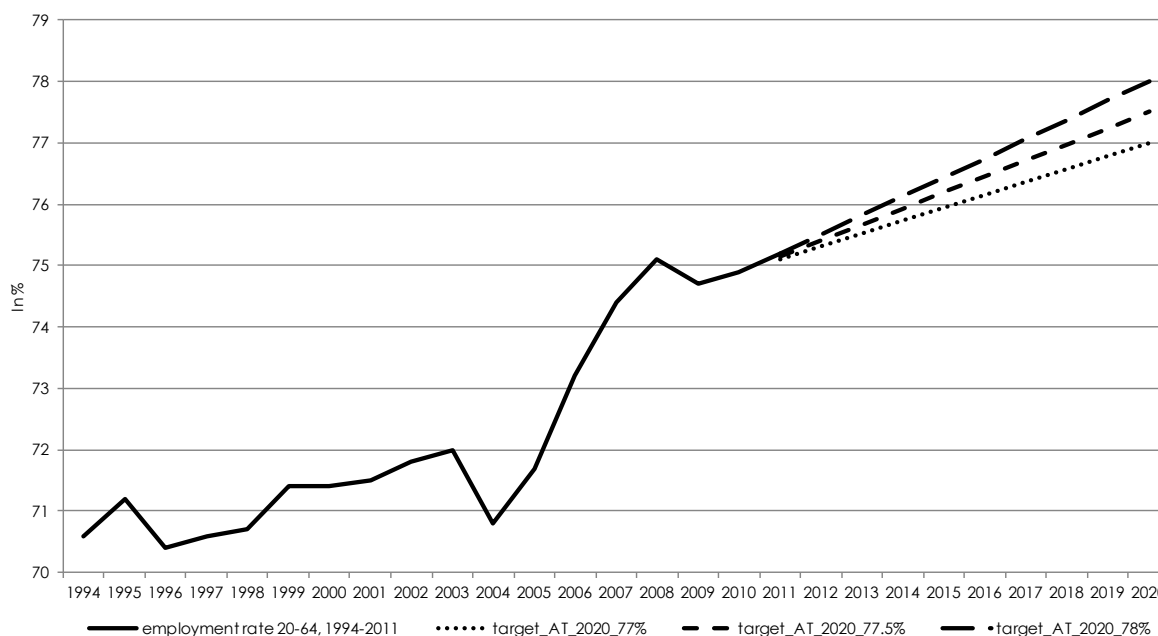
- Target path 2020

The Europe 2020 strategy sets one target in the area of employment: the employment rate of those aged between 20 and 64 should rise to 75% within the European Union. Austria has set

itself a target of between 77 and 78% by 2020. In 2011 the employment rate of the population aged between 20 and 64 in Austria was 75.2%, thus already exceeding the EU wide target employment rate (75%) but was still 1.8 to 2.8 percentage points below the national target (77-78%); the actual value 2011 was however above the lower limit of the target and in line with the upper limit of the target.

The following figure and Table 8 show the evolution of the employment rate over the time period from 1994 to 2011 together with projection lines indicating the necessary growth patterns needed to achieve the Europe 2020 target. During the period from 1994 to 2003⁴⁾ the employment rate grew at an average rate of 0.22 percentage points and thus was only slightly less than the minimum rate needed to reach 77% in 2020.

Figure 11: Employment rate of population aged 20 to 64, 1994-2020



Source: EUROSTAT, WIFO-calculations.

- Past vs. required growth dynamics

The following table shows how the current employment rate relates to the target level for 2020. Between 2000 and 2010 the employment rate of those aged 20 to 64 grew on average by 0.48 percentage points per year. In order to reach the lower limit of the 2020 target an average growth rate of 0.28 percentage points is required. Comparing this to last year's employment growth (0.3 percentage points) there remains a positive growth differential of 0.02 percentage points and even a more positive one when considering the longer time trend

⁴⁾ Notice that there is a break in the time series around 2004 due to changes in the labour force survey structure.

(0.2 percentage points). The longer term trend of 0.48 percentage points is also above the required growth for the upper limit of the target.

Table 7: Employment rate: Assessment of growth dynamics and target forecasts based on past trends, in percentage points

Indicator	actual value 2011 (1)	target value 2020 (2)	past growth rate per year 2000-2010 (3)	required growth rate per year 2011-2020 (4)	growth last year 2011 (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast 2020 on the basis of (1) und (5)	target forecast 2020 on the basis of (1) und (3)
Employment rate (20-64)	75.20	77.00	0.48	0.28	0.30	0.20 (171%)	0.02 (107%)	77.9	79.52
	75.20	77.50	0.48	0.34	0.30	0.14 (141%)	-0.04 (88%)	77.9	79.52
	75.20	78.00	0.48	0.41	0.30	0.07 (117%)	-0.11 (73%)	77.9	79.52

Source: EUROSTAT, WIFO-calculations.

Table 8: Employment rate, 2010-2020

	Population aged 20-64	Total employment aged 20-64						Employment rate aged 20-64					
	In 1000	In 1000						In %					
2000	4908.5	3470.1					71.4						
2001	4937.2	3490.0					71.5						
2002	4879.6	3461.9					71.8						
2003	4984.5	3553.2					72.0						
2004	4990.5	3473.5					70.8						
2005	5042.3	3613.0					71.7						
2006	5054.0	3698.9					73.2						
2007	5067.9	3768.3					74.4						
2008	5088.7	3821.5					75.1						
2009	5100.7	3811.3					74.7						
2010	5122.3	3834.8					74.9						
		Target_77%		Target_77.5%		Target_78%		Target_77%		Target_77.5%		Target_78%	
		target	a	target	a	target	a	target	a	target	a	target	a
2011	5167.5	3881.2	3884.9	3883.7	3884.9	3886.2	3884.9	75.1	75.2	75.2	75.2	75.2	75.2
2012	5183.5	3903.9		3909.0		3914.0		75.3		75.4		75.5	
2013	5199.4	3926.8		3934.4		3942.0		75.5		75.7		75.8	
2014	5215.4	3949.8		3960.0		3970.2		75.7		75.9		76.1	
2015	5231.4	3972.8		3985.7		3998.5		75.9		76.2		76.4	
2016	5239.3	3989.9		4005.4		4020.9		76.2		76.4		76.7	
2017	5247.2	4007.0		4025.2		4043.4		76.4		76.7		77.1	
2018	5255.2	4024.2		4045.1		4065.9		76.6		77.0		77.4	
2019	5263.1	4041.4		4065.0		4088.6		76.8		77.2		77.7	
2020	5271.1	4058.7		4085.1		4111.5		77.0		77.5		78.0	
		In %						In percentage points					
Growth rate 2000-2010	+0.4	+0.9		+0.9		+0.9		+0.3		+0.3		+0.3	
Growth rate 2010-2020	+0.3	+0.6		+0.6		+0.7		+0.2		+0.3		+0.3	
Growth rate 2011-2012	+0.3	+0.6		+0.7		+0.7		+0.2		+0.3		+0.3	
Growth rate 2012-2020	+0.2	+0.5		+0.6		+0.6		+0.2		+0.3		+0.3	

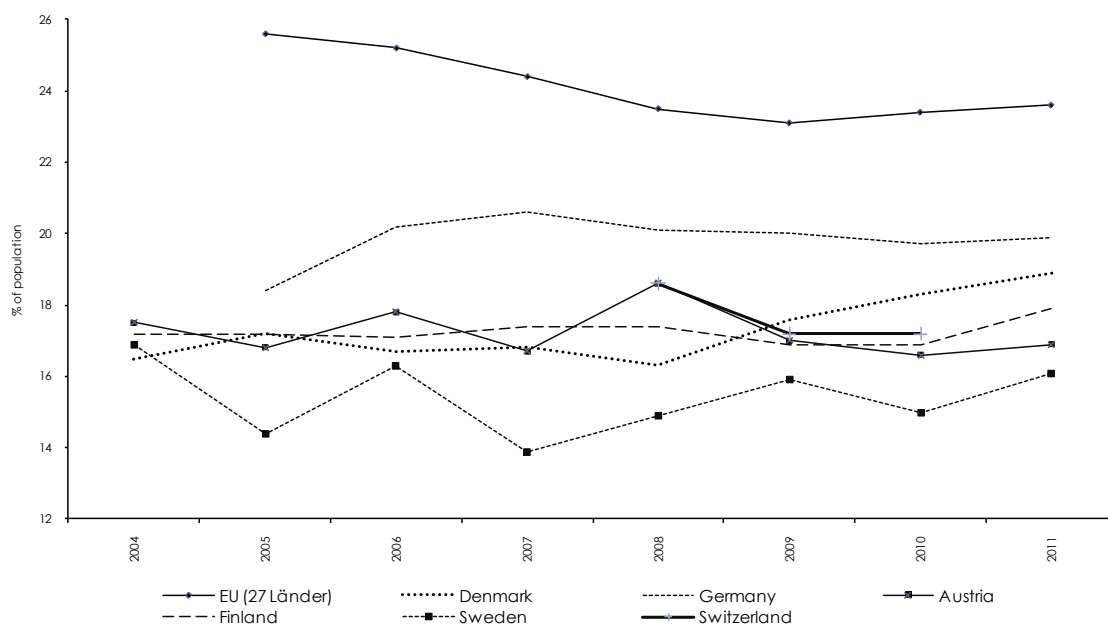
Source: EUROSTAT, WIFO-calculation. Population projections based on Eurostat europop2010.

2.4 Key target Poverty: Number of individuals living in or at risk of poverty -235.000

- Past trends

Poverty and social exclusion occur in a variety of situations throughout the EU. 23.6% (2011) of the EU's population is considered to be at risk of poverty or social exclusion. This means that they are affected by at least one of the three indicators used to define the EU poverty and exclusion headline target. These indicators are the "at risk-of-poverty rate", the "severe material deprivation rate" and the "share of people living in households with very low work intensity". They reflect the many factors underlying poverty and social exclusion, as well as the diversity of challenges for Member States. Austria is well below the European average, at 16.9% population at risk of poverty or social exclusion in the EU (2011), in line with countries such as Sweden or Finland (following figure).

Figure 12: Population at risk of poverty or social exclusion in the EU, 2004-2011



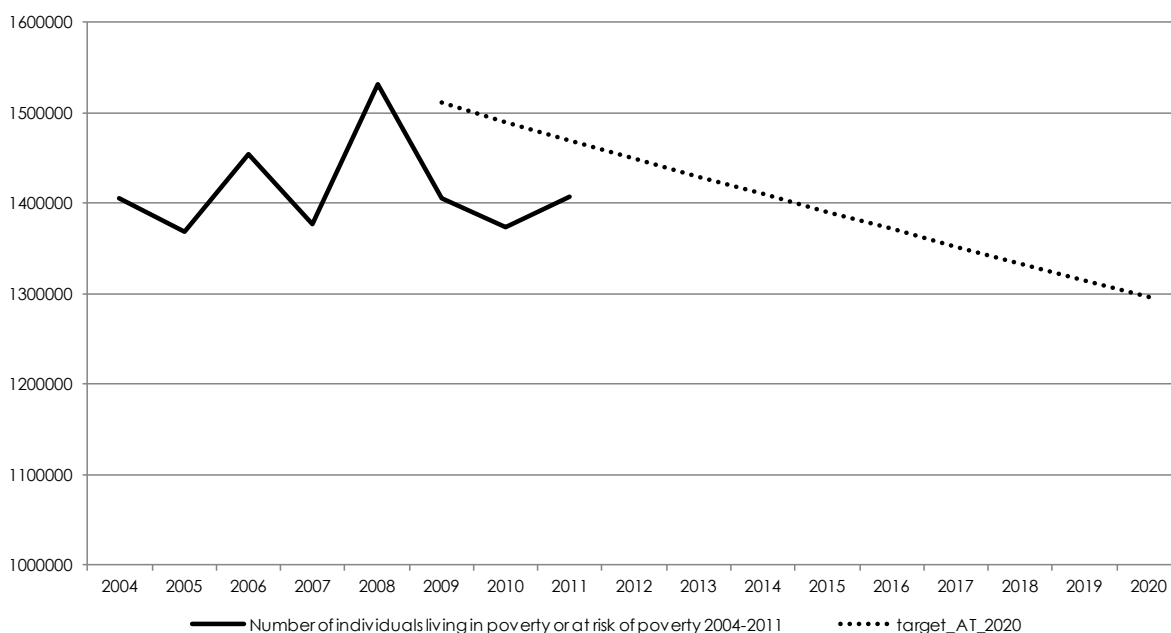
Source: EUROSTAT, WIFO-calculations.

- Target path 2020

The fifth headline target for the EU in 2020 is to measure the progress in meeting the Europe 2020 goals of reducing poverty and social exclusion. In 2020, at least 20 million fewer people should be in or at risk of poverty and social exclusion in all EU member countries. Austria has set itself the target to reduce the number of individuals living in poverty or at risk of poverty by at least 235,000 between 2008 and 2020.

In 2010, the population at risk of poverty, meaning they live in a household with an income below 60 % of the national median income after social transfers, comprised of 1.000,000 people in Austria (i.e. 12.1% of the total population). 356,000 are severely materially deprived. The population that lives in households with very low work intensity amounted to 497,000. In total, in 2010, 1.373,000 (2011: 1,407 million) or 16.6% (2011: 16,9%) of the Austrian population is at risk of poverty or social exclusion. The target path in the following figure shows that Austria is currently well below the target value, mainly due to a significant drop in poverty in the year 2009 and a smaller drop in 2010 which was however compensated by a rise in 2011. Overall, Austria has reduced the number of people living in poverty by 125.000, a little bit more than half the target value for 2020. As such, the target for poverty is on track.

Figure 13: Population at risk of poverty or social exclusion in Austria, 2004-2020



Source: EUROSTAT, WIFO-calculations.

- Past vs. Required growth dynamics

To achieve the goal of 235,000 fewer individuals living in poverty or at risk of poverty in 2020, an average annual decrease of -1.4% is required (following table), in absolute terms approx. 19.000 people per year on average. Over the time period between 2004 and 2011, the number of people living in poverty or being at risk of poverty stayed practically stable, masking a rise up to 2008 and then a drop in 2008-2010. This longer term time trend per year would imply a yearly growth differential of almost 1.4 percentage points, i.e. the target would not be met; it would stay at roughly the reduction in poverty already achieved now. Additionally the number of individuals living in poverty or at risk of poverty has risen by 2.5% between 2010 and 2011 implying an actual growth differential of 4.4 percentage points, leading to a very unfa-

avourable target forecast for 2020. However, these short time trends should not be taken at face value, they will become more important towards the end of time horizon in 2020. It remains to be seen whether poverty figures will follow more closely the very positive 2008-2011 trend with an average yearly reduction of more than 40.000 people, well above the required 19.000 people per year, or whether poverty figures will align with the longer term trend of 2004-2011, implying virtual stagnation. This will depend on overall economic trends but also on the measures put in place in the National Reform Programme (see below).

Table 9: Number of individuals living in poverty or at risk of poverty: Assessment of growth dynamics and target forecasts based on past trends

Indicator	actual value 2011(1)	target value 2020 (2)	past growth rate per year 2004-2011 (3)	required growth rate per year 2011-2020 (4)	growth last year 2011 (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast on the basis of (1) und (5)	target forecast on the basis of (1) und (3)
Individuals living in poverty or at risk of poverty	1407000	1297000	0.02	-1.38	2.48	1.40	3.85	1713000	1409576
	-125000	-235000	286	-19170	34000	19456	53170	181000	-122429

Source: EUROSTAT, WIFO-calculations.

Table 10: Individuals in or at risk of poverty, 2004-2020

	Number of individuals living in poverty or at risk of poverty		Yearly change in absolute values		Yearly change in absolute values (cum. values)	
	target	actual	target	actual	target	actual
2004	1405000					
2005	1369000		-36000			
2006	1454000		+85000			
2007	1376000		-78000			
2008	1532000		156000			
	target	actual	target	actual	target	actual
2009	1510888	1406000	-21112	-126000	-21112	-126000
2010	1490066	1373000	-20821	-33000	-41934	-159000
2011	1469532	1407000	-20534	+34000	-62468	-125000
2012	1449281		-20251		-82719	
2013	1429308		-19972		-102692	
2014	1409611		-19697		-122389	
2015	1390186		-19426		-141814	
2016	1371028		-19158		-160972	
2017	1352134		-18894		-179866	
2018	1333500		-18634		-198500	
2019	1315124		-18377		-216876	
2020	1297000		-18124		-235000	
	In %	Absolut				

Growth rate 2004-2011	0.2	286				
Growth rate 2008-2011	-2.7	-125667				
Growth rate 2011-2012						
Growth rate 2012-2020	-1.4	-19170				

Source: EUROSTAT, WIFO-calculations. The figures are based on the EU-SILC survey which is a sample of the population. Actual numbers may be different within the limit of the 95% confidence interval.

2.5 Key target Environment: The 20-20-20 Targets

Austria's National Reform Programme (Bundeskanzleramt, 2012) addresses four European goals regarding the subject of climate protection, energy and the environment. The first three goals are addressed in this report, namely:

- a) Reducing greenhouse gas (GHG) emissions by 20% as compared with their 1990 levels
- b) Generating 20 % of energy from renewable energy resources
- c) Improving energy efficiency by 20%
- d) Improving the efficiency of material consumption.

The 20-20-20 targets (targets a to c) represent an integrated European approach to climate and energy policy that aims to combat climate change, increase the EU's energy security and strengthen its competitiveness. They are also headline targets of the Europe 2020 strategy for smart, sustainable and inclusive growth.

Targets a and b were set by EU leaders in March 2007, when they committed Europe to becoming a low carbon and highly energy-efficient economy, and were enacted through the climate and energy package in 2009. The climate and energy package does not address the energy efficiency target directly. This is rather contained in the 2011 Energy Efficiency Plan and the Energy Efficiency Directive⁵.

Target b features the sub goal of 10% renewable energy use, including green electricity in the transport sector. Recently, this target was refined in order to limit global land conversion for biofuel production, restrict indirect land-use changes, and thus to raise the climate benefit of biofuel use in the EU. For food-based biofuel supply a limit has been set at a maximum of 5% of transport energy use by 2020 (European Commission, 2012). This sub goal is not further addressed in the report.

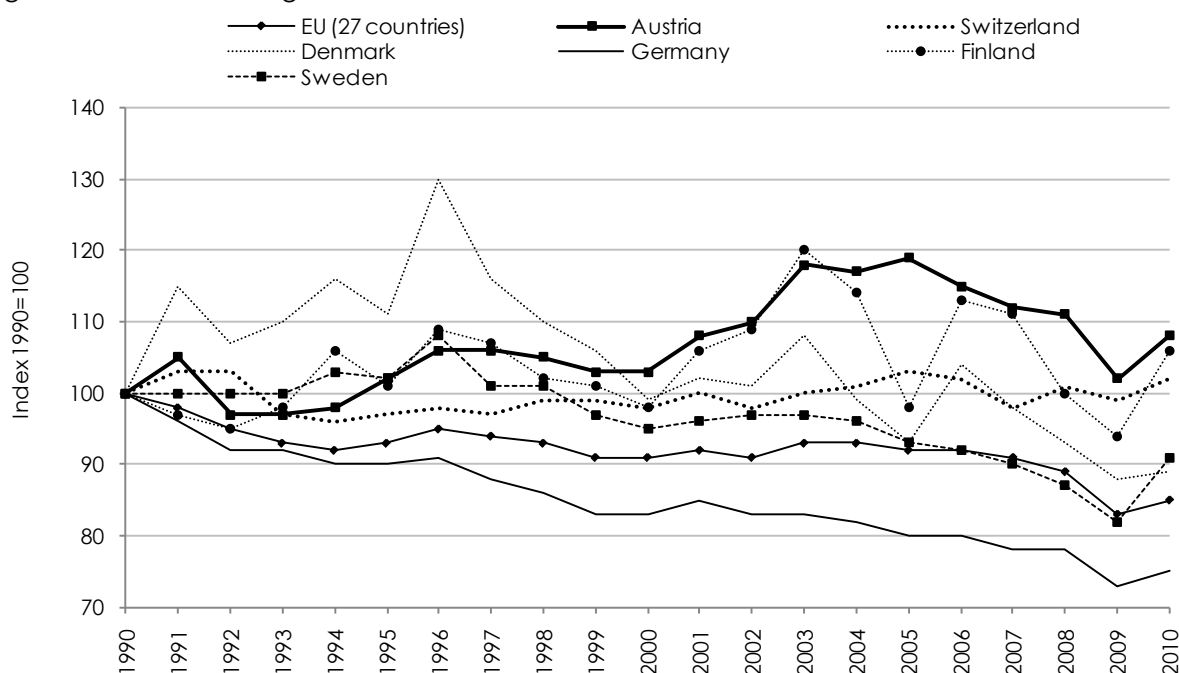
- Past trends

Between 1990 and 2010 Austria's GHG emissions grew by 8% in total. In contrast, GHG emissions in the EU 27 were reduced by 15%. Germany, in fact, decreased its GHG emissions by

⁵ On 4 October 2012, the Council endorsed the political agreement on the Energy Efficiency Directive. The European Parliament had casted its favorable vote on such an agreement on 11 September 2012. The final document of the Energy Efficiency Directive is not available yet.

25% in the same period of time. In particular, the GHG emissions trajectory of Austria is characterized by three periods: stagnating GHG emissions between 1990 and 2000, emissions growth until 2005 when emissions reached a peak from where they continually declined until 2009. The year 2010 is marked by a rebound of GHG emissions related to the economic rebound after the financial downturn of 2008/09. While the growth in GHG emissions following the financial crisis constitutes a pattern throughout Europe, emissions' growth in Austria between 2000 and 2005 is eye-catching. Austria clearly underperformed with respect to the European trend. The ongoing decline in GHG emissions since 2005 represents a comparatively new phenomenon.

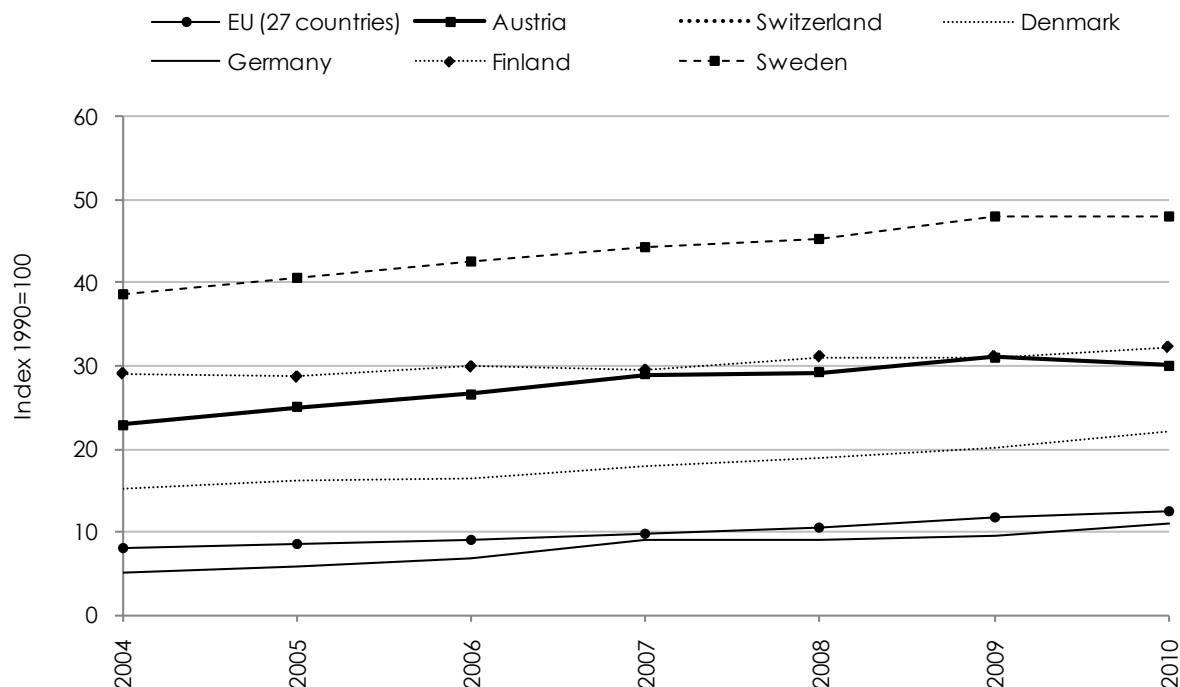
Figure 14: Greenhouse gas emissions, 1990-2010, 1990=100



Source: EUROSTAT, Europe 2020 Headline indicators; WIFO.

Austria's share of renewable energy in gross final energy consumption rose from 22.9% in 2004 to 30.1% in 2010. It is relatively high and above the European average (12.5% in 2010). Austria's growth dynamic is rather low with a rise of 31.4% between 2004 and 2010 compared to e.g. the EU 27 (54.3%), Denmark (47%) and Germany (115.7%).

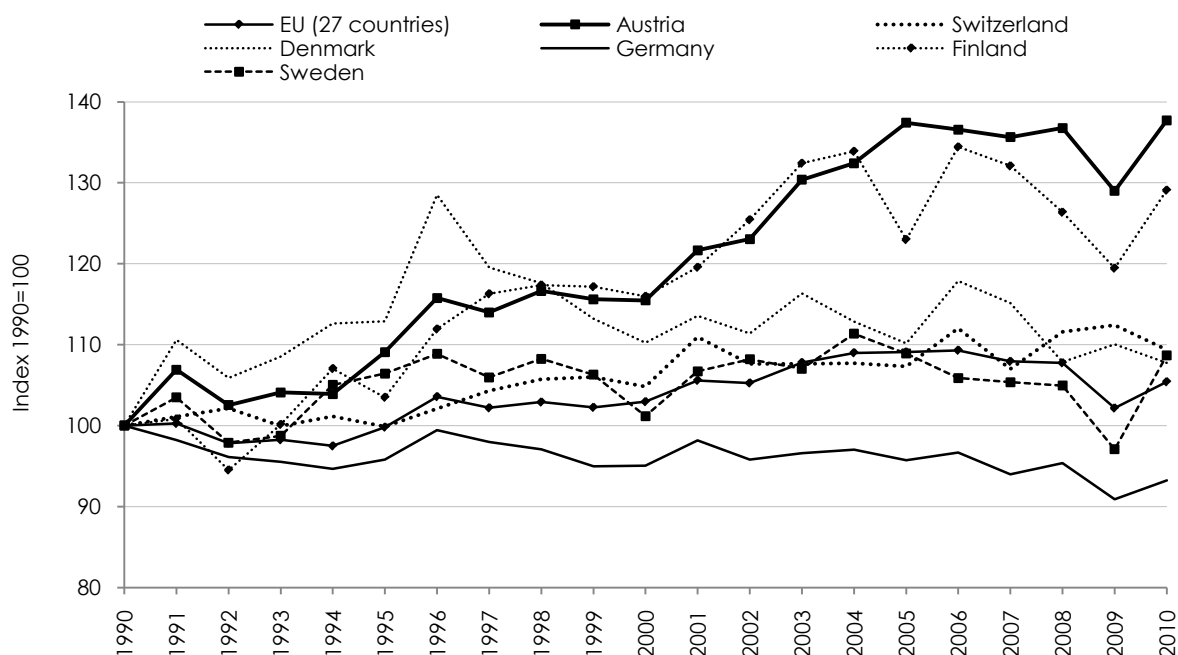
Figure 15: Share of renewable energy in gross final energy consumption, 2004-2010



Source: EUROSTAT, Europe 2020 Headline indicators; WIFO.

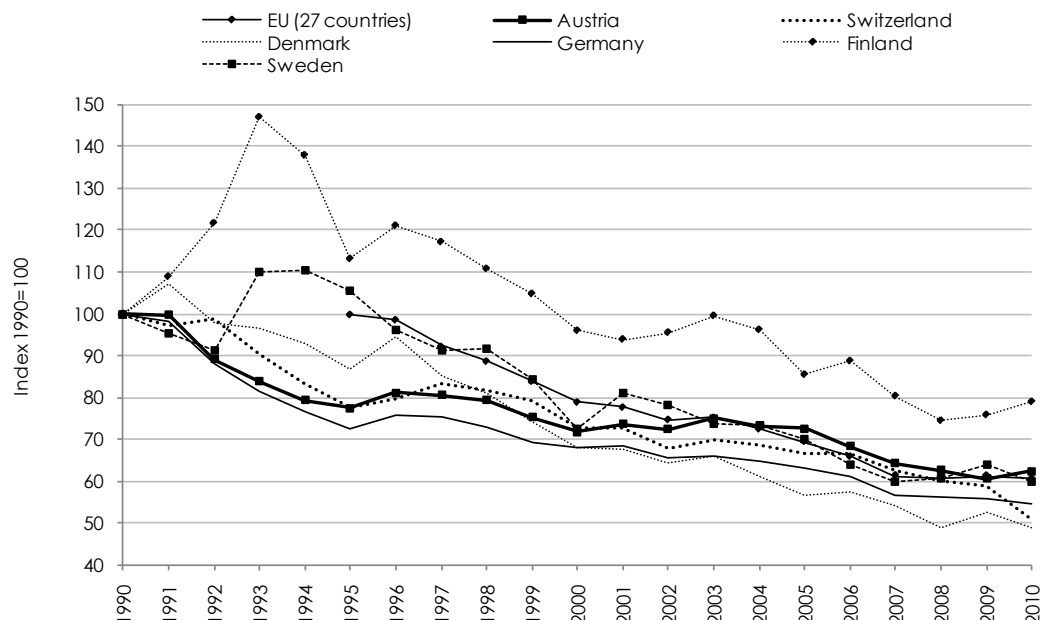
Primary Energy Consumption in Austria was growing far above the EU 27 average by 37.7% between 1990 and 2010 (following figure). The increase in the primary energy consumption of the EU 27 was at 5.4%, that of Denmark at 7.8% while Germany showed a decrease in energy consumption of 6.8%. However, Austria's primary energy consumption per million € of GDP (figure 17) decreased by 37.6% showing a growing energy efficiency per value of GDP and thus a rise in energy efficiency per unit of economic output. To compare with other countries, the energy use per unit of GDP declined by 39.5% in the EU 27 (1995-2010), by 51.2% in Denmark (1990-2010), and by 45.3% in Germany (1990-2010). Overall, while greenhouse gas emissions and energy use relative to GDP are below or at the European average in Austria, the growth dynamics have been unfavourable.

Figure 16: Primary Energy Consumption, tonnes of oil equivalent (TOE), 1990-2010, 1990=100



Source: EUROSTAT, Europe 2020 Headline indicators; WIFO.

Figure 17: Primary Energy Consumption, tonnes of oil equivalent (TOE) per million € GDP, 1990-2010



Source:

EUROSTAT, Europe 2020 Headline indicators; WIFO.

- Target path 2020

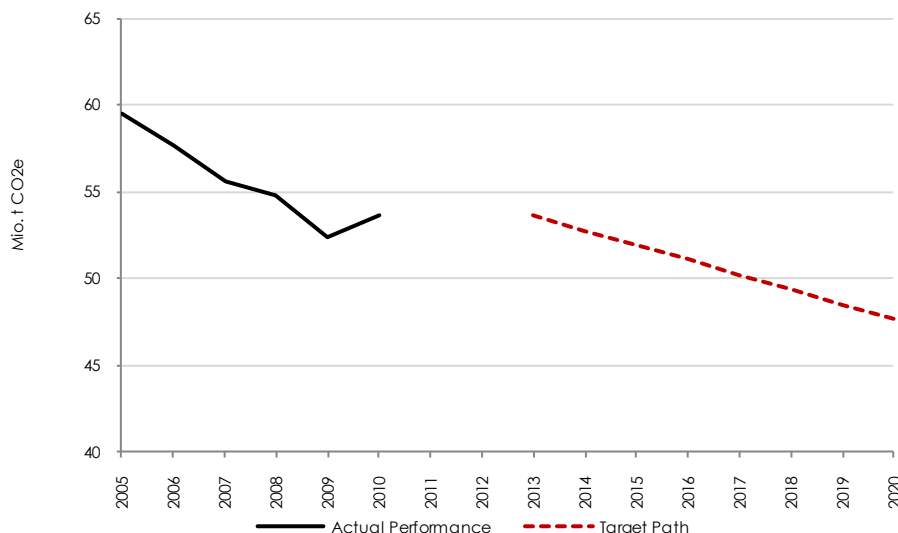
Target a: Reducing Greenhouse Gas Emissions

Within the EU climate and energy package, the Effort Sharing Decision establishes binding annual GHG emissions targets for member states for the period 2013-2020. The target relates to emissions from sectors not included in the EU Emissions Trading System (EU ETS) such as transport (except aviation), buildings, agriculture and waste. The EU ETS is the key tool for cutting industrial greenhouse gas emissions. This tool is administered on a European level by the Emission Trading Directive and is not subject to the National Reform Programme.

GHG emissions from the non-ETS sectors, i.e. emissions under the Effort Sharing Decision, should be reduced by 10% as compared with the year 2005. By 2020, the national targets will collectively deliver a reduction of around 10% in total EU emissions from the sectors covered under the Effort Sharing Decision. Together with a 21% cut in European GHG emissions covered by the EU ETS, this will accomplish the overall emission reduction goal of the climate and energy package of a 20% cut in GHG emissions below 1990 levels by 2020.

Emission targets within the Effort Sharing Decision have been allocated at the national level of member states according to their national per capita GDP levels. National targets for 2020 are expressed as percentage changes from 2005 levels. For Austria, GHG emissions should be reduced by 16%. Based on the actual data, the Austrian Federal Environmental Agency (Anderl et al., 2012) calculated a target for GHG emissions in 2020 at a level of 47.7 MtCO_{2e}. The starting value in 2013 of the target path must, according to the Effort Sharing Decision, not exceed the average of verified and reported GHG emissions during 2008, 2009 and 2010. Starting from this value, the target path is represented by a linear trajectory given by the value for 2020 (see Figure 18). However, the starting value for 2013 as well as annual GHG emissions targets will have to be enacted by the European Commission after the review of the 2010 GHG emissions balance at the end of 2012. The target trajectory delineated here must therefore be understood as preliminary.

Figure 18: GHG Emissions in Austria



Source: Umweltbundesamt, own calculations, 2013 starting value of target path.

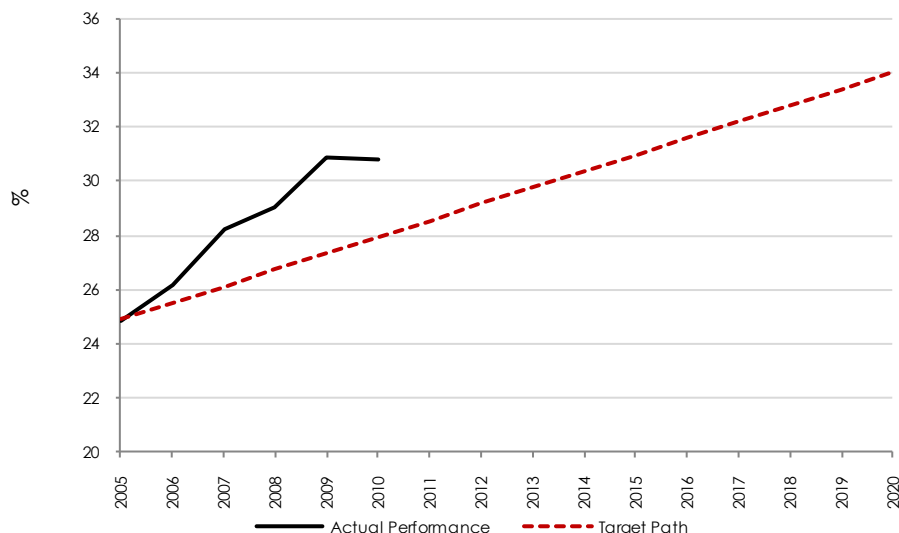
The current data available (2010) shows a level matching the 2013 target value. As GHG emissions data has a time lag of 2 years, an actual match of the target in 2013 with the then actual emissions can only be evaluated in 2015.

If the upward trend in GHG emissions which occurred in 2010 continues, the target path will not be met. As GHG emissions are strongly correlated with economic performance – the economic upturn in 2010 correlates with a growth in GHG emissions of 2.6% from 2009 to 2010 – strong climate and energy related measures need to be enacted and enforced in order to decouple GHG emissions from economic growth in the medium to long term. Without specific climate and energy policies, the projected GHG emissions reductions will not be achieved.

Target b: Enhancing the Renewable Energy Share

The Austrian target regarding the share of renewable energy sources in gross final energy consumption in 2020 is 34% (European Commission, 2009). In order to support the renewable energy objective, each member state is requested to submit a national renewable energy action plan (NREAP) detailing how they will reach their individual targets (Karner et al., 2010). Austria's NREAP indicates target paths for energy use and renewable energy deployment as a result of sector-specific policy measures.

Figure 19: Austrian Renewable Energy Share*, 2005-2020



Source: Energy Balance 2011, Statistik Austria, own calculations, *renewable energy as share of gross final energy consumption

Figure 19 shows the actual performance (solid line) of the share of renewable energy with respect to the target trajectory (dotted line) as a linear interpolation between the target in 2020 and the 2005 reference data. It is evident that Austria's share of renewable energy is above the target path. As the distance from the target path is small, the target must be viewed as rather unambitious. But in order to achieve the set 2020 target, proactive policy measures that promote a constant additional supply of renewable energy must be enhanced. As the current data shows, the share of renewables has not been raised between 2009 and 2010. This was due to the economic uptake and the correlated rise in energy consumption after the economic slump of 2008/09. Primary energy demand in 2010 grew by 6.1% while renewable energy supply (including combustible waste) increased by only 3.2% (Kettner et al., 2012). Consequently, the growth in renewable energy supply was not strong enough to keep pace with the growing demand in energy use. Therefore political efforts to increase the deployment of renewable energy sources need to be strengthened.

- Past vs. Required growth dynamics

As outlined above, also the comparison of past growth in percentage points with the growth in percentage points required for reaching the targets in 2020 shows that the renewable energy share is well on track to be met, if the small drop in 2010 is treated as an outlier.

Table 11: Share of renewable energies: Assessment of growth dynamics and target forecasts based on past trends

Indicator	Actual value 2010 (1)	target value 2020 (2)	past growth rate per year 2005-2010 (3)	required growth rate per year 2011-2020 (4)	growth last available year (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast 2020 on the basis of (1) und (5)	target forecast 2020 on the basis of (1) und (3)
Share of renewables	30.8	34	1.2	0.3	-0.1	0.9	-0.4	29.8	42.8

Source: WIFO.

Target c: Improving the Energy Efficiency

The aim of the new Energy Efficiency Directive (European Commission, 2011) is to cut energy consumption by 20% by the year 2020. This corresponds to 368 Mtoe (million tonnes of oil equivalent) less energy use in 2020 to be achieved by the EU as a whole with regard to the baseline development.

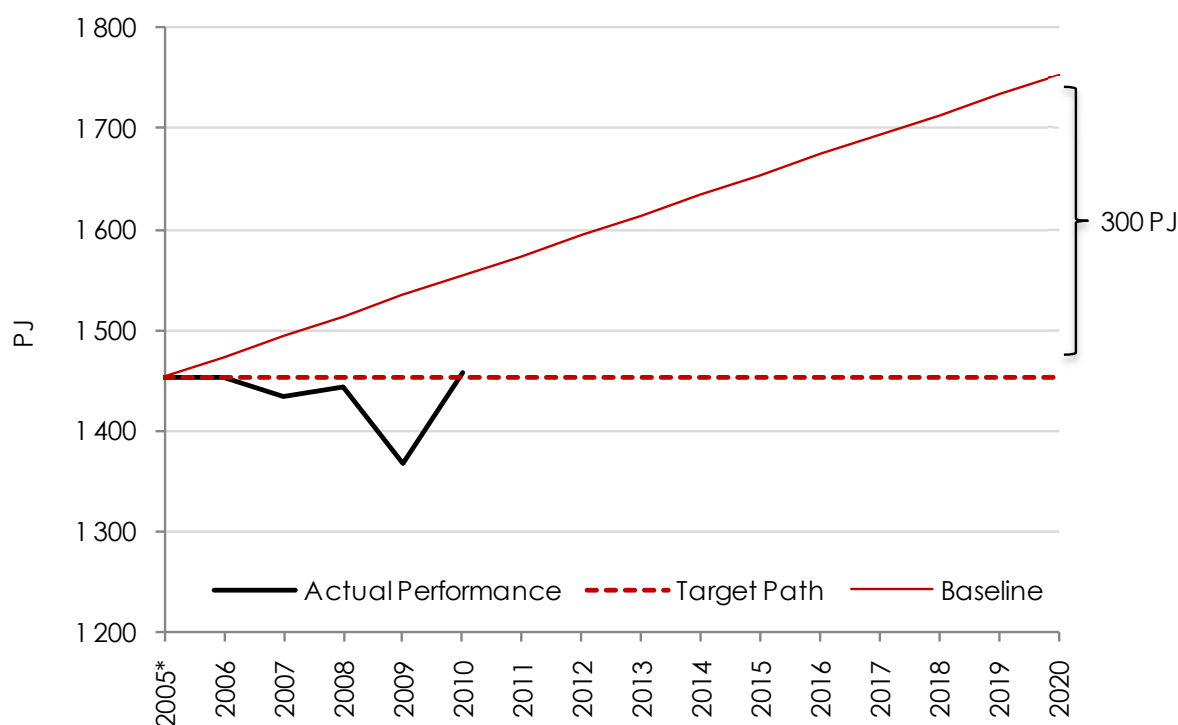
Energy efficiency is one of the main aspects of the Europe 2020 flagship initiative for a resource-efficient Europe (European Commission, 2010). Rising EU imports of energy at rising energy prices pose a potential risk to Europe's energy security and economic growth. According to the European Commission, energy efficiency is the most cost-effective way to increase the security of supply and, at the same time, to reduce the greenhouse gas emissions responsible for climate change (cf. target a). The decreased energy consumption aimed for should also help to achieve the target on the share of energy from renewable sources set by the Renewable Energy Directive (European Commission, 2009; cf. target b). Finally, producing more with less energy input should improve the competitiveness of industries and thus allow a lead in the global markets for energy efficiency technologies to be sustained. Making the economy more energy efficient will therefore generate positive impacts in terms of economic growth and job creation. For these reasons, the European Energy Strategy 2020 identified energy efficiency as one of the key priorities of EU energy policy for the coming years (European Commission, 2011).

Given this political framework, member states have committed to achieving 2020 targets for energy efficiency in terms of primary energy savings in million tonnes of oil equivalent (Mtoe). According to its Energy Strategy, Austria has designated an indicative energy use reduction target of 7.16 Mtoe of primary energy consumption or 300 PJ by 2020 with regard to its baseline development. This corresponds to freezing its primary energy consumption at the level of 2005 (BMLFUW/BMWFJ, 2010; cf. to Fig. 3). The reduced primary energy demand of 300 PJ is equal to about 20% of the current primary energy supply in Austria (2010).

However, the method for assessing national progress in energy efficiency is currently under discussion in negotiations between the EU institutions of the Energy Efficiency Directive. Austria needs to submit a national target of energy efficiency improvement to the European Commission by April 2013. Thus, the above mentioned efficiency reduction target of 300 PJ given by Austria's Energy Strategy may be adapted and the target presented here must therefore be understood as preliminary.

The new Energy Efficiency Directive proposes new measures for the implementation of energy efficiency policies to bring the EU back on track to achieve its objective by 2020 (European Commission, 2011). EU countries will have to transpose the rules of the directive into national law within 18 months from the directive's adoption. Progress made in achieving EU's 20% energy saving target in 2020 will be reviewed in 2014.

Figure 20: Primary Energy Consumption in Austria, 2005-2020



Source: *Energy Balance 2011, Statistik Austria, own calculations.

Judging by the actual performance with reference to the indicated target trajectory (dotted line) of the Austrian Energy Strategy, it is evident that the economic slump in 2008/09 was responsible for the 4.5% decline in primary energy consumption in 2009 and not energy efficiency policies (Figure 20). Primary energy consumption however quickly regained momentum reaching its baseline value with the recovery of the economy in 2010.

The future progress in energy efficiency or in primary energy consumption will depend on various determinants, above all economic performance, the development of heating degree days, i.e. whether strong winters will drive energy demand for heating or not, and last but not least on measures to improve the energy efficiency of the economy. This relates to energy efficiency investments in the energy consuming capital stock of the economy such as in the building, transport and industry sectors. But policies must also address the behavioural side of energy consumption because energy efficiency improvements are often offset by rebound-effects, i.e. higher (energy service) demand manifests itself as a result of lower energy service prices from efficiency improvements.

Estimations on the energy consumption in 2011 suggest a drop in energy use due to the mild winter and the higher energy prices (Scheiblecker et al., 2012).

Summary of results

Table 12 summarizes the data on the actual and the target trajectories with respect to the three discussed Europe 2020 climate and energy goals.

While GHG emissions have been reduced by 9.7% between 2005 and 2010, they need to be cut by a further 11% from 2013 to 2020. The share of renewable energy consumption has been increased by 24% between 2005 and 2010 and must be further increased by 14% from 2013 to 2020. Primary energy consumption has grown by 0.3% between 2005 and 2010 but cannot be allowed to grow further before 2020 otherwise target trajectory cannot be met.

Table 12: Climate and Energy Data, actual vs. target trajectory, 2005 - 2020

	GHG emissions in Mio. t CO _{2e}		Renewable Energy Share in %		Energy Efficiency as Primary Energy Consumption in PJ	
	target	actual	target	actual	target	actual
2005	59.5		24.8		1,454	
2006	57.6		26.2		1,453	
2007	55.6		28.2		1,434	
2008	54.8		29.0		1,444	
2009	52.3		30.9		1,367	
2010	53.7		30.8		1,458	
2011			28.5			
2012			29.1			
2013	53.6		29.8		1,454	
2014	52.8		30.4		1,454	
2015	51.9		31.0		1,454	
2016	51.1		31.6		1,454	
2017	50.2		32.2		1,454	
2018	49.4		32.8		1,454	
2019	48.5		33.4		1,454	
2020	47.7		34.0		1,454	
Growth 2005-2010 in %		-9.7		24.2		0.3
Growth in %	2013-2020		2011-2020		2013-2020	
	-11.0		19.1		0.0	

Source: Umweltbundesamt, Statistik Austria, own calculations.

2.6 Overview of all targets

This chapter provides an assessment of Austria's progress towards all key targets based on statistical trends only, without taking into account the measures of the NRP. Table 13 summarises the target values and normalises current values according to their distance to the target value. As outlined in the individual discussions of the targets, the R&D target is furthest away from its target value; early school leavers have already reached their target, employment, higher education, poverty and renewable energies are well on track to meet their targets; the target values for greenhouse gases and energy efficiency still have to be announced. Past growth trends translate into target forecasts which mirror actual values relative to the target, with the exception of renewables and poverty. In the case of renewable, a slight reduction in the last year leads to the target not being reached. This should not be overvalued however, the target forecast based on the current performance (last available year's growth) will become more meaningful towards the end of the Europe 2020 horizon, to detect any changing trends. In the case of poverty, the trend 2008-2011 is much more positive than the trend 2004-2011. It remains to be seen, and will depend on the measures put in place (see below), which turn poverty figures will take.

Table 13: Overview of all targets: actual values relative to target and target forecasts based on past growth trends

Indicator	Target	Actual values relative to target (target value = 100)	Target forecast 2020 (based on last year's growth)	Target forecast 2020 (based on growth rate 2000-2010*)
R&D ratio	3.76	74	3.28	3.38
Share of population aged 30-34 with tertiary education	38	94	38.50	39.40
Early school leavers	9.5	114	above target	above target
Employment rate (20-64)	77-78	96-98	77.90	79.52
Number of individuals living in poverty or at risk of poverty	-235 000	92	181 000	-122 429
GHG emissions in Mio t CO ₂	na	na	na	na
Renewable Energy Share in %	34	91	29.80	42.80
Energy Efficiency as Primary Energy Consumption in PJ	na	na	na	na

Source: WIFO. *Growth rates are based on 2000-2010 or according to data availability, see the discussion of the individual targets.

Table 14 provides more detail on the growth dynamics, both past and required to reach the targets.

Table 14: Overview of all targets: past vs. required growth trends, probability of reaching target and current performance

Indicator	Most recent actual value (1)	target value 2020 (2)	past growth rate per year 2000-2010 (3)	required growth rate per year 2011-2020 (4)	growth last available year (5)	growth differential (3-4): probability of reaching target	growth differential (5-4): current performance	target forecast 2020 on the basis of (1) und (5)	target forecast 2020 on the basis of (1) und (3)
R&D ratio	2.80	3.76	0.07	0.10	0.06	-0.03	-0.04	3.28	3.38
Share of population aged 30-34 with tertiary education	35.80	38.00	0.40	0.26	0.30	0.14	0.04	38.50	39.4
Early school leavers	8.30	9.50	target already reached						
Employment rate (20-64)	75.20	77.00	0.48	0.28	0.30	0.20	0.02	77.90	79.52
	75.20	77.50	0.48	0.34	0.30	0.14	-0.04	77.90	79.52
	75.20	78.00	0.48	0.41	0.30	0.07	-0.11	77.90	79.52
number of individuals living in poverty or at risk of poverty	-125 000	-235 000	286	-19170	34000	19455.94	53170.2	181 000	-122 429
Share of renewables	30.8	34	1.2	0.3	-0.1	0.9	-0.4	29.8	42.8
Greenhouse gases	na	na							
Energy efficiency	na	na							

Source: WIFO. *Growth rates are based on 2000-2010 or according to data availability, see the discussion of the individual targets.

The simple purpose of target paths is to provide a yardstick against which actual values can be compared. The yearly target values should not be taken as an economic goal per se, what matters is the goal for the year 2020. The yearly comparison between target and actual value however indicates Austria's current position which can inform policy making. The analysis of target paths yields rather clear-cut results concerning areas where efforts should be intensified. However, it is important not to set economic and environmental strategies solely bearing in mind the Europe 2020 key targets. In particular, progress towards targets should not be the only gauge of Austria's economic performance. Rather, a broader perspective on the overall target of smart, inclusive and sustainable growth should be adopted. While focusing on a few important targets helps policy coordination and strategy formulation across the EU Member States, caveats should be outlined where necessary, not least because target setting is always against a backdrop of uncertainty. If targets are not reached there needs to be a sober analysis of why this is the case, with the benefit of hindsight. This analysis may pinpoint factors that prevent targets from being reached even though they may be compatible – or not - with favourable growth perspectives.

Targets are not independent from each other. There are or there may be target conflicts and complementarities, i.e. situations where progress on one target may be accompanied by a lack of progress on another target (conflict), or situations where progress on one target helps the progress of another (complementarity). Several examples are relevant here.

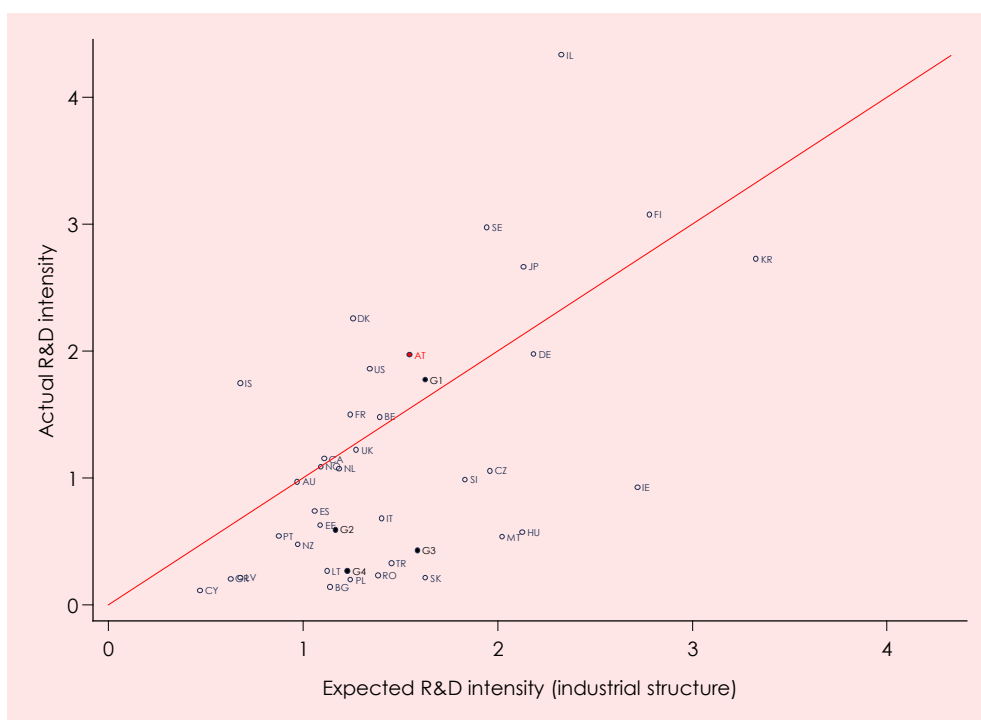
First, a clear example of complementarity is between R&D and higher education. It has already been shown that the R&D target is ambitious, not least because business sector expenditure dynamics are much weaker than required. On current trends, the R&D target is unlikely to be met. At the same time, the higher education target is likely to be met. Now this on its own should not lead to decreasing or stagnating public expenditure for higher education (research), and increasing public support of business R&D. Targets are not “tradable”.

The public financing of business R&D is already quite high, as shown above. There may also be structural reasons why Austria's business sector does not markedly increase its R&D intensity. Business R&D expenditures (BERD) are heavily influenced by the industrial structure of each country. Industries feature different average R&D intensities required for competitiveness. In pharmaceuticals or computers, R&D intensity of production is very high. In metals or wood production, typical R&D intensity is much lower. Countries specialized in industries featuring low typical R&D intensities such as Austria can be "competitive" with much lower R&D intensities than countries specialized in industries characterized by high R&D intensities, *ceteris paribus*. Reinstaller - Unterlass (2012) develop a method to compare business sector R&D intensities controlling for varying industry specialization. Figure 21 shows this for a number of OECD countries. The horizontal axis shows expected business sector R&D intensity due to industrial structure – when each industry in a country would feature exactly average R&D intensity (calculated over several countries of the OECD). It can be seen that countries like Denmark or Austria are specialized in industries which are typically not R&D intensive, as they are quite far to the left, whereas countries such as Hungary, Ireland or Korea are far to the right. The vertical axis shows actual R&D intensity of the business sector. The distance to the 45-degree-line is the country-specific R&D intensity. A country above the 45-degree line achieves higher than expected R&D intensity, given its industrial structure. A country below this line achieves lower than expected R&D intensity. It can be seen that Austria is clearly quite R&D intensive given its industrial structure. Indeed, the main story of increasing R&D intensity in the Austrian business sector has been "sectoral upgrading", rising R&D intensity within given sectors. Although there are countries even more R&D intensive given their structure (e.g. Denmark, Sweden), existing firms in Austria may not need to raise R&D intensity much further to maintain their competitiveness. A boost to R&D intensity may then come mainly from structural change towards more R&D intensive industries.

Such structural change should not be overly forced by top down planning as long as Austria's industries are as successful as they are at the moment, given the further potential for upgrading to defend competitive advantage against lower income countries. However, structural change should also not be artificially slowed down by e.g. unfavourable framework conditions for the expansion of R&D intensive industries, such as the availability of highly skilled workers, often of a tertiary nature. R&D intensive industries have usually a much higher intensity of tertiary educated workers. Here the higher education target comes into play. Figure 22 and Figure 23 compare the R&D and higher education targets of the EU Member States. It is obvious that while in R&D, Austria aims at the top, in higher education – and that is including ISCED 4a, upper secondary vocational schools – Austria only aims at the European average. Below, when discussing measures to increase the number of S&T students, it will be observed that the share of S&T students to total tertiary students is actually quite high in Austria, so that the problem of the low number of S&T students is one of an overall low participation in tertiary education (as well as of few women choosing S&T study fields).

Hence, prioritising the higher education target – and actually going beyond that target – may actually indirectly contribute to also reaching the R&D target, by fostering structural change towards R&D intensive industries. Additional R&D expenditure would primarily come from business, not from the public sector, also contributing to reaching the R&D expenditure distribution goal.⁶ This is just an example of course to show that targets should be examined for potential interdependencies and to caution against a narrow view of the targets guiding policy making.

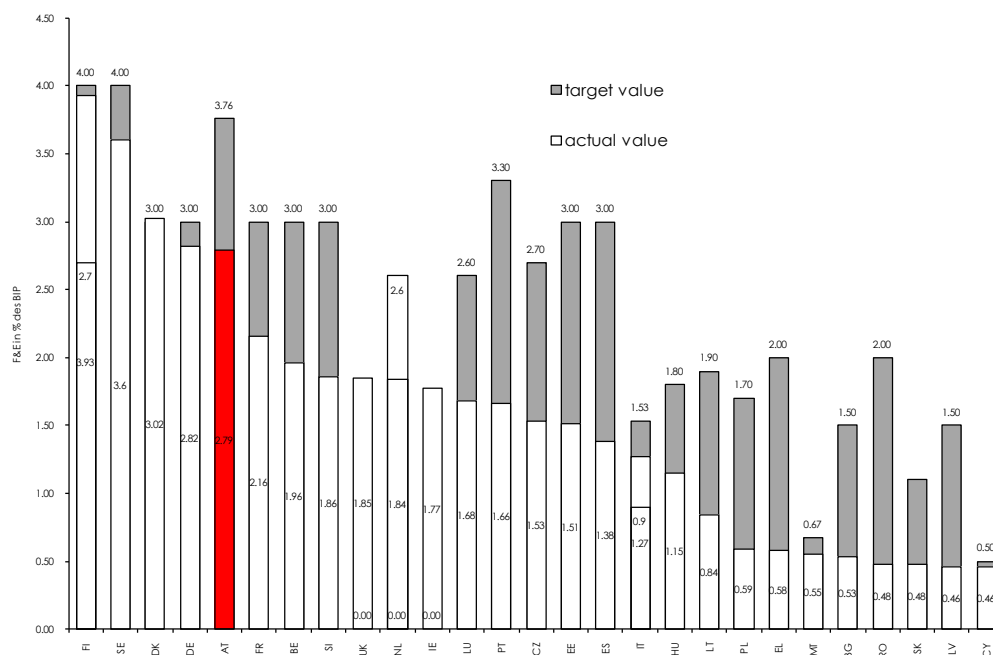
Figure 21: R&D intensity in the business sector, controlling for industrial structure, 2009



Source: WIFO. Group 1: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, Sweden, United Kingdom. - Group 2: Cyprus, Greece, Italy, Luxembourg, Portugal, Spain.- Group 3: Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia. - Group 4: Bulgaria, Estonia, Latvia, Lithuania, Romania.

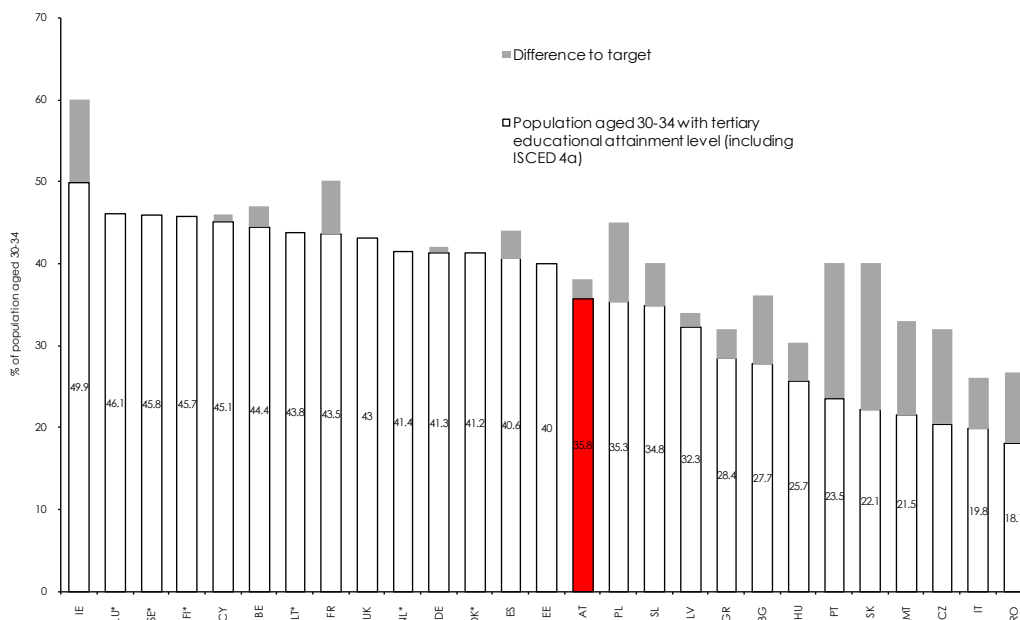
⁶ "Provided effective technology transfer systems are put in place, academic research is probably the most effective source of new ideas, which in turn induce further research for the business sector." (Van Pottelsberghe De La Potterie, 2008, p. 7)

Figure 22: Europe 2020 R&D target and actual values in the EU



Source: Eurostat, WIFO.

Figure 23: Europe 2020 higher education target and actual values



Source: Eurostat, WIFO. *Finland, Denmark, Netherlands, Lithuania, Sweden and Luxembourg are "above target" as they use narrower national target definitions (but their narrower actual values are not shown here).

A different case is the relationship between R&D and employment. Process innovation, in particular, may lead to worker displacement, while product innovation usually leads to increasing employment (see e.g. Harrison et al., 2008; Lachenmaier - Rottmann, 2011). Which effect actually dominates will also be influenced by international competition. When process innovation is necessary to remain competitive at the firm level, then the worker displacement has to be weighed up against the loss of all workers.

Another example only very briefly mentioned here is the potential conflict between the economic performance goals, or goals which influence economic performance, such as R&D, employment and education, – and the environmental sustainability goals. A more successful R&D and employment performance will very likely go hand in hand with higher GDP growth (see the growth framework in the next chapter), which will make reaching the environmental goals harder, as outlined above. In this case though, the policy direction is clear: environmental efforts have to be stepped up significantly to ensure the compatibility of economic and environmental performance. There may be complementarity between R&D and the environmental targets though if R&D is more strongly directed at finding solutions for the climate challenge. In fact several papers argue for stronger directed technical change in terms of specific research subsidies to combat climate change (see e.g. Acemoglu et al., 2009).

Finally, education is very clearly complementary with R&D as illustrated above, but also of course with employment and poverty. The unemployment rate of people with low qualifications in Austria was about 18% in mid-2012, of people with tertiary qualification below 3%. Education may thus always be regarded as another policy package to foster R&D and employment and to reduce poverty, and not only as a target in its own right.

3. How do policies influence economic growth – a short framework for economic growth

Before we turn to the discussion of policies proposed to reach the targets – or smart, inclusive and sustainable growth – we provide an economic growth framework – namely which production factors contribute to the growth of GDP. This allows us to systematically assign policies to growth components or production factors.

If we ask how GDP is produced, we can link GDP to various production factors. Technically, this is called growth accounting (see Barro, 1999, for a detailed discussion; Salvador et al., 2006, for an application to Euro Area growth). Put very simply, GDP is the product of labour and capital and of the productivity or efficiency with which labour and capital are used. The more people work, the higher the capital stock (e.g. the number of machines) and the higher the productivity of people and capital, the higher GDP will be.

So in a very basic form we can write

$$Y = f(A, L, K)$$

which basically says that GDP Y is the result of some functional combination of productivity (or the level of technology) A , the quantity of labour L and capital stock K . It is important to mention that the concept of economic growth does not refer to the growth of GDP only, but is always in relation to population size, hence GDP per head. Only when real GDP per head is increasing do we speak of economic growth. If we assume a specific functional form – a Cobb-Douglas production function - we can detail the production factors much more. GDP per head can be broken down into labour productivity and labour utilization, where the capital stock per labour unit forms part of labour productivity. **Hence in its most simple form GDP per capita growth depends on how much labour we use out of the total potentially available labour force and on how productive people are in their hours worked.** Use of labour can be seen from the intensive margin – i.e. hours worked per person; and from the extensive margin – i.e. how many people are working relative to potential (working age population); productivity of workers and employees is influenced by the quality of their skills, the capital they can use (e.g. machines, transport infrastructure etc.) and by overall efficiency in turn determined by technical progress, quality of management etc.

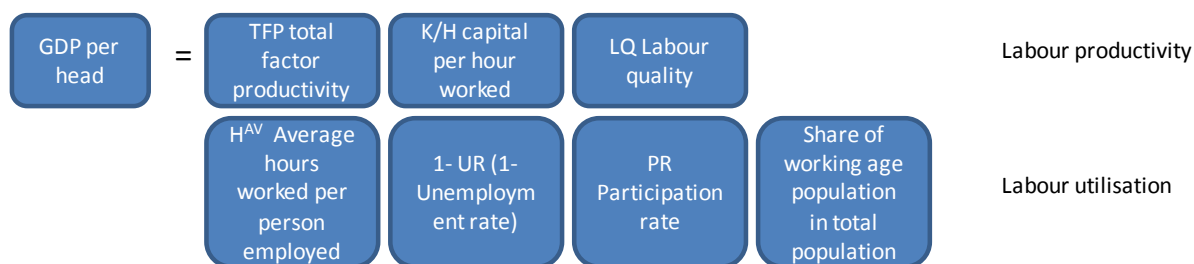
Following Salvador et al. (2006) we write

$$Y^{PC} = \underbrace{TFP \times \left(\frac{K}{H}\right)^{(1-\alpha)} \times (LQ)^\alpha \times H^{AV}}_{\text{Labour productivity}} \times \underbrace{(1 - UR) \times PR \times \frac{P^{WA}}{P^{tot}}}_{\text{Labour utilisation}}$$

Figure 24 rewrites this spelling out the symbols for the growth components. Total factor productivity is a measure for technical progress, although in practice it often measures a wider

set of variables. Capital per hour worked or capital intensity reflects the size of the capital stock relative to total hours worked. Labour quality refers to schooling and training. In practice, it is often measured by years of education, educational attainment or quality of schooling. α refers to the wage share in GDP. The labour utilisation concepts are clear from their name. GDP per head will increase ceteris paribus the higher the total factor productivity (efficiency), the higher the capital per unit of labour, the higher the labour quality, the higher the average hours worked per person employed, the lower the unemployment rate, the higher the participation rate and the higher the working age population relative to total population.

Figure 24: GDP per head growth components



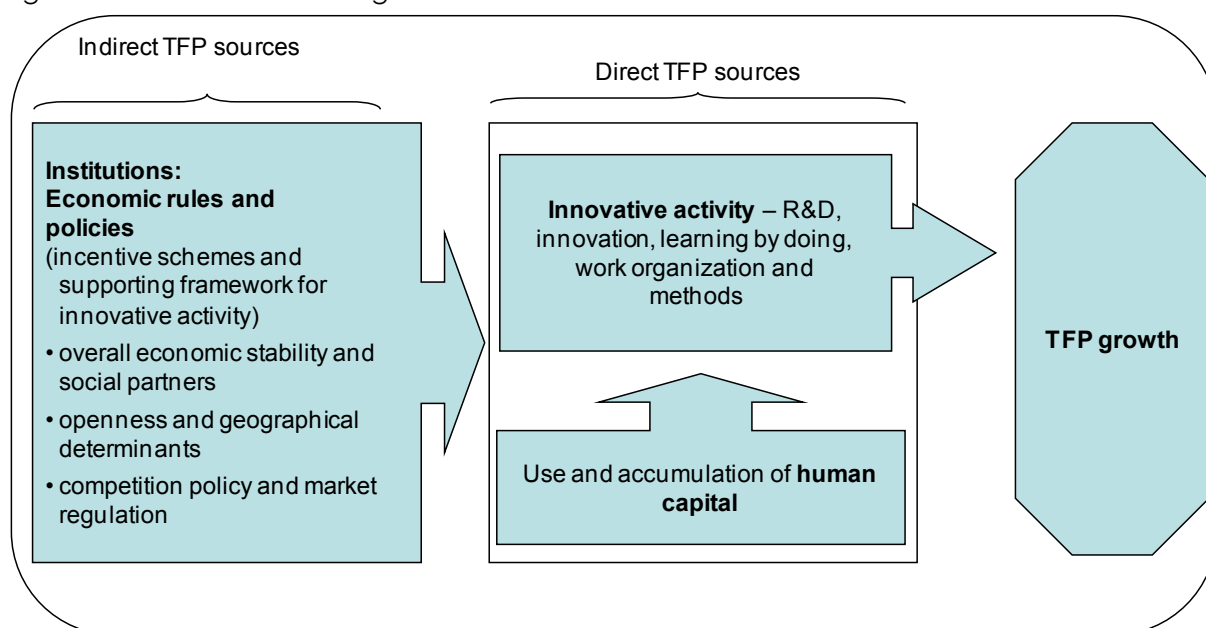
Source: Salvador et al., 2006, WIFO

Ultimately, what drives long-term growth (or income differences between countries), is total factor productivity, or using available capital and labour more efficiently (see e.g. Hall - Jones, 1999). Labour utilisation cannot go beyond 100% of the population and 24h per day. In fact there would be a clear negative impact on productivity if labour utilisation reached its technical "full potential" as young people need education and people need rest from work. Population growth in itself lowers GDP per head. There are also limits to capital accumulation due to diminishing returns; and to human capital accumulation (labour quality) as people cannot indefinitely acquire new skills. However labour quality can be seen as an important determinant of TFP, as a source of ideas which determines technical progress (and not just as the sum of skills available in the work force). In this sense, there is no limit to the potential contribution from human capital to growth (see Bock-Schappelwein - Janger - Reinstaller, 2012, for a detailed account of how education and training relates to economic growth).

Framing total factor productivity in terms of ideas for new products, services and production processes, we can make a few observations (see Jones, 2005, for viewing growth in terms of ideas). As long as there are new ideas for improving existing products and services, or the production process of these products and services, and ideas for conceiving entirely new products and services, total factor productivity will increase. Figure 25 presents a framework for TFP growth. Obvious candidates for influencing TFP growth are research and development or more broadly innovative activity in general, but also management quality which bears on the way production processes are organised (see Bloom et al., 2012, for cross-country evidence on the impact of management quality). Innovative activity as a direct determinant of

TFP growth depends, as previously stated, on the human resources capable of carrying out innovative activities; hence they have to be framed in complementarity with innovative activity as already outlined above in the overview of all targets. Innovative activity depends on a host of other factors – indirect determinants of TFP growth – which either provide incentives to undertake innovative activity (e.g. domestic or international competition) or a supporting framework for decisions to engage in innovative activity. By definition, the return on innovative activity is uncertain and will only lead to higher costs in the short term. Without political and macro-economic stability, or intellectual property rights safeguarding the appropriability of ideas, firms will shy away from such risky operations. See Gnan - Janger - Scharler, 2004, for a detailed discussion of the sources of TFP growth. The large variety of policies and institutional settings or framework conditions underpinning performance in an area also shows that the measures contained in the NRP must be seen really only as the tip of an iceberg. The overall picture is a larger one and this should be borne in mind when assessing the measures formally put in place to reach the targets.

Figure 25: Framework for TFP growth



Source: Gnan - Janger - Scharler, 2004

The discussion on the importance of TFP growth should not be interpreted as saying that labour utilisation matters less than labour productivity for economic performance overall. Of course employment is of primordial importance for individual welfare, and for fiscal and economic sustainability. There is little value in having high TFP growth with low employment. It must be stressed though the importance of innovative activity rises compared to other growth components such as capital investment as an economy develops. Economies at the technological frontier often face relatively high labour costs, so that firms, often in the form of

start-ups, increasingly have to rely on innovation-based growth strategies, for which they need qualified human resources, innovation financing, and access to a well performing science-base (see Acemoglu - Aghion - Zilibotti, 2006; Aghion - Howitt, 2006, for the changing importance of growth components as economies develop).

The approach above views GDP from the production, or supply side. This shows “potential” GDP, which is only equal to actual GDP – the GDP reported in newspapers - if all production factors outlined above were fully utilized. However, in practice, production factors may not be fully utilized, because there is not enough demand. From the demand side, actual GDP can be decomposed into:

$$Y (BIP) = C (\textit{private consumption}) + I(\textit{gross investment}) + G(\textit{government spending}) + (X - M)(\textit{exports} - \textit{imports})$$

Policies to keep demand close to potential (“stabilisation policies”) production are mainly macro-economic policies, monetary and fiscal policy. Monetary policy is not in the discretion of the Member States anymore (with the exception of financial market regulation, where some national competency remains) and fiscal policy is coordinated at the European level in the framework of the Stability and Growth Pact. The yearly stability programme is the twin document to the NRP, outlining Austria's fiscal short- and medium-term policy. This is not part of the study here, which focuses on structural policies aiming at increasing potential GDP, which are mainly dealt with in the NRP. However there are a few measures in the NRP which are directed at demand, such as the support of the internationalisation of Austrian firms.

While potential GDP puts a speed limit on the trend rate of long-term growth, demand-side GDP fluctuates around this potential. They are not disconnected – when production factors stay underutilized for a long time, they may lose their production potential. A classic example is long-term unemployment caused by weak demand: skills become obsolete when they are not used, there is deterioration of potential GDP due to insufficient demand (long-term unemployment may however also be influenced by labour market regulations). See Gaggl - Steindl, 2007, for a discussion on how the business cycle – short-term demand fluctuations – may affect longer-term growth trends.

The two target areas poverty and the environment do not easily fit into this framework. The goal of reducing poverty can be seen from two angles: from the supply side – getting people into work at salaries which are above the poverty threshold (wages paid to production factor labour), or from the demand-side – alleviating poverty by increasing consumption possibilities by social policy. In practice, there will always be a mix of policies. Poverty is heavily influenced by education and employment policies, which figure strongly in the NRP; and also by social policies.

The environment targets are split into greenhouse gases, share of renewables and energy efficiency. From the angle of greenhouse gases, higher GDP usually leads to higher greenhouse

gases. GHG are a negative side-effect of production (output) which is not captured by the classic growth accounting framework, unless greenhouse gases are priced and hence turn from a negative externality into a production cost. This is done by the European ETS, the emission trading system (see above, environment targets for a short description). Decreasing greenhouse gases will then lead to lower production costs and hence higher value added or GDP. From the angle of energy consumption or energy efficiency, energy is a production factor (input) just like labour. It is costly to use, decreasing the amount of energy needed per unit of value added will increase GDP. Renewables are a way to limit the negative consequences of higher energy use on greenhouse gases. Their impact on GDP depends on the relationship between the costs of energy and the costs of greenhouse gas certificates, amongst other things.

Whether it will be possible to combine higher economic growth with decreasing energy use and greenhouse gas emissions in absolute terms is not known yet. This will most certainly depend on technological innovation, or technical change – this time though it needs to be directed at the climate challenge.

From the decomposition in Figure 24, we can easily attribute Europe 2020 targets and NRP policy areas as well as selected individual measures to different GDP production factors or growth components in Table 15. NRP policy areas refer to the headings in the NRP 2011 “The most important challenges and measures” (translation sometimes changed from official version). As discussed in the overview of all targets, there is of course some overlap. Some policies address several growth components at the same time, e.g. education addresses labour quality (productivity) and employment at the same time. Investment by firms is often necessary to transform ideas into successful products or processes which actually increase added value, so innovative activity is often associated with investment and capital intensity. There is no specific unemployment target but the early school leavers' target was seen as a part of labour quality thus also categorised under unemployment. This is because the unemployment of the low-qualified is at around 18%, whereas the unemployment of higher education graduates is at below 3% in national statistical definition.

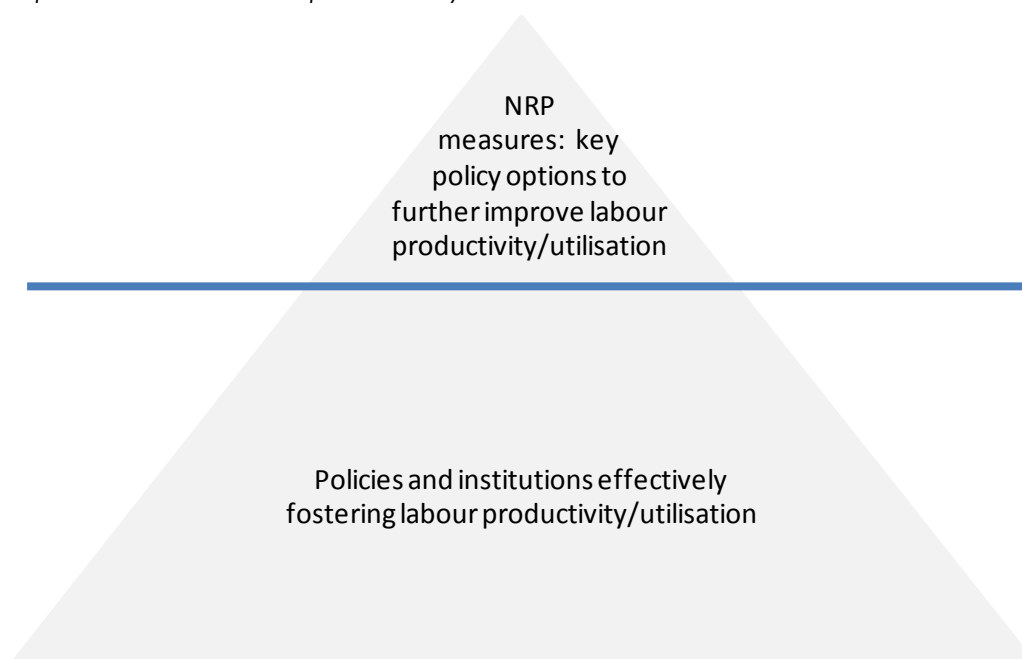
Table 15: Growth components, key Europe 2020 targets and NRP policy areas

GROSS DOMESTIC PRODUCT GDP	Labour productivity		
	Growth component	Target area	NRP policies/measures
	TFP	R&D 3.76% of GDP	The path to innovation leader – the Austrian Strategy for Research, Technology and Innovation Boosting innovation capabilities of the business sector; Boosting performance of (non-business) research in Austria Further development of the information society Competition and business framework conditions
	Capital intensity CI		All the measures impacting on investment (e.g. information society - ICT capital services)
	Labour quality LQ	Tertiary graduates 38% of population aged 30-34; early school leavers 9.5% of population aged 18-24	Increase of participation in education, preparation for university studies, and mobility in the tertiary sector Number of graduates from natural sciences and technology studies Improvement of educational levels and lowering the drop-out rate Attractiveness, quality, and permeability of occupational training
	Labour utilisation		
	Growth component	Target area	NRP policies/measures
	Average hours worked per person employed AH		Individual measures e.g. Care infrastructure, full-day schooling.
	Unemployment rate UR	early school leavers 9.5% of population aged 18-24	See above
	Participation rate PR	Employment rate 77-78% of population 20-64	Labour market participation of older employees Participation of women in the labour market Participation of juvenile persons, persons with a migration background, and low-qualified persons in the labour market Quality of labour
	Share of working age population in total population WAP		
	Other target areas		
	(P)	Poverty	Compatibility of family and job Participation in gainful employment of groups at risk of poverty at a working age
	Reduction of GHG in ETS, increase of energy efficiency increases GDP (E)	Reduction of greenhouse gases by 16% Share of renewable at 34% Energy efficiency increase	As targets, in addition resource efficiency.

Source: WIFO.

In summary, this section has linked different NRP policy areas to their respective growth components. This is of course a symbolic exercise as policies and their effects overlap and are complementary. Linking the NRP to a growth accounting framework and to the empirical growth literature leads to the crucial insight that the measures contained in the NRP are only the tip of an iceberg, ideally addressing the most important key policy options or bottlenecks on the way to reaching the targets. The large part of the iceberg under water symbolises the foundations of the economy namely the policies and institutional settings which work well and contribute to effective labour utilisation and labour productivity.

Figure 26: The NRP as the tip of an iceberg addressing binding constraints for further improvement of labour productivity and labour utilisation



Source: WIFO.

4. Overview of policies to reach the targets

4.1 Analytic grid for assessing the policies put in place to reach the targets

We now turn to the third part of this report, namely assessing whether the NRP measures, the tip of the iceberg, do indeed reflect the key policy options, or bottlenecks for reaching the targets. This section of the report introduces the analytic grid of the policies to allow for a structured view on Austria's efforts to reach the Europe 2020 targets, or to foster smart, sustainable and inclusive growth. Only policies at the federal level will be part of this grid. Policies or measures will be grouped by key Europe 2020 targets and further by subsidiary targets within each target area (e.g. employment rate – employment rate of the elderly). First, a statement is made whether the measures can be assessed in principle, i.e. whether there is enough information available or whether the content and purpose of measures are clear. In a second step we assess the potential contribution of the measure to reaching the main target, the subsidiary target and to address a country specific recommendation in case there is one (CSR). For this purpose, we give scores between 1 (low) and 3 (high) to signal a potentially low, medium or high contribution to reaching the targets. This assessment is based on two simple criteria, first whether the measure in principle addresses important bottlenecks for progress towards the targets (or responding adequately to the CSR) and second on the scope or dimension of the measure – is it a small initiative with a budget of a couple of million Euros or is it a sweeping structural measure. The background for the assessment is, in addition the available data, expert knowledge by WIFO contributors to this report who are experts in their field.

There is no assessment whether the measure is effective or not in terms of the individual goals of the measure. This would require much more detailed evaluative work relying on data or qualitative information; such an evaluation could be undertaken selectively in a second round of this monitoring report. Following the assessment of the potential contribution of a measure is a qualitative assessment of the measure in case the numeric score is not sufficient or would not do justice to the measure on its own; e.g., if the scope of a measure is variable, the numeric score of a measure may be 3, but in the qualitative assessment there will be a qualifier to this score namely that the score depends on the maximum scope of the measure.

The next column in the grid lists any crucially important measures or policies lacking to address bottlenecks on the way to the target. This assessment is done per group of measures directed at a certain subsidiary target. It is by definition not only based on information contained in the NRPs – which can only be the tip of an iceberg, as shown before – but also on the expert knowledge of WIFO contributors to this report. The assessment does not look at measures or framework conditions which are simply not mentioned in the NRP but which form an integral part of the Austrian policy and institutional setting relevant for reaching the targets (the part of the iceberg under water). As outlined above in the case of policies trying to foster innovative activity (or total factor productivity), there is often a great number of policies or institutional settings contributing towards the success of a specific target area. It is impossible

to mention explicitly all of those which work well. Rather the report concentrates on missing puzzle pieces which if not addressed could prevent the puzzle from being fully assembled. Focusing on bottlenecks or main problems to be tackled to reach the targets or on the most binding constraints on economic growth is in line with papers on growth diagnosis (Hausmann - Rodrik - Velasco, 2004). However, this of course "biases" the reports towards pinpointing areas to be improved while not always explicitly acknowledging areas which work well. The assessment of missing puzzle pieces will also be compared to the assessment of the Commission in its analysis of the Austrian NRP (Commission staff working document) where there is some disagreement.

The next column refers to the progress of the measure, followed by the question whether in the case of an already existing measure there has been an impact evaluation. This is left empty for the moment, as this information could be provided by the government. Finally, the measure is attributed to an element of the growth framework outlined above by reference to the shortcut indicated in Table 15.

In summary, ideally the **grid in conjunction with the past trends** illustrated above in each target area should lead to an assessment of whether the measures in place or announced (the ones in the NRP or the other ones, not mentioned) are sufficient to reach the targets, or whether important bottlenecks on the way to the targets fail to be addressed by measures. Of course, such an assessment has to be regarded with caution. First of all, there has been no in-depth analysis of policies within the scope of this report. Furthermore, the past is not necessarily a good guide to the future, external events such as a deepening euro crisis may at any time knock the trend off its track towards the target. Even if efforts are on track, there should be no complacency; and if efforts are off track, the best way to catch up may sometimes not be the most direct way – as in R&D, further increasing the public promotion of the business sector R&D may be less effective than e.g. going beyond the target in higher education. There will also be an assessment of whether announced measures effectively address the CSRs. As this is the beginning of the Europe 2020 strategy, the assessment of whether any key policy options remain unaddressed by the measures announced will naturally be at the centre of this monitoring project; towards the end of the strategy, the monitoring will of course turn more strongly to the **actual implementation/results** of the measures announced. Due to the time lags between the implementation of measures and the effect on the targets, it may make sense to frontload policy efforts, i.e. to introduce new measures or step up existing ones predominantly at the beginning of the strategy. However most areas face absorption constraints: e.g., in R&D it is not possible to provide the bulk of the stimulus at the beginning, because there is a constraint on how many R&D projects can be carried out with the available human resources. In employment, the same holds true – the labour market has a limited absorption capacity. In these cases, a steady flow of policy efforts over the life cycle of the strategy seems to be more appropriate. In education, by contrast, the more is done at the beginning, the better.

Before looking at the grid itself, we start with a verbal summary of the main points per area and a short summary assessment across the different target areas. For each area, we try to outline key policy options, or the bottlenecks to be tackled for progress towards the targets, and then try to see whether the NRP addresses these key policy options based on the measures in the analytic grid.

4.2 Policies for reaching the R&D target

Key policy options

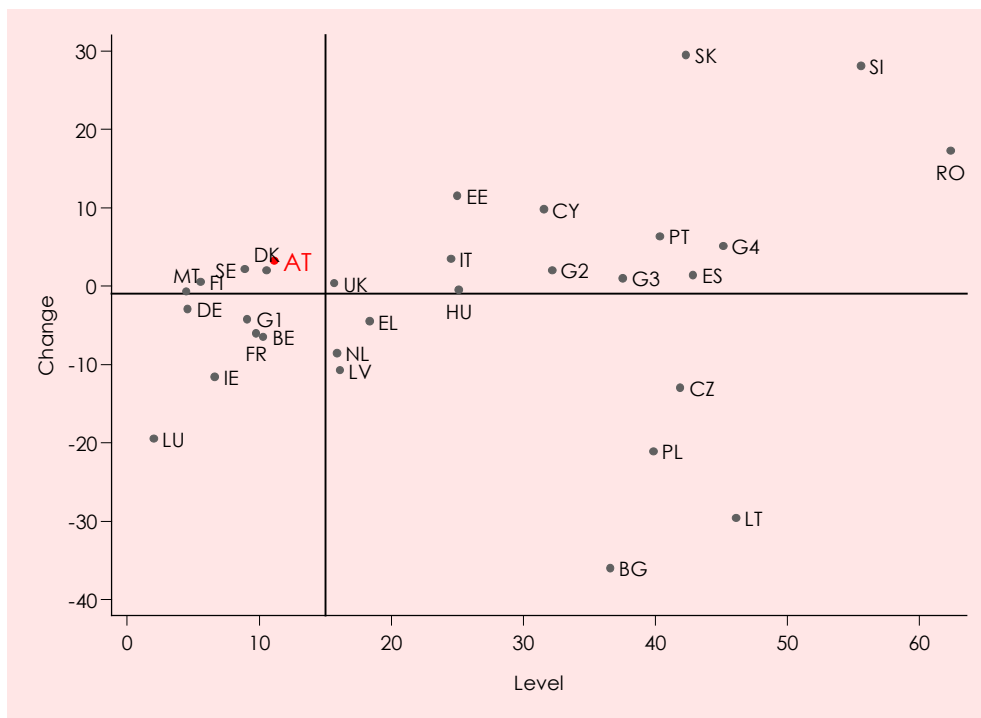
Taking a narrow view of the R&D target, efforts should be addressed at raising the R&D ratio and at achieving a split between public and private sector R&D expenditure of around one third – to two thirds. Taking a broader view, the target area contains policies aiming at increasing the innovation performance of firms and the research performance of the science base to foster smart and sustainable growth. We will first discuss the narrow interpretation.

There are basically two main ways to increase R&D intensity. One is to foster structural change towards industries or sectors that are on average more R&D intensive than the industries in which a country is currently specialised. Fostering structural change means simply increasing the share of the industries in total value added or total employment, so that these sectors get a higher economic weight. The second way is to raise R&D intensity in the existing sectors, i.e. there is not much change of shares between industries, but within industries R&D expenditures go up ("sectoral upgrading" as opposed to structural change). In practice, both effects are going to be present. However, so far, the specific Austrian growth performance in R&D intensity has been dominated by sectoral upgrading, raising R&D intensity in the sectors in which Austria is specialised (see Figure 21 above).

Contrary to the Commission's assessment of the NRP (Commission staff working document), this upgrade or this increase in R&D intensity did have palpable economic effects. The commission judges economic effects of R&D expenditure on the basis of the indicators in the Innovation Union Scoreboard. This is a comprehensive set, but indicators on sectoral upgrading are lacking in the assessment of economic effects of innovative activity; the Commission strongly relies on indicators of structural change only (share of knowledge-intensive sectors, share of knowledge-intensive services exports etc.). One such indicator of sectoral upgrading is the export quality in technology-oriented industries (Figure 27). It basically shows the position of a country on the "quality ladder" in an export sector, i.e. the share of price segments high – medium – low of manufacturing exports in industries characterised by high R&D intensity. Figure 27 shows the share of exports in technology-oriented industries in the low price segment. The level of exports in 2009 is on the horizontal axis, the change 1999-2009 is on the vertical axis. Austria's level of low price exports is very low, meaning that around 90% of its exports in technology-oriented industries are of high or medium quality. This puts it together with countries which are innovation leaders in the IUS such as Denmark or Sweden, pointing to

high economic effects of innovative activity. For more details on the outcome monitoring of innovative activity see Janger, 2012; Janger et al., 2011; Reinstaller - Sieber, 2012.

Figure 27: Share of exports of technology-oriented industries in the low price segment, 1999-2009



Source: Eurostat Comext, WIFO, Reinstaller - Sieber, 2012. Group 1: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, Sweden, United Kingdom. - Group 2: Cyprus, Greece, Italy, Luxembourg, Portugal, Spain.- Group 3: Czech Republic, Hungary, Malta, Poland, Slovakia, Slovenia. - Group 4: Bulgaria, Estonia, Latvia, Lithuania, Romania.

While so far economic performance related to innovative activity has been good, demonstrated by the high quality of exports and good export performance, purely in terms of R&D intensity, Austria will need to more strongly foster structural change towards R&D intensive industries (for an up to date, detailed assessment of Austria's industrial structure, see Bock-Schappelwein - Janger - Reinstaller, 2012). Taking a broader view of policies to foster smart, sustainable and inclusive growth, structural change should at the minimum not be artificially slowed down by e.g. policy or institutional deficits in supplying important ingredients for structural change, such as venture capital, higher education graduates, a strong science base... At the same time, fostering structural change should not come at the expense of well-working sectors of the economy.

More precisely, policies for structural change should aim at start-ups in R&D intensive sectors and at the above average growth of existing, R&D intensive firms. It is obvious that these poli-

cies are not pure R&D policies but contain elements of industrial policy (as in firm growth, firm creation dynamics, luring R&D intensive firms to Austria etc.) and education policy (as R&D intensive firms need necessary human resources). Policies for sectoral upgrading should aim at increasing the intensity of R&D in existing firms and at getting traditional firms to innovate/to undertake research activities and are thus more narrow R&D and innovation policies. But of course when the R&D intensity is increasing, so should the share of highly qualified workers which undertake the R&D activity.

Examples for intensity raising policies are the classic direct public R&D promotion schemes (monetary support for research projects), innovation vouchers to motivate firms to engage in innovation activity, fiscal support of contract research and own R&D, cooperation between science and business... Examples for structural change policies are e.g. improving venture capital availability, improving conditions for firm creation, for spin-offs from universities etc. Education policies usually target both, but education policies targeted at structural change would lean more towards tertiary graduates, while incremental innovation in existing sectors in Austria often also needs upper secondary vocational graduates for innovation activities in the production process. In practice, there will of course be an overlap between these policies and their effects.

Next to the overall target for the R&D ratio, there is also the national target for the share of public and private sector R&D financing. Here, there are no easy solutions. The main imperative for the public sector is to maximise the leverage of its promotion policies; as the target would, if taken at face value, limit the volume of public financing of R&D. As public financing of business sector R&D expenditure is already quite high, this should not be increased to the detriment of higher education research. On the contrary, fostering the performance of the science base may be an effective way to boost structural change, i.e. a higher share of R&D intensive sectors which would also finance more R&D and take the weight off the public sector's shoulders in the medium-term. Of course such policies take time to bear fruit but the positive effects are then likely to be felt beyond 2020. Also the use of non-R&D subsidy based tools such as e.g. using public procurement to stimulate innovative activity in the private sector may be one way to maximise leverage of public R&D policies.

Finally, when we think about the policies aimed at R&D less from a narrow target perspective and more from a broad growth perspective, we can ask what is the bottleneck or the most binding constraint for a further improvement of innovative performance of firms and of the research performance of the science base. Here, the evaluation of the Austrian innovation system (Aiginger - Falk - Reinstaller, 2009) pinpoints human resources for innovation, higher education and academic research as crucial inputs into the innovation process of firms which can be improved relative to Austria's level of development at the top of European countries.

Measures in the NRP – correspondence with key policy options and bottlenecks

How does the NRP live up to these challenges, does it address the main issues of the discussion above? The NRP structures its policies targeted at raising the R&D ratio in four parts:

- The path to becoming an innovation leader – the Austrian Strategy for Research, Technology and Innovation (in short “innovation strategy”)
- Boosting the innovation capabilities of the business sector;
- Boosting the performance of (non-business) research in Austria
- Further development of the information society

An assessment as to whether the measures address the bottlenecks for progress towards the targets is difficult due to the structure of policies in the NRP. The first measure is the innovation strategy which in fact contains everything, also education and academic research policies. The two subsequent policy packages do not directly correspond to subsidiary performance targets (e.g., the section on employment policies has four clear subsidiary targets, see below) and strongly overlap with the innovation strategy. In the grid of the measures, we tried to create tangible subsidiary targets particularly within the measures addressed at the business sector, by grouping measures by their goals. Here more than anywhere else, measures in the NRP are just the tip of the iceberg, with most measures not mentioned explicitly in the NRP, but featuring e.g. in the innovation strategy. For future documents, one could try to streamline the information on the measures, e.g. by dropping the second and the third policy package and instead focusing on the five areas of the strategy (education system, non-business research, business research, governance, financing R&D), outlining e.g. the most important measures addressing the most important bottlenecks. Some comments on how information in the NRP could be structured so as to allow for more effective implementation monitoring will be detailed at the end of this section.

In terms of the assessment of which measures are lacking, the plethora of measures announced in the strategy calls for a focus on implementation. Although the R&D target is among the ones furthest behind, in terms of measures the innovation strategy is certainly among the most comprehensive with consistent sets of announced measures to reach the Europe 2020 targets. It features a balanced analysis of the most important challenges or bottlenecks for a further improvement of innovation performance, such as human resources, basic research, venture capital, governance of the innovation system and structural change towards more R&D intensive sectors.

Points which could be addressed more strongly are non-tertiary human resources for innovation, such as graduates from technical upper secondary vocational schools. But even in the apprenticeship system there is considerable potential to train young people in occupational areas which ensure that innovative activity leads to productive activity, which ultimately leads to the value added justifying the innovative investment. So far, especially among women there is a choice of a few traditional occupations with little innovation potential (e.g.

hairdresser, office assistant and salesperson). People from the upper secondary vocational schools (“HTL”) are also in sometimes unsatisfied demand.

Furthermore, so far there is little information on how the public share in R&D financing could be lowered without endangering innovation performance. New models for the allocation of public R&D subsidies might be considered, such as auctioneering models; and the direct public promotion of R&D projects may be streamlined, or focused, to account for the importance of the tax premium on R&D activity.

Overall, there are many goals relating to higher education in the strategy, such as improving higher education teaching through a formula based unit cost model, improving research through more competitive financing, new organisational structures and doctoral studies, but compared with business sector policies there is less implementation so far; this of course is connected to policies for structural change, but also non-higher education measures to foster structural change, such as increasing venture capital intensity, are only partly implemented.

The information society initiative is only marginally relevant for increasing R&D intensity; however it may be important for boosting smart and inclusive growth. Goals are improving the infrastructure for and the use of broadband, access to broadband in rural areas and positioning Austria at the top of ICT nations. While the measures in the NRP contribute towards reaching these goals, the pivotal point for addressing the bottleneck broadband availability and use is a comprehensive strategy. The industry specific regulation needs to be coordinated with other industrial policies. The implementation of one of the internationally successful roll out models in Austria is not yet perceptible. Incentives for the roll out are primarily provided through subsidies.

In summary, based on past trends and on the policies put in place or announced by the government, the R&D target is currently not on track. However, in a broader view of going after smart and sustainable growth, the measures announced in the innovation strategy would lead to a considerable improvement of the Austrian innovation system in terms of performance, if fully implemented. Such a full implementation of measures may lead to reaching the R&D target somewhat after 2020; structural change is usually slow. The important issue to keep in mind is that R&D intensity is no performance goal in itself. If the Austrian economy's innovative capability and competitiveness continues to be as strong as it is currently, not reaching the R&D target by 2020 should not be a major problem.

4.3 Improving educational outcomes

Key policy options

Graduation rates⁷⁾ from tertiary education are an indicator of the current production rate of advanced knowledge by each country's education system (OECD, 2004). They rose by 19

⁷⁾ Sum of graduation rates for single year of age.

percentage points to 29% (1995-2009, tertiary type A), but they are still below the OECD-average (38%; EU 21: 39%) (OECD Education at a Glance, 2011), with the EU average for the share of tertiary education in the population aged 30-34 actually growing faster than the Austrian share. To increase higher education graduation rates, two main pathways can be chosen: first, reduce the dropout rate of students taking up higher education; second, increasing the share of pupils gaining entrance right to higher education.

Entry rates into tertiary education are comparably low, not least because the Austrian school system streams pupils at an early stage into a vocational and an academic track. Many pupils enter the labour market after vocational education (ISCED 3). Nonetheless entry rates into tertiary education have doubled to 54%⁸⁾ (2009, tertiary type A) since the 1990s in Austria, but they are still somewhat below the OECD-average (59%) (EU 21: 58%); almost 10 percentage points of the increase however come from international students studying in Austria (e.g. Germans).

Tertiary level dropout and survival rates are useful indicators of the internal efficiency of tertiary education systems. Reasons for leaving tertiary education programs are varied: students can realize that they have chosen the wrong subject, they cannot fulfil the standards set by the educational institution or they get an attractive job opportunity before completing the educational program. Unfortunately, timely international comparison of proper drop-out rates is difficult (a proper drop-out rate calculates the share of students who started university in a specific field but failed to finish any field; it may take a long time before it is clear that a student who started tertiary education has not finished it as he may return to university at a later stage). Hence survival rates specific to studies are more commonly used even if only an imperfect proxy. They measure for a specific study field how many students finished given to the total number who started at a given year. In Austria, the survival rate (Erfolgsquote) in 2009/10 was at 77%, up 7 percentage points from 2006/7.

As regards early school leaving, socio-economic background has a strong influence on achievement in the Austrian education system, and pupils from a disadvantaged background face a much higher risk of dropping out than their Austrian peers. A particular challenge is to unlock the potential of the young with a migrant background, since achievement gaps compared to native peers are amongst the highest in the EU. Key policy options are improving the overall quality of the education system – from pre-primary education up to the lower secondary system, giving specific advice and coaching to vulnerable students and lower achieving students and making sure pupils get a second chance. Examples of school-level factors that maintain lower achieving students are small class sizes, peers' success and teacher quality (see e.g. OECD, 2011).

Measures in the NRP – correspondence with key policy options and bottlenecks

⁸⁾ Sum of net entry rates for each year of age.

The Austrian approach in the NRP to increase the share of the highly skilled population and to reduce school drop-out rates is summarized in four policy packages:

1. Increasing the number of individuals participating in education, providing preparation and support for those interested in university, and increasing mobility in the tertiary sector
2. Increasing the number of graduates from natural sciences and technical studies
3. Improvement in the level of education and reduction of the dropout ratio
4. Enhancement of the attractiveness, quality and permeability of vocational training/education

The first two policy packages are related to efforts to increase the share of the highly skilled population; the second is overlapping with the R&D policy area, as increasing the share of S&E graduates is also a goal there. The third policy package tries to tackle early school leaving and the fourth policy package is related to quality aspects, as well as being relevant for entry rates into tertiary education (e.g. via Berufsmatura).

- Increasing the number of individuals participating in education, providing preparation and support for those interested in university, and increasing mobility in the tertiary sector

The first policy package aims to increase the share of the highly skilled population. The package has three components: higher participation rates in higher education, suitable preparation phases for university and fostering mobility within the tertiary sector; the first two parts can help to increase the share of the highly skilled population, the third one focuses on mobility⁹ and is not directly relevant for the targets. Some of the above-mentioned programmes (in the first two parts) are effectively addressing key policy options to increase the number of the highly skilled, namely those measures which are targeted at reducing student drop-outs such as guidance and advice for school leavers and at increasing the entry rate into higher education. Some of the programmes are unlikely to increase the share of the highly skilled population in the short run but they are very relevant for the medium or longer run (e.g. Studienchecker or Studienberatung NEU). The potential effects on the participation in higher education will probably only be seen beyond 2020. These two measures can help to reduce drop-outs from higher education as mentioned in the country specific recommendations. The contribution of the part of the "Hochschulplan" relating to the formula based unit cost model for teaching funding could be substantial for reducing dropout rates, depending on implementation (whether teaching resources will effectively match student numbers, or the other way round).

⁹ As regards mobility in the tertiary sector, Austria has an above EU average outbound long-term mobility in tertiary education (4.3 % of students per year to 2.8 % at EU level) and short-term mobility under the EU Erasmus programme (1.4 % of students in 2008/09) is also above the EU average⁹).

In addition to the measures listed, the Berufsmatura, i.e. an apprenticeship diploma plus a certificate of secondary education enabling access to tertiary education¹⁰, is an essential measure to broaden access to higher education (for the middle (vocationally) qualified), i.e. to increase the entry rate, but its effect will strongly hinge on the quantitative dimension of the measure, i.e. how many apprentices will choose to take the exam or are able to pass the exams¹¹. This in turn is influenced by the quality of the pre-university school system which is a crucial determinant of the entry rate into higher education.

In terms of broadening access to higher education, or increasing the entry rate into higher education, several measures are lacking. In particular, there are no measures aimed at under-represented groups (e.g. youth from low-income families, nor are there any programs to overcome financial barriers to participating in higher education, or measures to bring more flexibility into how you can enter higher education, e.g. subsidy programmes for employees to access higher education independent of age; matching subsidy programs with the duration of (higher, further) education programmes, for example via part-time “Bildungskarenz” – when there is only one year of subsidies available but the educational programme takes two years, uptake will be limited). Although there are reforms to the lower secondary school system and the new school type “Neue Mittelschule” is replacing the old “Hauptschule”, officially there is no end to early tracking of students by ability into different educational streams at the age of 10. This will necessarily impact on the entry rate into higher education as at this age; pupils' abilities are not fully developed yet so that there may be loss of potential. If this is not addressed, other measures must be intensified, such as improving the permeability of the vocational system (see below, e.g. via Berufsmatura for apprentices). However, it remains questionable whether this structural characteristic of the Austrian school system can be overcome by specific measures. Hence, when taking the target of increasing higher education at face value, early streaming has only partially been addressed. Another measure equally relevant for increasing the educational outcome (e.g. basic skills) and probably entry rates into higher education in the longer run is (high quality) full-day schooling. Here, recently there have been initiatives to upscale the expansion speed of full-day schooling. As stated, the quality of the pre-university school system is crucial; measures which typically feature in suggestions to improve the quality of schools are autonomy of schools in conjunction with nationwide standards and evaluation or accountability (see e.g. , OECD, 2010, Wößmann, 2003, 2006, 2008A/B), apart from a high-quality full-day schooling system. The Austrian government is currently setting initiatives in all of these areas, the implementation and success of which cannot be assessed fully yet.

- Increasing the number of graduates from natural sciences and technical studies

¹⁰ In Austria, both apprenticeship programmes and formal schooling are statistically classified as upper secondary education. But only formal schooling diplomas convey the right to enter tertiary education.

¹¹ In November 2011, 9484 apprentices attended Berufsmatura-related courses.

This policy set is only partly relevant for the target taken at face value, since the target does not say anything about choice of study field. However, in a broader view of smart growth, it is an important target which underlines the same target in the innovation strategy (see above). Shortages in graduates from S&E studies are seen as an obstacle to future growth in a number of economic sectors. Three facts are worthwhile: While the number of S&E graduates per 1.000 of the population aged 20-29 is below the OECD-average, Austria features actually an above average share of tertiary S&E (science & engineering) graduates: about one fourth choose engineering, manufacturing, construction or science (AT: 25.5%, OECD: 23.3%) and about one third choose social sciences, law or business (AT: 37.7%, OECD: 34.6%). 28.1% of the students study humanities, about 3% take medicine or arts. Therefore measures should be more focused on bringing more pupils into higher education overall (so that the same comments hold as above); and on women in S&T, where Austria also shows below average values.

With the exception of measures to improve information about S&E study fields, all other mentioned measures are limited to early intervention (i.e. measures a school level like e.g. young science). Whether these will have a major impact depends on a number of issues, such as the reach but also the integration of the measures in the normal school curriculum. A basic tenet of evaluation research is that permanent measures which target normal school teachers have a higher effect than ad hoc measures which are outside the school curriculum. Any potential effects on graduation rates cannot be expected before 2020, at the earliest. There should be more research on the impact of the Austrian upper secondary vocational school system (HTL) – where boys are very heavily represented – on peer groups later on in universities and how these affect female participation in tertiary S&E-studies.

It should be highlighted that the measures respond partially to country specific recommendations which are related to drop outs from higher education. In sum, measures are project-oriented; a coherent strategy for increasing the share of S&E students is largely missing.

- Improvement in the level of education and reduction of the dropout ratio

The third policy package addresses the challenge of preventing school drop-outs and improving the educational level of the working age population. Most of the listed measures can help to achieve better educational outcomes and strengthen basic knowledge. They are also consistent with the country specific recommendations to improve educational outcomes, especially of the disadvantaged young (e.g. counselling and professional orientation for 7./8. year at school,, "Neue Mittelschule", Measures for pupils with another first language than German, youth coaching). All the above-mentioned measures are to be welcomed. The comment on early streaming is also relevant here, as well as the one for full-day schooling and the one on the quality of the education system in general. Over the next few years, the 'training guarantee' (*Ausbildungsgarantie*) for those up to the age of 18 and youth coaching should help to keep pupils with significant deficits in the mainstream educational system and thus keep the number of school drop outs – despite the fluctuations in the past –at below 9.5%.

It is now important to embed all relevant measures (i.e. not only those listed in the national reform programme) — from pre-school education to formal education and lifelong learning — into one comprehensive national qualification strategy, which would be one measure lacking among the key policy options. This strategy should not only aim to reduce the number of school drop-outs and enhance educational outcomes but also to broaden access to higher education and to facilitate access to lifelong learning. Such a comprehensive strategy is a prerequisite for a sustainable labour market and social integration for the whole working age population, in particular for the disadvantaged. Clear responsibilities and financing structures are unavoidable, as for example in the field of lifelong learning to promote access/participation irrespective of employment or unemployment.

- Enhancement of the attractiveness, quality and permeability of vocational training/education

The fourth policy package refers to making vocational training/education more attractive, as well as improving its quality and permeability, i.e. ensuring that people who obtain vocational training will later also be able to move on to different educational tracks such as higher education. Hence, this policy package is also relevant for entry into higher education. Two concrete programmes are listed. One of them, the Berufsmatura, i.e. apprenticeship diploma plus certificate of secondary education, is essential for fostering a transition from upper secondary education to higher education. The second measure addresses the quality management in vocational schools. Both programmes also answer the recent country specific recommendations to improve educational outcomes.

In conclusion, the national reform programme includes a range of measures to improve educational outcomes, especially of the disadvantaged youth, and includes measures aimed at primary and lower secondary education as well as lifelong learning activities (see also the section on employment). Measures lacking or not fully addressed, are the impact of early streaming on entry rates into higher education. There are also no measures to broaden access to higher education for e.g. adult low income earners. Measures to reduce drop outs from higher education could be far reaching, depending on the implementation of the formula based unit cost model. Generally however, the impact of the measures on graduation rates in higher education is not immediately visible and first results are to be expected in the medium term at the earliest (around 2020 and beyond, as the target value is formulated with respect to the population age group of 30-34). This holds also true for advice and tutoring of new students. This should not be a reason however not to introduce reforms. It is furthermore essential to embed all the above mentioned measures aiming for better educational outcomes, regardless of whether at the pre-primary, primary, secondary or tertiary education or lifelong learning level in one common national strategy.

In summary, based on past trends and on the policies put in place or announced by the government, the Europe 2020 education targets are well on track to be met; the early school leaving rate is already below target, however due to the fluctuations in the past complacency is misguided, in particular as Austria shows vulnerable groups such as children with a

migration background. The higher education target is also on track for reaching the official target. In a broader view of going after smart and inclusive growth, there is no harm involved in trying to go beyond the official target which would have important benefits for the Austrian economy.

4.4 Increasing employment

Key policy options

Key policy options can be seen in increasing the employment rate of labour market segments which are clearly below the overall employment rate. For older people, the scope of increasing the employment rates of older workers is limited on the one hand by health related issues but also by legal constraints (e.g. the lower retirement age for women), relatively high incentives for early retirement in the Austrian pension scheme and educational attainment levels. For women, important constraints in increasing female (full-time) employment are associated with unpaid care activities (unequal distribution between men and women as well as the infrastructure of care facilities). Of course also the lower retirement age for women is relevant.

The main challenge concerning youth employment is the quality of the education and training system. Reducing education drop-outs as well as improving the quality of educational institutions is essential for fostering youth employment, especially for youths with migration backgrounds, and for decreasing the comparatively high unemployment rate. The Austrian tax system also works against fostering employment, especially for low-income earners, because of the high effective tax and the level of social security contributions.

Measures in the NRP – correspondence with key policy options and bottlenecks

The Austrian strategy to increase employment participation is split into four different packages of measures, which clearly correspond to main pathways or bottlenecks to increase the employment rate, especially the first three:

1. Increasing the labour market participation of older persons
2. Increasing the labour market participation of women
3. Increasing the labour market participation of the young, persons with migration backgrounds and low skilled persons
4. The quality of work

- Increasing the labour market participation of older persons

The Austrian labour market is characterized by low employment rates of older persons. The employment rate of the population aged between 50 and 64 in 2011 was 57.1% which is close to the EU average (57.5%) but clearly below the German rate of 68.2%. For those aged

between 55 and 64 employment rates are, however, considerably below the EU average (41.5% compared to 47.4% (EU average)) implying a relatively sharp decline in employment rates amongst higher age groups compared to other EU countries. The possession of a formal qualification is an important determinant of labour market participation especially for older workers (aged 55 to 64): the employment rate of older persons with a low formal education (ISCED level 0-2) is 30.4% in Austria compared to an EU average of 35.3% and 41.7% in Germany. If we look at female employment rates among the higher age groups, we see a low participation rate in Austria: while on average female employment rates (55-64) within the EU amount to 40.2%, the corresponding rate in Austria is 32.9% which is more than 20 percentage points lower than in Germany (53%).

Employment prospects for older unemployed workers decline during phases of economic downturns. On the other hand older workers are increasingly remaining in the labour market longer due to reforms in the pension system. At the same time employment prospects for older workers increase over time because the educational structure changes over time bringing with it lower shares of low educated people within a given age group (labour market attachment depends strongly on the education level). These facts imply that the number of both, unemployed as well as employed older workers is likely to increase over the next few years.

The first policy package aiming at increasing the labour market participation of older workers focuses mainly on three aspects: the legal conditions framing the pathway into early retirement, health aspects of older employees and fostering their rehabilitation and thirdly prevention measures to reduce health related employment drop-outs at an early stage. Most measures listed in the national reform programme that are aimed at the labour market participation of older people are unlikely to increase labour market participation in the short run but will be relevant in the medium and longer run. One shortcoming within this particular package of measures is that despite the policy shift towards "rehabilitation before invalidity" for persons below the age of 50 there are no structural changes aiming at invalidity pensions for those aged 50 plus, who are actually the vast majority of invalidity pensioners. Also the gender difference in statutory retirement ages is not addressed.

It must also be noted that within this package of measures the demand side of the economy should be considered to a greater extent. Increasing the employment rates of older persons should be also considered from the employer side by e.g. implementing more incentives for employers to employ older workers. Only one measure is directly aimed at promoting the employment of older persons by increasing incentives for employers namely the employment subsidies for unemployed older workers ("Eingliederungsbeihilfe").

- Increasing the labour market participation of women

Comparing female labour market participation in Austria with other EU countries shows that the female employment rates in Austria are relatively high compared to the EU average (69,6% compared to an EU average of 62,3%) but still lower than female employment in e.g. Germany (71.1%). On the other hand female employment participation amongst older age

groups is very low (only 49.6% of females aged between 50 and 64 are in employment in Austria). This steep decrease in employment in the older age groups is much more pronounced in Austria than in other EU countries (female employment rates drop to 50.6% (EU-average) and to 62.2% in Germany respectively). Female employment does not, in general, react immediately to economic development as the share of female employment in export oriented sectors is low. The employment rate of male workers, on the other hand, reacts more strongly to downturns since export oriented sectors tend to feel the impact of economic shocks more strongly.

The key policy options are addressed by several measures within this second policy package concerning female labour market participation. The focus lies mainly on addressing the infrastructure for care activities, aspects of the gender specific labour market segmentation as well as implementing direct measures to support female employment.

In particular, measures regarding the availability of care (especially child care, also for younger school children and the possibility of full-day schooling) are highly relevant in order to foster female employment and can have direct effects on female employment even in the short run. However, the aim is (or should be) to increase female full-time employment (as stated in the country specific recommendations) which means that the actual quality of the care infrastructure is also of major importance (concerning opening times etc.). The issue of opening times of the care infrastructure has not been addressed so far.

Most measures aiming at the reduction of gender based labour market segmentation are unlikely to have a large direct impact on female labour market participation in the short run but, if correctly tackled, may help to address gender based earning differentials. However, many programs listed here address only small areas of the labour market and are therefore quantitatively of limited importance when it comes to effectively reducing labour market segmentation.

- Increasing the labour market participation of the young, persons with migration backgrounds and low skilled persons

Youth employment rates (persons aged 20 -24) in Austria are high (70%) compared to the EU average (49.6%) and Germany (65.2%). The employment rate of persons with migration backgrounds is also relatively high in Austria (66.8% compared to the EU average of 62.7%). The employment rate of the low qualified (ISCED levels 0-2) is above the EU average (50% compared to 45.4%) but lower than in Germany (52.7%).

The young are more sensitive to economic developments than other groups. During economic downturns less new jobs become available which in turn makes it more difficult for the young to enter the labour market or to find new employment when unemployed.

The third policy package focuses on advice, education and qualification measures as well as the legal aspects of employment. Measures within the education system are incredibly important when it comes to increasing the labour market participation rates of the young. It would be imperative, however, to somehow systematically catch those youths that are at risk of

dropping out of school and automatically lead them to suitable advice and qualification programmes (comparable to “Gesundheitsstraße”), in order to try and prevent a total drop out from the education system. Programmes that directly address persons with migration backgrounds are scarce and appear not to have a great impact on employment rates. For the low-skilled there are some important measures included in the package but these overlap only with those for the young. For older low-skilled people the only measure listed is reducing unemployment contribution payments. This is unlikely to have a major impact due to the small amount in question. As with older people the national reform programme ignores measures that are directed at the employer side.

- The quality of work

The fourth package of measures focuses on the quality of work. Measures in this area concern mainly the legal framework. The quality of work can also affect the willingness to work and therefore increase labour market participation.

In conclusion, the national reform program addresses employment participation from different angles. Although many measures – especially those aiming at older workers- will not increase employment strongly in the short run, they are structurally important and will affect labour market participation in the longer run. In particular measures that improve the care infrastructure have the potential to increase female labour market participation not only in the long run. But here some measures that directly foster female full-time employment are missing, such as opening times of child care for older children. As regards the young, people with migration backgrounds and low-skills an important step has been taken with the introduction of the “education-guarantee”. As a next step the infrastructure is needed that systematically captures people that are at risk of falling out of the education system and – in the spirit of the “health-street”, directs those people automatically to suitable advice and qualification programmes. This issue is partly addressed by the “Jugendcoaching” program which will be extended to the national level by 2014.

In summary, based on past trends and on the policies put in place or announced by the government, the Europe 2020 employment targets are well on track to be met, even though some key policy options are currently not addressed in the NRP, such as the gender difference in the statutory retirement age between men and women.

4.5 Policies to reduce poverty

Key policy options

An integrated approach to fight poverty should always combine measures to foster the overall economic situation and growth with specific measures addressed at vulnerable target groups. Bottlenecks or key options for reducing poverty risks may be regrouped into such of prevention or avoidance on the one hand, and corrective action on the other.

a) Poverty prevention

- A comprehensive and high-quality network of professional care facilities, in particular for children below 3 years of age (see above labour force participation)
- The reform of the tax and social security contribution system (reduction of non-wage labour cost, especially for low wages)
- The promotion of social mobility via the education system (to avoid "inheritance" of poverty)
- Combating long-term unemployment
- Foster health prevention

b) Fight against poverty

- The introduction of a means-tested basic income is one, albeit not perfect, way to fight poverty, inter alia via national minimum standards, closer integration of groups outside the labour market, the abolition of discriminatory elements for recipients of social assistance, such as earmarked health insurance vouchers or recourse claims.

Children and the young as well as older persons and single parents are especially prone to being socially excluded and at risk of poverty. The same is true for the low qualified or persons in low-wage employment or households with only low labour market attachment. Furthermore, unemployment, sickness and disability increase the risk of poverty.

Labour force participation is of crucial importance for avoiding the risk of poverty. People who are not, or for too short time or only marginally, in gainful employment, be it that they are ill, handicapped, poorly qualified or obliged to take care of others, are often without sufficient means and to a much higher degree threatened by poverty. The highest monetary poverty risks are found amongst those with a migration background (31%), single-parent households (28%) and pensioners. According to EU-SILC data there were 206.000 people at risk of poverty even though they were working (working poor).

Measures in the NRP – correspondence with key policy options and bottlenecks

The Austrian strategy to fight against poverty and social exclusion is summarized in five sub-goals to achieve this core goal of 235,000 fewer individuals living in poverty or being at risk of poverty in 2020:

1. Combating long-term unemployment by improving the participation in the labour market of working-age groups at risk of poverty and exclusion
2. Introducing measures preventing health risks at the workplace and increased labour market integration of individuals with impaired health and individuals with a disability
3. Reduction of women-specific disadvantages in income and employment issues
4. Introducing measures to combat child and youth poverty, and inherited poverty
5. Reconciliation of family and working life

- Combating long-term unemployment by improving the participation in the labour market of working-age groups at risk of poverty and exclusion

Since long-term unemployment considerably increases the risk of poverty, combating long-term unemployment is of major importance in order to reduce the number of persons at risk of poverty. The first policy package (point 1 above) extends measures that address persons with a relatively low labour market attachment using wage subsidies and employment subsidies (for older workers) and by introducing a needs-based minimum benefits system. However, there are still not enough measures addressing the needs of people with low labour market attachment or marginalized persons. By way of example the step-to-job program has not been extended to the national level.

- Measures preventing health risks at the workplace and increased labour market integration of individuals with impaired health and individuals with a disability

The second policy package focuses on programs to prevent health risks at the workplace and to increase labour market integration of individuals with impaired health and individuals with a disability. These health related measures also focus mainly on people with higher labour market attachment (e.g. pro FITNESS for SME) even though work assistance is an important measure to increase labour market integration of the disabled.

- Reduction of women-specific disadvantages in income and employment issues

The high level of labour market segmentation in Austria engenders a higher risk of poverty for women as they are more often employed in low wage jobs, work part time and therefore build up lower pension entitlements. The unequal distribution of unpaid care work between women and men also leads to lower labour market attachment and longer career gaps which negatively affect future income prospects and once again increase poverty risks (see section on employment above). Reducing female income disadvantages is therefore essential to reducing the risk of poverty among women. This is closely linked to measures that increase male childcare participation, reduces unpaid female care work (by improving the quantity and quality of the care infrastructure) but also embodies addressing education and career choices.

The third policy package lists measures to reduce women-specific disadvantages in income and employment issues; improving the care infrastructure is essential to fostering female employment (including child care as well as all day schooling, but also the care infrastructure for older people). Increasing the quantity alone is not sufficient, the quality needs to be addressed and indeed somehow assured (e.g. daily/yearly opening hours, qualified staff-children-relation, reliable training of staff to build up trust relationships with parents/carers). In addition to the above-mentioned measures, it is also important to influence the choices of career paths and education for women as these are the key to better paid jobs. Such career and education advisory programs are unlikely to reduce female disadvantages in the labour market in the short run but they are more relevant and indeed highly necessary in the me-

dium or longer run (e.g. when they become role models for other (young) women). The measures listed above respond partly to the country specific recommendations to reduce the high gender pay gap and enhance full-time employment opportunities for women, notably through the provision of additional care services for dependants.

- Combating poverty of children and the youth, and inherited poverty

The fourth package extends measures to combat the poverty of children and the young, and inherited poverty. All the programs are aimed at preventing inherited poverty. There are too few measures especially targeting the young with multidimensional risks (e.g. drug abuse, debts, mental health problems etc.). Early streaming of children can reduce social mobility. Nonetheless these measures are in line with the country specific recommendations to improve educational standards, especially of the disadvantaged youth.

- Reconciliation of family and working life

Within the fifth package the compatibility of family and career is addressed by improving the care infrastructure. Here, as above, the quality of the infrastructure must also be considered and assured, as much as any improvement in terms of quantity (such as daily/yearly opening hours, distance between the home, the care facility and work, costs of care). A quantitative extension alone will not be sufficient to foster female employment and more female full-time employment. The listed measures correspond partly to the country specific recommendations to reduce the high gender pay gap and enhance full-time employment opportunities for women, notably through the provision of additional care services for dependants.

In summary, based on past trends and on the policies put in place or announced by the government, it is difficult to assess whether Europe 2020 poverty targets will be reached. Past trends are unfavourable; however at the same time, there is now a balanced approach in place which combines an overall economic growth strategy (Europe 2020) with specific measures to address vulnerable groups addressing many of the key policy options. Within those specific measures (some of them are also relevant in the fields of employment and education), some are lacking, such as a nation-wide extension of the step-to-job programme, youth with multidimensional risks, quality of childcare, labour taxation of low income earners, personal bankruptcy etc, i.e. by and large mostly specific measures for marginalised persons. For others, their effectiveness remains to be assessed, such as e.g. the means-tested basic income. In short, many of the measures discussed above which address the education and employment perspectives of the disadvantaged youth and older people are also directly relevant here.

4.6 Policies for reaching the climate targets

Key policy options

Key policy options for reaching the climate targets must address all energy-relevant sectors of the economy, namely manufacturing industries and construction, with a share in Austria's GHG emissions of 29.5% (2010), transport (26.9%), energy industries (17.1%), other sectors¹² (13.6%), agriculture (8.8%) and waste (2.2%, Umweltbundesamt, 2012). The challenge for the design of measures to combat climate change and reduce energy use consists in securing the generation of the necessary energy supply (e.g. for heating, lighting, mobility, production) with significantly lower primary energy input and lower emission intensity (CO₂ per energy unit). This requires higher energy efficiency for user and transformation technologies as well as a more widespread use of renewable energy. Climate and energy policies play a key role in the EU2020 strategy because they must ensure that any growth in GDP does not lead to increased energy use and emissions of greenhouse gases. Moreover, they must achieve the (absolute) decoupling of economic growth from (fossil) energy use and GHG emissions. Sectoral policies are effective as they address sector specific technological and behavioural aspects of energy intensity, energy use behaviour and emissions. Some important starting points or key policy options to be addressed in the design of future climate and energy policies are briefly summarized below (following *inter alia* Ederer et al., 2011):

Manufacturing industries

There is a large potential for higher energy efficiency in those areas of manufacturing industries that require heat because heat production is predisposed for the use of highly efficient industrial co-generation. The sector is characterized by a trend shift towards a higher consumption of electricity while the share of renewable energy input is rather small. There are specific requirements for R&D investments in the energy-intensive iron and steel industries and the cement industry etc. that are characterized by specific process engineering and production functions responsible for the bottlenecks in energy efficiency improvements. Other aspects of consideration relate to structural changes within the manufacturing industries. The main tool for climate and energy policy however is the EU ETS, which is not in the realm of national policy making.

Transport

The reliance on fossil fuels for transport services and the growth dynamics in transport demand of both passenger and freight traffic is responsible for the high and growing share of transport related GHG emissions. There is an overall need for a fundamental reconsideration of transport service demand. Three main strategies may guide the way: avoid, shift, and improve. Additional transport demand needs to be avoided; transport demand should be satisfied by more energy-efficient modes and thus requires policies that shift demand for transport services, e.g. from individual motorized transport to more efficient modes such as public transport; and transport services need to improve its energy efficiency, e.g. by substituting

¹² Mainly heating in commercial, institutional and residential areas.

traditional combustion engines for alternative propulsion systems (hybrid electric, natural gas) and alternative fuels (biofuels, electricity from renewable resources).

Energy industries

The sector of energy generation is at the core of deciding which energy resource to use in order to produce heat and electricity. In principle, the share of renewable energy sources must increase as to decarbonise the energy sector. The transformation technologies and the distribution networks must be restructured in order to become more energy efficient, e.g. the combined supply via highly efficient co-generation technologies is particularly relevant for this sector. In addition, new challenges arise from the increased use of renewable energy which has a fluctuating supply, new producer-consumer structures, e.g. de-centralized energy production, and new demand segments from e.g. e-mobility.

Buildings

The building sector (other sectors) plays a key role in climate and energy policy. Efforts to raise energy efficiency have so far been supported mainly by new construction. Energy saving investments into the existing stock of buildings offers a large potential for improvement, notably for single and double family homes, which according to the 2001 census of buildings and dwellings ("Gebäude- und Wohnungszählung") make up around 75 per cent of the total stock. A significant increase in the share of insulated buildings is indispensable for an increase in energy efficiency.

Public investments and research for clean energy

Market studies anticipate strong advances in climate and energy technologies by 2020. Austria's growth potential will largely depend on research and investments in this area. According to available information, public authorities in Austria spend little on energy research which only accounted for 2 per cent of total public research expenditure in 2009. In comparable countries such as Finland, Denmark, Sweden, Switzerland, this share is substantially higher. Thus, energy research is a priority area for public support which also serves the EU 2020 goals.

Measures in the NRP – correspondence with key policy options and bottlenecks

Political measures that address the 20-20-20 targets of reducing GHG emissions, augmenting the share of renewable energy production and improving energy efficiency presented in Table 12 grid are adopted from the national reform programs of 2011 and 2012. Listed measures address the national level only and thus the display of measures is not exhaustive. Each of these measures is assigned to a single main target (target a) to c)) according to the national reform programmes. In fact, most measures serve different purposes at the same time (see the column "qualitative assessment of proposed measure"). In addition, policy measures are not systemized according to their relative role and value in achieving the main targets. Such systematization would require a profound and comprehensive analysis of the impacts of

each measure on GHG emissions reduction, energy use and renewable energy growth. This, however, was not the objective of the present study (overview of policies only). Further, the measures are not clearly hierarchically defined as some measures overlap with others, e.g. the “Fit for SET” is part of the Climate and Energy Fund (KLIEN).

Given these measures, it follows that a strong focus on funding activities (deployment of low carbon and energy efficient technologies) prevails. Complementary policies that address price signals, i.e. carbon taxes, and thereby the demand side of energy use, including the subject of rebound effects from energy efficiency, are lacking in most sectors with the exception of the transport sector (car registration tax). In fact it seems as if a coherent and coordinated approach to a climate and energy policy aiming at achieving the 20-20-20 targets has not yet been conceived despite the very fundamental funding schemes and policy initiatives that have been set.

Hereafter, the selected measures are briefly analyzed along the lines of the analytic grid. However, assessing the potential contribution of the measures to reaching the targets is, in most cases, rather challenging because data on GHG emissions and energy resources have a time lag of 2 years, measures have only been implemented recently or, if implemented, have not yet been assessed or evaluated. Evaluation of a comprehensive climate tool such as e.g. the “klima:aktiv” program, requires a proper assessment on its own and cannot be realized within the realm of this project.

The Climate Change Act was endorsed in November 2011 and is part of Austria's climate change legislation. The aim is to establish binding agreements on sector allocations of GHG emissions beginning in 2013 following the Austrian GHG emissions reduction target in the effort-sharing-decision. The effectiveness of the Climate Change Act or the contribution to addressing key policy options is potentially high once the measures have been implemented. But the implementation is lacking so far and the set deadlines for implementation have been exceeded.

The climate initiative „klima:aktiv“ was founded by the Austrian Ministry of Agriculture, Forestry, Environment and Water Management in 2004 and is part of the Austrian climate strategy. The primary objective of “klima:aktiv” is to introduce and promote the rapid spread of climate friendly technologies and services on the market. The initiative is managed by the Austrian Energy Agency and deals with 4 areas: transport, energy saving, buildings and refurbishment, renewable energies. The program runs until the end of 2012 and offers services in the field of vocational training and education (green skills), quality assurance measures, promoting standards, information, consulting and awareness raising, the market introduction and deployment of low carbon and energy efficient technologies with private partners and the federal states. The program also comprises electro mobility model regions. The programme's activities correspond to the key policy options described above. The impact of “klima:aktiv” is potentially high as to the yearly monitoring of its GHG emissions reductions achieved. However, an evaluation of the effectiveness of the entire program has not yet been carried out.

The Green Electricity Act belongs to Austria's climate change legislation and addresses the sector of energy production (key policy option). The objective of the Green Electricity Act is to raise the share of green electricity to 15% by 2015. Due to the higher cost of electricity produced on a renewable basis funding green electricity production is required in order to promote green electricity. The potential contribution of the Green Electricity Act to raise the share of renewable energy is high but depends upon the design of the Act. Several amendments have been passed and justified by promoting different sources of renewable electricity. But amendments also contributed to uncertainty with respect to long term planning security of investments. The Green Electricity Act was evaluated on behalf of E-Control Austria in 2007 as to investigate barriers to its further expansion.

The Second National Energy Efficiency Plan Austria (NEEAP) 2011 follows the energy efficiency target as presented beforehand, i.e. holding the level of primary energy consumption constant at the 2005 level and thus reducing energy consumption by 20% with respect to the baseline development until 2020. The NEEAP has been evaluated by the European Commission and potentially contributes to achieving target a) and b) if implemented properly.

Several funding programs have been established that relate to different sectors of the economy (key policy options), such as the support program for thermal housing refurbishment (2011-2016) for private and public buildings, the environmental support program in Austria (UFI) and the Fit for SET program on funding for research on energy and technological development and demonstration projects related to smart cities. These programs are generally suitable for contributing to the main 20-20-20 targets. With respect to the program for thermal housing refurbishment, coordination between the federal states and the national details of the program are lacking and should be considered in future program developments. Originally, the funding program for thermal housing refurbishments was developed as a measure of economic recovery following the economic crisis in 2008/09. The program has not been evaluated yet. The environmental support program in Austria (UFI) has been increasingly focused on climate and energy goals and is therefore considered to serve some of the key policy options for reaching the 20-20-20 targets. An evaluation of the economic impacts of the program has been carried out (Kletzan-Slamanig – Steininger, 2010). The Fit for SET funding program has not been evaluated yet. It is part of the Climate and Energy Fund (KLIEN) and addresses specific questions of smart city development.

The Climate and Energy Fund (KLIEN) was established in 2007 by the Austrian Federal Government in order to support the realization of the Austrian climate strategy and is part of Austria's environmental legislation (Climate and Energy Fund Act). The Climate and Energy Fund Act aims at the research and development of sustainable energy technologies and on climate change with particular emphasis on public transport in passenger and freight transport. The potential contribution of the programme to the key policy options for reaching the main targets is considered to be high depending on the rate of implementing research and demonstration projects. The program has yet not been evaluated.

The Smart Grid Initiative is a national technology platform of stakeholders from the energy industry and research organizations aiming at pooling forces to support an efficient system operation. The potential impact of the platform cannot be judged yet but is potentially high, depending on the scope of implementation of flagship projects under consideration. The initiative contributes to tackling key policy options in the energy production sector.

Addressing the efficiency of the passenger car fleet, the Austrian car registration tax has been amended by introducing bonus-malus incentives for fuel efficient and fuel inefficient cars respectively. The greening of the registration tax has potentially high impacts on the demand for fuel efficient cars, depending on the scope of the incentive spread. The amendment of the instrument has not been evaluated yet but data on newly registered car's efficiency show on aggregate a decline of its fuel intensity. However, this policy measure addresses only the "improve"-strategy of the transport related key policy options. Policy measures that avoid or shift transport demand are not implemented yet at an appropriate level.

4.7 Competition and business framework conditions

The policy area competition and framework conditions for entrepreneurial activity stands apart, as it is not among the core target areas of Europe 2020. Austria has included this area in its NRP due to its longstanding weaknesses in this area. There are no quantitative targets; the overall goals are formulated very broadly, sometimes not at all in relationship to the header "competition and entrepreneurial environment" (access to finance of SMEs, macro-economic demand, reduction of administrative burden, export support, attractiveness as a place to do business). As explicit goals are not formulated, key policy options cannot easily be derived. The choice of key challenges is more selective and can be partly assessed

- Competition law
- Start-up dynamics
- Internationalisation of firms
- Regulatory and administrative environment

We examine these briefly in turn.

Competition intensity is usually found to be rather low in Austria, especially in sheltered services sectors, whereas the manufacturing sector faces tough international competition in many industries (see e.g. Janger - Schmidt-Dengler, 2010; Janger, 2008). The NRP concentrates mainly on a reformed competition law and a reformed federal competition authority and mentions the implementation of the Services Directive. These measures are substantial steps in the right direction, even if the competition authority could still profit from a higher number of competent staff to effectively handle the workload. Measures which are missing are those which could further boost competition intensity are improving specific sectoral and trade regulations (e.g. in rail, liberal professions etc.). There are small steps e.g. in the liberal

professions, however overall there is still scope for leveraging competition intensity to increase productivity in these sectors. Another absent measure is a proactive competition strategy which also looks at competition from the consumer side, by examining determinants of switching rates between suppliers (such as price transparency, consumer information etc., see Janger, 2010).

Start-up dynamics and the growth of firms are rather muted in Austria (see Hölzl, 2011), however this needs to be balanced against higher survival rates. Overall, the NRP addresses several policy options to foster start-up dynamics, such as the regulation of start-ups (reform of limited company), the availability of external risk finance (venture capital, fund of funds concept) and specific support measures such as firm creation cheques. A reform of legal structures of venture capital funds activity is announced in the innovation strategy but has yet to be implemented. Ultimately, the creation and the growth of innovative start-ups will mainly depend on innovative milieus characterised by high quality research universities and their graduates as well as appropriate transfer mechanisms, the availability of external risk finance and a large home market. These are the key ingredients for the US success in this area. They are all addressed by various measures in the NRP (or at the European level, such as the Single Market), the effectiveness of these measures remains to be seen.

The export performance of Austrian firms is generally good, but weaknesses remain concerning market shares in high growth emerging markets (BRICs e.g.) and in knowledge-intensive services. The internationalisation measures (Go International) address these weaknesses, but as Go International is a long running measure, some kind of data-based evaluation would be required to judge its effectiveness.

As concerns the regulatory and administrative burden, Austria has already been carrying out reforms since 2005/6 which are now further intensified with the creation of a single electronic interface between firms and public administration. Contingent on implementation, the measure has the potential to significantly reduce administrative burdens, which would be particularly positive for SMEs.

4.8 Summary assessment

In this section, we try to provide a summary assessment of the target areas, giving hints as to whether target areas are on or off track, based on both the target paths outlined above and the measures announced by the Government to reach the targets (Table 16). The summary assessment must be interpreted with caution, as it is not based on an in-depth evaluation of policies. Basically, R&D is not on track. However, a comprehensive set of measures has been announced in the form of a far reaching strategy. Even if all measures of the innovation strategy are implemented, it is still unlikely that the target will be met as structural change takes time and as the target was set very ambitiously. In poverty, a judgement is more difficult. While current performance and the time period 2008-2010 is better than target, past longer term trends and the most recent year are unfavourable. The final outcome will be significantly influenced by the measures put in place. Time lags should on average be less long so that

there may be more positive trends towards the end of the strategy horizon. A timely evaluation of anti-poverty policies is to be recommended to be able to step up efforts in time.

For greenhouse gas emissions and energy efficiency, it is too early to make an assessment as the targets have not yet been officially announced. However, the past trends have been unfavourable, even if they started from a comparatively good level.

The education, employment and share of renewable energies targets are broadly speaking on track. Favourable past trends are combined with a large array of policies. Even if not all key policy options are addressed, e.g. as regards older workers, targets seem likely to be met not least as a consequence of a somewhat less ambitious target. As regards the national target area of competition and business framework conditions, there is no explicit target so progress towards this target cannot be assessed. However, the measures announced or implemented represent substantial steps in the direction of smart growth, even if several key policy options remain only partially addressed.

This assessment is of course highly dependent on external circumstances such as a resolution of the euro area economic problems. Target forecasts are only meant to help make the impact of a continuation of current trends more tangible and hence inform policy makers as to where efforts might need stepping up. Yet again one must stress that measures should not be set with a narrow target focus in mind, but with a focus on the broader requirements of fostering smart, inclusive and sustainable growth. The assessment is also based on measures announced, not on measures implemented, as the strategy has only just started.

Table 16: Summary assessment of progress in target areas, based on past performance trends and measures announced/implemented

Target area	Bottlenecks/main subtargets	Bottlenecks/key policy options not addressed/measures lacking	Overall assessment of progress in target area: measures announced/implemented and past trends
R&D 3.76%; public sector share 30-33%	Structural change Sectoral upgrading Leverage effect of public policies	In principle, all bottlenecks addressed, implementation should now be the focus, in particular as regards leverage effect of public policies and academic research.	R&D target forecast based on past trends is approx. 3.3% . The innovation strategy is comprehensive, but even if everything is implemented it is unlikely that the target will be met by 2020 due to the long time lag of policies; however, smart and sustainable growth will have been well addressed.
Education: 38% higher education graduates	Higher-education drop-outs Entry rate into tertiary education S&E Students	Impact of formula-based unit cost model will depend on implementation Early streaming only partially addressed Broadening access measures e.g. for adults, low-income students No didactic measures for S&E teaching	Target forecast is 39.2%. On the condition that current policies to improve funding resp. funding structure of teaching are implemented, graduation rates could rise further beyond 2020.
Education: 9.5% early school leavers	Quality of education system Education and training guarantee (Compulsory) advice, coaching Support for migrants	Comprehensive national qualification strategy Systematically capture people that are at risk of dropping out of the education system and direct those people automatically to suitable advice and qualification programmes.	The target has currently already been reached, but given the past fluctuations this should not lead to complacency. Especially children with migrant or disadvantaged socio-economic background face much higher drop-out rates.
Employment: 77-78%	Employment of the elderly Employment of women Employment of young, low-qualified and migrants	Gender difference in statutory retirement ages Employer incentives older workers No structural changes aiming at invalidity pensions for those aged 50 plus Quality of childcare (e.g. opening times) Labour taxation low income earners	Target forecast is 77.9-79.2%. Even though some potential measures addressing bottlenecks are currently not planned, employment is well on track. However, employment is also closely associated with the business cycle.

Poverty: -235.000	Long-term unemployment Prevention of health risks Quality, availability, costs of care infrastructure Quality of education system (mobility) Labour taxation low income earners See also bottlenecks education/employment	Nation-wide extension of the step-to-job programme Quality of childcare Specific measures for marginalised persons See above education and employment measures	Target forecast is around -122.000. It is difficult to assess whether Europe 2020 poverty targets will be reached. Past longer term trends are unfavourable, but the more recent period 2008-2011 was very favourable. There is now a balanced approach in place which combines an overall economic growth strategy (Europe 2020) with specific measures to address vulnerable groups. Within those specific measures, some are lacking, for others, their effectiveness remains to be assessed, such as e.g. the means-tested basic income. Addressing all key policy options in the coming NRPs and effectively implementing announced measures or increasing the effectiveness of existing ones should lead to a favourable outlook for reaching the target by 2020.
Environment: Greenhouse gases -16% in non-ETS	Manufacturing industries (main tool however ETS) Transport Energy industries Buildings Public R&D expenditure on clean energy	Policies that address price signals, i.e. carbon taxes, and thereby the demand side of energy use are lacking in most sectors or do not show strong enough incentives as in the transport sector. "Avoid" and "shift" in transport demand.	Too early to assess as final target will only be fixed next year. However, while Austria GHG intensity levels are quite good, the growth dynamics have not been favourable recently.
Environment: Share of renewable energy 34%	Green Electricity Act		Target forecast is around 40%, well on track, provided that overall energy consumption does not rise too much.
Environment: Energy efficiency	See GHG	The problem of rebound in energy demand is not yet addressed and could as well be dealt with by carbon taxes.	Too early to assess as final target will only be fixed next year. However, while Austrian energy intensity levels are quite good, the growth dynamics have not been favourable recently.
Competition and business framework conditions: no target set	Competition law Start-up dynamics Regulatory and administrative burden	Specific sectoral regulations Boosting competition from consumer side Staff of competition authority	There is no explicit target so progress towards target cannot be assessed. However, the measures announced or implemented represent substantial steps in the direction of smart growth, even if several key policy options remain only partially addressed.

Source: WIFO.

Based on Table 17, we suggest a set of outcome monitoring indicators for the Austrian EU 2020 strategy, including of course the key targets themselves but also performance indicators for the bottlenecks/main subsidiary targets. We suggest an additional number of indicators to facilitate policy analysis, i.e. to identify more quickly the key drivers behind the developments in the headline targets.

Table 17: Outcome monitoring indicators for the Austrian Europe 2020 strategy

Target area	Outcome Indicator
R&D	R&D as a % of GDP Share of public financing of R&D expenditure Share of knowledge-, research-intensive sectors (structural change) Share of high-quality exports in technology-oriented sectors (sectoral upgrading) Industry-adjusted R&D intensity of business sector (sectoral upgrading)
Education – Higher Education	Higher education graduates in pop. 30-34 Entry rate into higher education/Share of A-levels in pop. Drop-out rate (or rather success rate) in higher education S&E-graduates per 1.000 population
Education – Early school leavers	Early school leavers as a % of 18-24 year olds Share of pupils not reaching competence level 2 in PISA
Employment	Employment rate 20-64 Employment rate 55-64 Employment rate women Employment rate young, low-qualified, migrants
Poverty	Number of individuals in or at risk of poverty
Environment	GHG overall and by sector Share of renewable energies Energy efficiency Decoupling of GHG emissions from economic growth (GDP)
Competition and entrepreneurial environment	Number of research-intensive start-ups

Source: WIFO.

Next, we list the CSRs and assess whether they have been addressed by the measures proposed (Not addressed – Partially addressed – Fully addressed). This is again an assessment based on expert knowledge by WIFO contributors to this report and on the policies in the NRP. Macro-economic and financial topics do not figure within the scope of this study, as they are the realm of the Stability Programme. Out of the four recommendations within the scope of this report, all four are partially addressed. In CSR 3, the harmonisation of the statutory retirement age between men and women has not been brought forward; the statutory retirement age has not been linked to life expectancy. In CSR 4, there were no substantial measures shifting the tax burden from low income earners towards environmental taxes; in CSR 5, early streaming has only been partially addressed; other reforms to improve educational outcomes are under way (e.g. as regards standards), but their effectiveness must be evaluated once implemented. In CSR 6, some barriers to competition in specific sectors of the service sector as well as in liberal professions remain.

Table 18: CSR for Austria and appropriateness of policy reaction

CSR	Assessment
1. Implement the 2012 budget as envisaged and reinforce and rigorously implement the budgetary strategy for the year 2013 and beyond; sufficiently specify measures (in particular at the sub-national level), to ensure a timely correction of the excessive deficit and the achievement of the average annual structural adjustment effort specified in the Council Recommendations under the EDP. Thereafter, ensure an adequate structural adjustment effort to make sufficient progress towards the MTO, including meeting the expenditure benchmark.	Not within scope of study
2. Take further steps to strengthen the national budgetary framework by aligning responsibilities across the federal, regional and local levels of government, in particular by implementing concrete reforms aimed at improving the organisation, financing and efficiency of healthcare and education.	Not within scope of study
3. Bring forward the harmonisation of the statutory retirement age between men and women; enhance older workers' employability and monitor closely the implementation of the recent reforms restricting access to early exit channels in order to ensure that the effective retirement age is rising including through linking the statutory retirement age to life expectancy.	Partially addressed
4. Take steps to reduce the effective tax and social security burden on labour especially for low income earners with a view to increasing employment rates for older persons and women given the need to counteract the impact of demographic change on the working population. Shift the tax burden in a budgetary neutral way, towards real estate taxes, and environmental taxes. Reduce the high gender pay gap and enhance full-time employment opportunities for women, in particular through the provision of additional care services for dependants.	Partially addressed
5. Continue to implement measures to improve educational outcomes, especially of disadvantaged young people. Take measures to reduce drop-outs from higher education.	Partially addressed
6. Take further steps to foster competition, in the services sectors, by removing barriers to market entry in the communications, transport and energy retail markets. Where unjustified restrictions on access to liberal professions exist, they should be removed. Enhance the powers of the federal competition authority and speed up the implementation of the competition law reform.	Partially addressed
7. Further restructure and continue to monitor those banks that benefited from public support, while avoiding excessive deleveraging. Further improve the cooperation and coordination of national policy decisions with financial sector supervisors in other countries.	Not within scope of study

Source: WIFO, European Commission.

Finally, we suggest ways to structure the information in the NRP so as to facilitate the monitoring of policy efforts.

- In general, measures can be linked with information on the budget available in each area and the implementation timeframe
- Policies can be grouped by essential performance subgoals (R&D intensity, start-ups...); or by bottlenecks/key policy options so as to ensure that policies in the NRP focus on the most binding constraints on growth or on reaching the targets (tip of the iceberg)
- The focus should be on only the most important measures (bundles of measures in case of several, small scale policies) addressing the bottlenecks/main issues in each problem area (also existing ones if they work fine but address a key policy option);

- Information should be about tangible measures, corresponding to real activities (and not about declaration of intention to do something about a problem)
- Budget information in terms of % of GDP (to be able to assess scope); budget per policy area (e.g. direct promotion of R&D)
- Existing policy strategies could be used for the NRP more fully rather than filling the NRP with different information (e.g. innovation strategy for R&D) – the NRP could be a platform for detailed area strategies, which would also foster coordination, streamlining and reduce workload.

5. In-depth analysis of policies

2013

6. Conclusions

The European Union has embarked on a new growth strategy called "Europe 2020" which should deliver smart, sustainable and inclusive growth by the year 2020. Within this growth strategy, Austria has committed itself to reaching headline targets in five areas: R&D, Education (higher education, early school leaving), Employment, Poverty and Environment (greenhouse gases, renewables, energy efficiency). Reaching these targets should boost smart, sustainable and inclusive growth.

A detailed analysis of the previous trends in these headline targets and the growth now necessary to reach them reveals a rather clear-cut picture. Austria shows good performance (above the EU average) levels as regards R&D, employment, early school leavers, poverty and the environmental goals (greenhouse gas emissions' intensity, energy efficiency, share of renewables); only in higher education is Austria below the EU average, even when including graduates from upper secondary vocational education (Isced 4a). Targets were set with varying levels of ambition. The growth rates required for reaching the R&D target in the remaining period 2012-2020 of the strategy are considerably above past trends and the actual value in 2012 is quite far off the required value in terms of a linear target path. Poverty is a mixed case, as current levels are due to favourable trends in 2008-2010 better than target levels, but longer term trends and the most recent year are unfavourable. By contrast, the higher education, employment, early school leaving and share of renewables targets look well on track as they have already been reached or growth trends required are well in line with past growth trends. There are no official targets yet for greenhouse gas emissions and energy efficiency.

Before any interpretation of progress towards the targets, a few words of caution are necessary. First, yearly target values are not a goal per se, they just serve as a yardstick to assess distance to target. The target that matters is the target value 2020. Furthermore, it is important not to set any economic and environmental strategies solely focusing on the narrow Europe 2020 key targets. In particular, progress towards targets should not be the only gauge of Austria's economic performance. Rather, the wider picture needs to be kept in mind, namely that of achieving smart, inclusive and sustainable growth. Moreover, targets are not independent of each other. There are or there may be target conflicts and complementarities, i.e. situations where progress in one target may be accompanied by lack of progress in another target (conflict), or situations where progress on one target helps progress on another (complementarity). Several examples are relevant here.

First, a clear example of complementarity is between R&D and higher education. Progress in higher education will also help the R&D target as highly qualified human resources are needed for innovative activities. Hence, it would be misguided to shift resources from higher education – as in this area trends are on track – to finance more business R&D. Public financing of business R&D is already high. An expanding higher education sector may boost structural change towards more R&D intensive sectors, indirectly fostering business R&D expendi-

ture. Austria's current R&D intensity may show diminishing returns due to its specialisation in medium-technology sectors which is changing only slowly. However, as current industrial performance is strong, structural change should neither be forced from the top down nor artificially slowed down by not providing the necessary human resources. Another example of complementarity is between employment, poverty and early school leavers. For both employment of the low qualified and for lifting people out of poverty/preventing them from becoming poor, educational outcomes are crucially important. The unemployment rate of people with low qualifications in Austria was about 18% in mid-2012, of people with tertiary qualification below 3%. Education may thus always be regarded as another policy package to foster R&D and employment and to reduce poverty, and not only as a target in its own right. Reaching beyond the higher education target e.g. may thus be an appropriate step to foster smart, sustainable and inclusive growth. Finally, there may be target conflicts between targets which usually go hand in hand with good economic performance such as R&D and employment and the environmental targets. So far, no absolute decoupling of economic growth from energy or greenhouse gas intensity has been witnessed in Austria.

The policies contained in the NRP were assigned to different components of a framework explaining factors behind economic growth. Only when real GDP per head is increasing do we speak of economic growth. GDP per head can be broken down into labour productivity and labour utilisation. In its most simple form GDP per capita growth depends on how much labour we use out of the total potentially available labour force and on how productive people are in their hours worked. Use of labour can be seen from the intensive margin – i.e. hours worked per person; and from the extensive margin – i.e. how many people are working relative to potential (working age population); the productivity of workers and employees is influenced by the quality of their skills, the capital they can use (e.g. machines, transport infrastructure etc.) and by overall efficiency in turn determined by technical progress, quality of management etc.

Basically, most measures in the NRP drive either labour productivity or labour utilisation, with poverty and the environment standing somewhat outside this framework (not energy consumption though, the reduction of which would simply increase GDP). When assessing the measures formally put in place to reach the targets, it should be borne in mind that the measures in the NRP are only the tip of an iceberg. The much larger part under water (not mentioned in the NRP) corresponds to the large variety of policies and institutional settings or framework conditions underpinning performance in the various areas in terms of labour productivity and labour utilisation. The NRP ideally concentrates on the most important key policy options for or bottlenecks on the way to reaching the targets.

This is also - next to the scope of the measure - our yardstick when assessing the potential contribution of the measures in the NRP to reaching the main or subsidiary targets – are they addressing the key policy options, the bottlenecks?

In R&D, there is a comprehensive innovation strategy by the Austrian government which addresses almost all key policy options to both increase R&D intensity and to foster smart

growth, hence the focus should be on implementation. In the other areas, there are usually several substantial measures addressing important bottlenecks, but also key policy options left unaddressed, such as e.g. early streaming for the higher education target, no earlier harmonisation of the statutory retirement age between men and women for the employment target, and few policies affecting price signals in the environmental domain etc.

An analytic grid which assesses the measures according to harmonised criteria in conjunction with the past trends in each target area leads to an assessment whether the measures in place or announced (the ones in the NRP or the other ones, not mentioned) are sufficient to reach the targets. This should be the case for employment, education and renewables, as well as poverty, provided that the measures announced are implemented effectively; it is unlikely for R&D (with the target horizon at 2020). Greenhouse gases and energy efficiency are only setting their targets officially in 2013, but reaching them will be challenging as the growth dynamics have been unfavourable.

Of course, such an assessment has to be regarded with extreme caution. First of all, it is not based on an in-depth evaluation of policies. Furthermore, the past is not necessarily a good guide to the future, external events such as a deepening euro crisis may at any time knock the trend off the track towards the target. Even if efforts are on track, there should be no complacency. As this is the beginning of the Europe 2020 strategy, the assessment of whether any key policy options are not addressed by the measures announced will naturally be at the core of this monitoring process; towards the end of the strategy, the monitoring will of course be able to and indeed must focus more strongly on the actual implementation of the measures announced. The assessment should merely provide broad orientation for the choice of policy decisions, in the sense of which are the key policy options for reaching the targets, and does the NRP address these options.

Overall, Austria's efforts to reach the Europe 2020 targets are characterised by a multitude of measures; where targets are not on track, there are well-balanced policy packages in place (R&D). Where targets are on track there are a couple of key policy options which have not been addressed which, if addressed, could actually lead to going beyond target. Particularly in higher education, this could lead to Austria positioning itself above the EU average also in this area, as it is above the EU average in all the other areas; such effects may only be seen after 2020 though, due to the long time lags involved. Education in general features important complementarities with other target areas, such as R&D, employment and poverty, so that it can be regarded as a key policy option in itself.

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8. Annex: Analytic grid for assessment of measures in the NRP

Subsidiary Target	Indicator	Proposed Measure	Assessment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth framework
				to reaching main target	to reaching subsidiary target	to address CSR					
R&D	Main target: 3.76% of GDP										
All following targets		Implementation of Austrian RTI-Strategy 2020	Yes	3	3		Very comprehensive list of measures, focus needs to be on implementation	The strategy is very comprehensive; if anything it does not address the issue of human resources for innovation in a broad sense (i.e. not just researchers and tertiary S&T graduates, but also skilled workers with upper secondary vocational degrees)	1		TFP
Boosting innovation capabilities of the business sector - creation and growth of innovative start-ups	Number of knowledge- and research-intensive start-ups increasing by 3% per year on average	Refinement and simplification of policies aimed at fostering pre-seed and seed financing, business angels as well as market and technology research	No				Not enough information on substance of measure.	Of course fostering the creation of innovative firms may be seen as an aspect of increasing the number of innovative firms overall (see below). In practice, fostering R&D intensive start-ups is very different to getting established non-innovative firms to innovate			TFP, PR
		Gründungsinvestitions- und Gründungstechnologiescheck (vouchers for investment and innovation by start-ups)	Yes	2	3				3		TFP, PR
		AplusB Academia University Spin-off Programme	Yes	2	2		This is also relevant for the subsidiary target business science links. The measure has been in place for quite some time. It may limited impact on the R&D ratio in the short run, but potentially large impact in the long run.		3		TFP, PR
		Raising venture capital intensity: Government as "cornerstone investor" (fund of funds concept), e.g.: VC-Initiative, cleantech-funds	yes	2	3			Raising VC intensity requires a broad spectrum of measures, not least regulatory measures to facilitate VC fund activity in Austria	3		TFP
Boosting innovation capabilities of the business sector - raising the number of foreign R&D affiliates in Austria		Image campaign "Forschungsplatz Österreich" (R&D location Austria" to improve image abroad as a place to do R&D	Yes	1	1		Image boosting will only have effect when fundamentals are right (human resources for innovation, science base, IPR system e.g.)	Efforts at becoming more attractive for foreign R&D affiliates must be seen in conjunction with efforts to strengthen human resource and science base (see below)	3		TFP
		"Headquarter"-programme (attraction of R&D affiliates to Austria)	Yes	1	1				3		TFP

Subsidiary Target	Indicator	Proposed Measure	Assessment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth framework
				to reaching main target	to reaching subsidiary target	to address CSR					
Boosting innovation capabilities of the business sector - increasing the number of innovative and R&D-active firms (exploit untapped potential)	Number of R&D-active or innovative firms	Harmonisation, standardisation of direct public financing of R&D (introduction of theme management, promotional portfolio management) should facilitate access to public financing and cost of applying for R&D subsidies.	No				Not enough information on substance of measure				TFP
		Innovation voucher "plus" (voucher for SMEs)	yes	1	2			Getting SMEs to innovate crucially depends on supply of skilled workers. This measure is also relevant for improving business science links	3		TFP
		The services initiative (Dienstleistungsinitiative DL-I) serves to promote innovative service projects which were up to now not in the focus of public R&D and innovation promotion system.	yes	1	2				3		TFP
		Initiative „evolve“ (Innovation promotion in the creative sector)	yes	1	1				3		TFP
Boosting innovation capabilities of the business sector - raising business sector R&D intensity and boosting input additionality (impact of public R&D on business R&D)	R&D intensity BERD controlling for industrial structure	Simplification of system of fiscal R&D subsidies (tax cash grant) & increasing R&D tax premium from 8 to 10%; introduction of improved screening by experts (FFG)	Yes	3	3		Ultimately assessing the impact of this measure on R&D intensity will require econometric evaluation. Impact depends on implementation (control by FFG is positive)	This is also relevant for subsidiary target foreign R&D affiliates.	3		TFP
		Raising the tax deductibility for contract research from 100,000 to 1 million Euro	Yes	2	2				3		TFP
		Building research capacity in industry with a focus on SMEs ("Forschungskompetenz für die Wirtschaft")	Yes	1	2				3		
Boosting innovation capabilities of the business sector - business science links	Cooperation statistics in CIS	Comet Centres	Yes	3	3		The programme has been running for some time but is substantial in nature.		3		TFP, LQ
		National contact point for IP affairs (strengthen academic transfer)	Yes	1	2				3		TFP

Subsidiary Target	Indicator	Proposed Measure	Assessment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth framework
				to reaching main target	to reaching subsidiary target	to address CSR					
		Laura-Bassi-Centres (fostering gender equality, scientific excellence and management know how)	Yes	1	2		Also relevant for boosting performance of research and for increasing number of female S&T students (see policies in education)		3		TFP, PR, LQ
		Fostering intellectual property rights protection at universities	Yes	1	2				2		TFP
Boosting innovation capabilities of the business sector - improving transformation of R&D into successful innovations	Indicators of structural change/sectoral upgrading	Innovative public procurement	Yes	1 to 3	1 to 3		Impact depends on the final scope of implementation, more details necessary. May also be relevant for raising number of innovative firms		3		TFP
		Research studios Austria	Yes	1	1		Very small budget.		3		TFP
Boosting innovation capabilities of the business sector - thematic research	e.g. Patent indicators	Smart Production	Yes	2	2				3		TFP
		Coordinated use of all tools of public R&D financing, in addition to fiscal R&D subsidies, public procurement etc. to focus on grand challenges and thematic issues.	No				Not enough information on substance of measure				
Boosting performance of (non-business) research in Austria	Publication quality, IUS	National Science Fund FWF enabled to cover 20% of Overhead cost of all individual research projects.	yes	3	3		20% are an important step but not enough.	Increase overheads further and raise overall budget of FWF	3		TFP, LQ
		IST Austria- Institute of Science and Technology Austria	Yes	3	3				2		TFP, LQ
		Expansion Vienna Biocenter, IMBA (research, doctoral studies, research infrastructure)	Yes	2	2						TFP, LQ

Subsidiary Target	Indicator	Proposed Measure	Assess-ment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth frame-work
				to reach-ing main target	to reach-ing sub-sidiary target	to ad-dress CSR					
Further development of the information society	Positioning Austria at the top of ICT nations (networked readiness index - NRI); enhancement of broadband availability and usage	Priority catalogue of the competence centre (KIG)	yes/no	2	2		The effect of ICT on R&D exists, but is rather indirect (e.g., through industrial structures). The effect tends to point into the other direction, i.e. R&D affects ICT. Also the Networked Readiness Index which is used as a benchmark inter alia considers innovation indicators. The competence centre KIG systematically contributes to the overall objectives. It fulfils the frequent call for an ICT coordinator, and hence is a positive development. It addresses an existing bottleneck. The currently prioritised measures cover a wide range of topics that are all relevant to ICT. KIG is a platform at the federal level which can be used as a consulting and reconciliation body that coordinates ICT policies.	The objective 'positioning Austria at the top of ICT nations' is not exactly defined.	3	Evaluations are not yet available. The platform started its operations in the Q1 2010. Progress reports have been published for 5 of the 11 measures. KIG itself cannot be evaluated yet due to its short existence.	CI; TFP
		Breitband Austria 2013 (promotion programme)	yes	2	2		The availability of broadband is the precondition for the use of many ICT applications. However, it only indirectly affects R&D. Otherwise, broadband networks are a bottleneck for Austria's position in ICT rankings. The measure promotes the roll out of the grid to complete coverage of not and insufficiently covered areas (<2mbit); 30% coverage of NGA of the population (in excess to the 'natural' roll-out); reduction of construction costs of passive infrastructure. The measure directly contributes to the roll-out of broadband networks. Yet, the overall funding of the programme amounts to €15 Mio.; the required investment is estimated to range between €1.5 and 4 billions (precise figures are n.a.). Even if a substan-	The pivotal point for addressing the bottleneck broadband availability and use is a comprehensive strategy. The industry specific regulation needs to be coordinated with other industrial policies. The implementation of one of the internationally successful roll out models in Austria is not yet perceivable. Incentives for the roll out are yet primarily provided through subsidies.	2	An evaluation is not yet available.	CI; TFP

Subsidiary Target	Indicator	Proposed Measure	Assessment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth framework
				to reaching main target	to reaching subsidiary target	to address CSR					
							tial leverage is assumed, it can be expected that the means are insufficient to affect the roll-out or to reach the broadband targets of Europe 2020.				
		Austria Electronic Network Phase 3	yes	1	1		The use of broadband only indirectly affects R&D activities. The objective of the measure itself, however, is R&D promotion. Promotion programme of the Austrian Research Promotion Agency (FFG) to fund i) the introduction of high-quality and innovative broadband services and applications; ii) innovative exploitation of research results ; iii) high quality, innovative and reasonably priced broadband access. The measure supports the improvement of many NRI indicators. However, the promoted technologies are typically internationally available. Hence, the programme is rather to be seen as an R&D support measure rather than an ICT programme. Its effect on Austria will probably be marginal.		2	There is a positive interim evaluation (2010). http://www.bmvit.gv.at/telekommunikation/politik/downloads/atnet_evaluierung.pdf	CI; TFP
Education	Main target: The share of early school leavers should be 9.5% and at least 38% of 30-34 years old should have completed a tertiary or equivalent education (including ISCED 4a)										
Increasing the number of individuals participating in education, preparing for university studies, and increasing mobility in the tertiary sector	Population share aged 25-34 with ISCED 4a/5/6; entry/graduation rates higher education	Studienchecker	yes	2	2	2	important, but not yet rolled out nation-wide)	funding measures which enable young people from low-income families to continue full-time education are not listed	nation-wide implementation by 2015		LQ, PR
		Studienberatung neu -degree advice for university studies NEW	yes	2	2	2	Mandatory from 2015, effects on persons doing military service unknown	only few measures directed at increasing the number of university graduates by 2020, focus more on mobility and framework conditions	0		LQ, PR
		Hochschulplan (overarching concept for higher education sector) - formula based unit cost model	yes	3	3	3	3 only when unit cost model will be fully rolled out		1		LQ, PR
		further development of the technical colleges sector	yes	3	3	2		capacities at universities should also be expanded	2		LQ, PR
		Erasmus back to school	yes	1	1	1	main goal: mobility		3 (since 2011)		LQ

Subsidiary Target	Indicator	Proposed Measure	Assessment possible	Potential contribution of measure			Qualitative assessment of proposed measure	Measures lacking to reach target?	State of progress	Impact evaluation of measure?	Growth framework
				to reaching main target	to reaching subsidiary target	to address CSR					
		Austrian database for scholarships and research promotion; EURAXESS Research in motion	yes	0	0	0	mobility of researchers important		3		
		Summary measures higher education						Reference to pre-higher education system lacking - e.g. early streaming into vocational and academic track leads to low entry rate into higher education			
Increasing the number of graduates from natural sciences and technical studies	graduation rates from S&E studies	information offensive for the S&E subjects	yes	2	2	1	additional budget 2011/2012: 40m, financing of teaching	measures are welcome, but limited in the breadth	3		LQ
		Platform "Young Science", Program Sparkling Science	yes	1	1	1	early support: cooperation schools/universities	early support: hardly will affect the number of university graduates by 2020, particularly for S&E studies	3		LQ
		IMST - innovation make for top quality in schools	yes	1	1	1	innovation culture, marginal contribution to achieving target	focus on development of lessons and schools, contribution to MST-graduation not visible	3		LQ
		Initiative Talente Praktika - initiative internships for talented students	yes	1	1	1	focus on innovation, fti-internships	Effectively of a list of existing measures, lack of any new measures to increase number of MST-graduates by 2020	3		LQ
		Summary measures S&E						more research necessary into impact of Austrian school system on S&E study choice (e.g. peer group influence in HTL), esp. As regards women; no reference to improvement of didactics in schools			LQ
Improvement of the educational level and reduction of the dropout ratio	percentage of the population aged 18-24	Advice and professional orientation for 7./8. year at school	yes	2	2	2	Compulsory measures since 2012		3		UR, PR
	with at most lower secondary education (ISCED levels 0, 1, 2 or 3 c short) and who were not in further education or training during the last four	secondary level NEW: individualisation and targeted support	yes	3	3	3	prevention of drop-outs			3 (Schulversuche), ansonsten 1 (Planung), ab 2017 an allen BHS/AHS	UR, PR
	weeks preceding the survey	Neue Mittelschule - new secondary school	yes	3	3	3	due to individualisation	Roll out of Neue Mittelschule does barely include academically oriented lower secondary schools	3		UR, PR
		initiative of the federal government and federal provinces in adult education	yes	3	3	3	Free courses to obtain lower secondary degree in later life		3		UR, PR

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		Vocational training at VET colleges (BMS/BHS)	yes	3	1	3	no information concerning concrete measures		3		UR, PR
		Measures for pupils with another first language than German: language, teachers	yes	3	3	3	focus on language skills support		3		UR, PR
		professionalization of teachers, principals and the educational authorities supporting parents with a migration background	no				no information on implementation of this measure				UR, PR
		teacher training NEW	no				organisation of training most important, no impact on success of youth at school by 2020		1		UR, PR
		Nationale Strategie zum LLL (task force:LLL 2020) - national strategy for life-long learning	no				taskforce LLL might contribute, but no concrete measures yet, therefore only indirect contribution				UR, PR, LQ
		new school-leaving and diploma examination	yes	3	3	3			3		UR, PR, LQ
		youth and apprentices coaching	yes	3	3	3		necessary to embed this measure in a broad strategy to reduce early school-leavers	3 (not in all federal states)		UR, PR
Enhancement of the attractiveness, quality and permeability of vocational training/education	Share of apprentices with "Berufsmatura" (vocational school leavers qualification)	QIBB Qualitätsinitiative Berufsbildung - quality initiative vocational training	yes	2	2	2	berufsbildendes Schulwesen		3		UR, PR, LQ
		Lehre mit Matura - apprenticeship diploma plus certificate of secondary education giving entrance right into higher education	yes	3	3	3		open financially supported apprenticeship/school leavers diploma to older apprentices too)	3		UR, PR, LQ
Poverty	Main target: reduction of the number of people at risk of poverty and social exclusion by 235,000 by 2020										
Measures combating long-term unemployment by improving the labour market participation of working-age groups at risk of poverty and exclusion	rate of long-term unemployed to total unemployment	Introduction of a needs-based minimum benefits system; social inclusion of long-term unemployed risk groups	yes	3	3			no nation-wide implementation of step-to-job, liability under 15a agreement not enforceable, questions concerning housing not solved, even for special needs no clear decision (no enabling provision), performance catalogue not clearly formulated, lack of offers for people with low labour market attachment	3		P
		wage subsidies and employment subsidies for older unemployed people	yes	3	3	3					UR, PR, P

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		Measures that offer qualification possibilities; improvement of quality of work	no								UR, PR, P
Measures preventing health risks at the workplace and increased labour market integration of individuals with impaired health and individuals with a disability	share of individuals with a disability as % of workforce	proFITNESS: gesunde MitarbeiterInnen - gesundes Unternehmen programs to prevent health risks in the workplace proFITNESS: healthy employees - healthy company	yes	1	3	3			3		UR, PR, P
		career rehabilitation paid for by AMS starting 2014	yes	1	3	3					UR, PR, P
		support staff for individuals with a disability: individual advice and accompanying young people at the interface between work and educational system	yes	3	3	3	work assistants	alternatives to qualifications needs to be widened (e.g. development of extended labour market)			UR, PR, P
Reduction of women-specific disadvantages in income and employment issues	median income women/men (full time)	increase of income transparency	yes	2	3	3	awareness campaign, influence on female career decisions		3		UR, PR, P
		improvement of care infrastructure for children and for dependants.	yes	3	2	2	quality and structure important				
		support of paternity leave	yes	1	2	1					
Combating poverty of children and youth, and inherited poverty	poverty rate of age groups in %	active measures to decrease the rate of early school leavers	yes	3	3	3		quality of degrees is important	2 partly introduced		UR, PR, P
		early language training for children with migration background	yes	3	3	3			3		UR, PR, P
		training guarantee	yes	3	3	3		measures focus on the prevention of inherited poverty, not on reducing child poverty	3		UR, PR, P
		youth coaching	yes	3	3	3		inclusion of child welfare bureau	3		UR, PR, P
Reconciliation of family and working life	employment rates of women with children (e.g. children under 10/14 years)/women without children	mandatory year at the kindergarten free of charge	yes	2	2	3			3		UR, PR, P
		improvement of care infrastructure for children and outpatient nursing infrastructure	yes	3	3	3		reform of private insolvency is not listed	1		UR, PR, P, AH
		extension of full-day childcare at schools	yes	3	3	3			1		UR, PR, P, AH
Employment	Main target: increase employment rate to 77-78%										

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labour market participation of older employees	retirement age depending on date of birth, age on exiting employment; employment rate 50-54, 55-59, 60-64 by sex; share of new pensioners, share of I-pensions in population of same age	Summary of all measures		3	-	3	Most measures dealing with the increase of the employment participation of older persons will only have significant impact in the longer run, but address important structural points.	lack of measures at the employer level			PR
		Hacklerregelung	yes	3	3	3	even though the measure will only impact in the longer run, it is structurally important		2		PR
		Kontogutschriftmodell (old age part time benefit model)	yes	1	1	1			3		PR
		employment for older workers and "path pension"	yes	3	3	3	even though the measure will only impact in the longer run, it is structurally important		2		PR
		workplace design adapted for older employees and prevention measures within the "ArbeitnehmerInnenschutzgesetz" (law for the protection of employees"), performance of an analysis of the age structure in companies, risk assessment, focus on workplace design adapted for older employees within the qualification and flexibility counselling for companies	yes	3	3	3	though the measure will only impact in the longer run, it is structurally important		1		PR
		Fit2work	yes	3	3	3			2		PR
		"Gesundheitsstraße"	yes	3	3	3	even though the measure will only impact in the longer run, it is structurally important		3		PR
		Check for Chances	yes	3	3	3			1		PR
		Impulsprogramm "Productive Ageing"	yes	3	3	3	even though the measure will only impact in the longer run, it is structurally important; it is part of a set of AMS measures	not listed: Re-integration benefit payments as element to foster active labour market participation	2		PR
		Eingliederungsbeihilfe	yes	3	3	3			2		PR
Pro:Fitness	yes	3	3	3	focus on workplace organization in SMEs is important because of the lack of knowledge of the particular needs of older employees.	not yet rolled out on nation-wide basis	2		PR		

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Labour market participation of women	employment rates of women (total, with children 0-2, with children 3-6)	Summary of all measures		2	-	3	the improvement in care infrastructure for children (qualitatively and quantitatively) is particularly important to increase the labour market participation of women, some measures that are less important for labour market participation address important aspects of gender equality				
		support re-entry of women into employment (counselling)	yes	2	2	2		focus on counselling not on qualifications measures for target group	3		PR
		women in technical and craft-orientated jobs	yes	1	2	2	measure of minor importance for the increase of labour market participation	Topic needs to be broadened, e.g.. Choice of subjects/apprenticeship, FIT only one aspect	3		PR, LQ
		employment centres for women	yes	1	2	2	measure of minor importance for the increase of labour market participation		2		PR
		income based parental leave benefits	yes	3	3	3			3	Ja, by the Österreichisches Institut für Familienforschung (2012)	PR
		quality seal for training of childminders	yes	1	1	1	measure is not linked to higher labour market participation rates of women				
		Aufsichtsratsdatenbank	yes	1	1	1	measure of minor importance for the increase of labour market participation		3		
		program for leaders "Women: the future"	yes	1	1	1	measure of minor importance for the increase of labour market participation		3		
		mandatory year at the kindergarten	yes	1	1	1			3		
		improvement in quality of care infrastructure for children	yes	3	3	2			2		PR
		Chai- ein Sprach- und Informationskurs für Mütter der 1. Generation Chai - a language and information course for first generation migrant women with children	yes	1	1	1	measure of low direct relevance to the increase of labour market participation		3		

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		national action scheme for gender equality in the labour market	no	3	3	3	set of different measures (e.g. introduction of an income calculator)		2		
		paid month of paternal leave in civil service ("Papamonat")	yes	1	1	1			3		
		quota for women's participation on supervisory boards of state-owned companies	yes	1	1	1	measure of minor importance for the increase of labour market participation		2		
		paternity leave	yes	3	3	3			2		
labor market participation of youths, people from a migrant background and low skilled persons	youth: rate of youth neither employed nor in education, number of drop outs from education	Summary of all measures		2	-	2	harness the unused potential of people from a migrant background; structural improvements have a potentially high impact	systematic registration of target groups necessary, identification of target groups should be main goal, see "Gesundheitsstraße"			
		Ausbildungsgarantie - Überbetriebliche Lehrausbildung training guarantee	yes	3	3	3	no replacement for structural weaknesses of the dual education system		3		PR, UR, LQ
		Aktion Zukunft Jugend	yes	3	3	3			3		
		Jugendstiftung (JUST neu)	yes	3	3	3			3		
		Produktionsschulen	yes	3	3	3	people from a migrant background are overrepresented in production schools		3		
		Projekt Managing Diversity	yes	2	2	2			3		
		reduction of employee's rate of the unemployment insurance contributions in low-income sectors	yes	2	2	2	only a minor impact on net income (1-3% saving on gross incomes up to 1456 EUR (2012))	Measure targeting only employees: incentives for employers are possible, only marginal impact on labour market participation because of the marginal effect on incomes which barely effects the willingness to participate in the labour market.	3		
		Integrationsoffensive	yes	2	2	3	Support of language skills		3		PR, UR, LQ
		Rot-Weiß-Rot Karte	yes	1	1	1	measure has minimal effect in increasing labour market participation				LQ
		recognition of foreign qualifications	yes	3	3	3			2		LQ, PR
		Bundes-Jugendförderung Schwerpunkt Berufsorientierung	no	2	2	2	Career advice: implementation in the system of career orientation?		3		
		Jobtalks 2.0	yes	2	2	2	Which role does this measure have? listing of aspects, but no strategy behind this measures except the interface between educational system and training: securing a compulsory school leavers qualification and transition to pursu-		3		

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							ing further training				
		modernisation of apprenticeships	no	0	0	0			1		
the quality of work		Summary of all measures		2	-	2	working conditions influence the willingness to work, quality of work may potentially increase labour market participation				
		law to combat wage and social dumping	yes	2	3	1			3		
		legal measures for the professional improvement of women	yes	3	3	3			3		
		Amendment of the constitutional employment legislation	yes	2	3	1	measure addresses above all worker's participation in decision making		3		
		The flexibility of employers and employees, combating unemployment and the integration of persons with low labour market attachment, professional integration of persons with a disability, lifelong learning	no				List of different measures		0		
		Bildungskarenz	yes	2	2	2			3		
Environment											
EU Target: Reducing GHG emissions by 20% in 2020 with respect to 1990. National Target: Reducing Austria's GHG emissions by 16% with respect to 2005	GHG emissions in Mio.t CO ₂ e	Climate Change Act (Klimaschutzgesetz), including the foundation of a national committee for climate protection representing the ministries, the federal states and the social partners	yes	potentially high (3)			The potential contribution of the Climate Change Act to reaching the main target is high, however, sectoral targets have not yet been agreed upon. Therefore the effective implementation of the measure cannot be judged for the moment. This measure also serves target b) and c)		0		E

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EU Target: Reducing GHG emissions by 20% in 2020 with respect to 1990. National Target: Reducing Austria's GHG emissions by 16% with respect to 2005	GHG emissions in Mio.t CO _{2e}	Climate initiative "klima:aktiv"	yes	potentially high (3)			The climate initiative "klima:aktiv" constitutes a vast programme tackling different energy-relevant sectors (transport, buildings, renewable energies). Judging upon the degree of contribution to the main target requests an evaluation of the programme. "klima:aktiv". This measure also serves target b) and c)		2	Yearly monitoring of CO _{2e} reduction potential in the different areas of the "klima:aktiv" programme through annual reports, no evaluation of the programme yet.	E
Deployment of renewable energy sources in order to increase the share to 34%	share of renewable energy, in % of gross final energy consumption	Green electricity act (Ökostromgesetz) 2012	yes	potentially high (3)			Several amendments of the Green Electricity Act were necessary. But these adaptations were also leading to insecurity over the long-term situations of investors. This measure also serves target a).		2	Evaluation report 2007 by E-Control	E
Improving energy efficiency	reduction of primary energy consumption (in PJ)	Second National Energy Efficiency Action Plan Austria 2011 (NEEAP)	yes	potentially high (3)			There are overlapping responsibilities with other measures, e.g. support programme for thermal housing refurbishment, the activities of the Climate and Energy Fonds (KLIEN) and other measures. This measure also serves target a) and b)		1	Evaluation of First NEEAP by European Commission (SEC(2009)889 final)	E

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		Support Programme for thermal housing refurbishment 2011-2016		potentially high (3)			The support programme for thermal housing refurbishment has been originally established as economic stimulus measure and was thus dedicated to improve the economic performance. The programme should be evaluated in detail, in particular with respect to coherent support policies in the federal states. There are overlapping responsibilities with other measures, e.g. the UFI Environmental Support Programme. This measure also supports targets a) and b).		2		E
		Environmental Support in Austria (Umweltförderung im Inland, UFI)		potentially high (3)			The UFI Environmental support programme has been strongly developed towards funding of climate and energy relevant projects and contributes as well to targets a) and b)		ongoing	Has been evaluated in economic terms (Kletzan-Slamanig - Steinger, 2010)	E
		Climate and Energy Fund (KLIEN)		potentially high (3)			The Climate and Energy Fonds comprises a vast array of research activities in climate change and low-carbon technologies and thus potentially contributes as well to targets a) and b).		ongoing	No evaluation of the entire programme yet	E
		Fit for SET: Research on energy and technological development, demonstration projects related to Smart Cities, building international networks		potentially high (3)			This strand of research is part of the KLIEN and contributes as well to targets a) and b).				E, TFP
		Smart Grid Initiative		potentially high (3)					ongoing	No evaluation of the objectives of the technology platform.	E, CI

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		Greening of the Austrian car registration tax		potentially high (3)			The car registration tax sets a bonus-malus regulation with financial incentives for efficient cars below 120 gCO ₂ /km and financial disincentives for cars emitting 150 gCO ₂ /km and above (beginning 2013)		ongoing	No evaluation yet, but efficiencies of newly registered cars are improving	E
Competition and entrepreneurial environment											
Support of entrepreneurship/ Establishment of enterprises		funds for SMEs	yes	2	1		No direct effect on the dynamic of establishment of enterprises expected, possibly more influence on growth dynamics of ambitious SMEs		3		
		common action scheme for SMEs (of BMWFJ together with the WIFI of the Austrian Chamber of Commerce) for 2011/12 (accompanying and implementation program additionally to "Small Business Act)	no	2	2		target groups are established SMEs - little impact on dynamics of establishing companies		3		
		reorganization of the young entrepreneurs aid of the Austria Wirtschaftsservice GmbH	no								
		SME fitness package	yes	2	3				3	the already existing program "Innovation cheque" has been evaluated positively.	
		Equity and Venture Capital	yes	2	3		Focus on ambitious establishments and young enterprises in high technology sector (except SME funds)	Improvement of legal framework for risk capital (especially VC)	3		
		service portal for companies	yes	2	2		Centralisation of all e-government offers of the federal government in one online portal. Reduction of information and transaction costs particularly relevant for SMEs and establishments	Monitoring of the costs and duration of time for "Betriebsanlagene genehmigungen"(operation plant licence?)	2		

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		initiative for the reduction of administration costs for companies	yes	3	2		Reform dynamics decreased during the previous two years. Reform of the GmbH and simplification of trade regulations (Gewerbeordnung) has been announced for next year.	In the course of the reform of trade regulations (GewO) qualification certificates and regulations should be checked (particularly the recognition of foreign qualifications)	2	administration costs have been lowered by 564 million Euros by 2010, by end of 2012 one billion Euros of reduction of administration costs should be achieved	
Fostering competition		Strengthening the federal competition authority (reform of competition law)	yes	3	3	3		Increasing the number of competent staff in the federal competition authority to effectively handle the workload	2	na	TFP
Fostering competition		Removing barriers to competition in liberal professions	yes	1	1	1	Notaries are now open for EU citizens	As long as the number of notaries is limited, there will be no effective boost to competition	3	na	TFP