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A compilation of questions to - Liechtenstein
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[Question by Brazil](#) at Wednesday, 01 April 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Mitigation actions

In Table 3 "Progress in achievement of the quantified economy-wide emission reduction target: information on mitigation actions and their effects", only 4 mitigation actions are listed. They could be considered too few regarding the intended GHG emissions reduction. Are there additional actions to be presented?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

Two of the four mitigation actions listed are described within the "Energy Efficiency Act" and "Liechtenstein Energy Strategy 2020". Both "actions" mentioned for the QEWERT do not reflect two individual measures, they rather represent a whole set of measures described in the Liechtenstein Energy Strategy 2020.

The Energy Efficiency Act forms the legal basis for subsidizing the implementation of energy efficiency measures and renewable energy production. These subsidies were designed as so called feed-in tariffs or direct payments for specific measures. Since its implementation in 2008 around 50 Million Swiss Francs of subsidies have been provided (2014). These subsidies have triggered investments of around 250 Million Swiss Francs. Over the life cycle of the subsidy measures, approximately 150 to 170 million liters of heating oil will be saved.

The Liechtenstein Energy Strategy 2020 ensures the development of a sustainable energy supply. Its aim is to reduce Liechtenstein's energy consumption as well as the CO2 emissions both by 20 % by 2020 and to increase the share of sustainable energy from formerly 8 % to 20 % by 2020. A whole set of measures has been elaborated to implement and achieve the ambitious goals within the upcoming years.

The strategy output was the establishment of a so called energy flow chart which provides detailed information with respect to Liechtenstein's energy demand. Moreover, the strategy assists the competent authorities to localize further energy saving potentials as well as increases energy efficiency quotas. Through the application of that energy flow chart six fields of action were identified. Each field of action is linked to a set of respective measures. Besides the building sector, a low carbon transportation sector, energy efficiency and the renewable production of energy, the Government identified awareness rising and the establishment of an appropriate framework for decision making, as crucial fields of further actions. The complete list of individual measures is available in Annex 8 of Liechtenstein's Energy Strategy 2020.

[Question by Netherlands](#) at Tuesday, 31 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Potential additional PaMs

Liechtenstein is reporting a decrease of emissions (including LULUCF) by 2.7 per cent between 1990 and 2011 while the target is a reduction of 20% by 2020 compared to 1990. The projected emission levels in the 'with measures' scenario for 2020 compared with the 1990 levels are reduced by 15.8 per cent. The ERT noted that "The projections indicate that it is likely Liechtenstein will need to either implement additional PaMs and/or use units from market-based mechanisms in order to achieve its emission reduction target using existing domestic PaMs only and may need to put in place additional PaMs and/or make use of the market-based mechanisms". Can Liechtenstein provide information on potential additional policies and measures?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

Since 2005, when Liechtenstein has ratified the Kyoto Protocol, the countries greenhouse gas emissions have constantly decreased – from 7.6 tonnes CO₂eq per capita in 2005 to 6.1 tonnes CO₂eq per capita in 2012. The Government recognizes that further measures are necessary to achieve its quantified economy-wide emission reduction target in 2020. However, economy wide greenhouse gas reduction measures have to be implemented in line with principle of economic efficiency as well as in a socially acceptable way.

One additional measure would be the improvement of the railway infrastructure across Liechtenstein to establish a cross-border regional suburban train. This would state a great improvement of the public transportation system in the whole region. In addition to domestic measures Liechtenstein will acquire emissions reductions from abroad within the framework of the Kyoto Protocol's flexible mechanisms. This approach has also been implemented in Art. 4 para. 3 of Liechtenstein's Emissions Trading Act from 2012, see LGBI. 2012 No 346.

[Question by China](#) at Monday, 30 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: additional PaMs

According to the WM scenario, Liechtenstein will not achieve its 20% decrease target, what additional policies and measures will Liechtenstein take?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

According to Liechtenstein's WM projections for emissions up to 2020, which are based on emissions modelling for the period 2012-2020, Liechtenstein will not fully reach its emission target by domestic measures alone. In order to further reduce emissions domestically a special focus is currently given to the transportation sector and its corresponding emissions. In the course of 2015/2016 the Government will release a new "Mobilitätskonzept" (Transportation Strategy) which will also aim at a further increase of energy efficiency of the transportation sector.

However, Liechtenstein is member to Annex B of the Kyoto Protocol and is as such eligible to use flexible mechanisms as stated in Art. 6, 12 and 17 of the Protocol. In order to achieve its 20 % decrease target Liechtenstein will acquire emission reductions from abroad within the framework of the Kyoto Protocol's flexible mechanisms. This approach has also been implemented in Art. 4 para. 3 of Liechtenstein's Emissions Trading Act from 2012, see LGBl. 2012 No 346.

[Question by China](#) at Monday, 30 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: mitigation effects of PaMs

In the BR1, Liechtenstein provided information on PaMs only at the national level. Please also report the effects of individual mitigation measures?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

Besides PaMs on the national level, Liechtenstein has implemented several individual mitigation measures such as the wood fired heating plant in Malbun (2012) and the wood fired heating plant in Balzers (2014). Both installations produce renewable energy from biomass up to a maximum of 20 GWh/a. The corresponding substitution of fossil fuels lead to an annual reduction of CO₂ emissions of up to 4'380 tonnes, see also measure 4.4, Annex 8.1 of Liechtenstein's Energy Strategy 2020.

To state another individual mitigation measure, with a considerable reduction potential, is the further expansion of a district heating network in the city of Schaan. The heat for this network is generated by a waste incineration plant situated in neighboring Switzerland. The overall potential of this expansion has been calculated with CO₂ emissions reduction of up to 1'971 tonnes per year (see also measure 3.3, Annex 8.1 of Liechtenstein's Energy Strategy 2020).

[Question by China](#) at Monday, 30 March 2015

Category: All emissions and removals related to its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: GHG inventory

The 2014 annual inventory review report pointed out that 3 recommendations proposed by expert group in 2013 annual review report had not been adopted, could you please explain why?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

It is difficult to answer this question as we are not quite sure to which three recommendations the question refers to. One of the main reasons why recommendations were not adopted is that the ARR was published on April 7 and the submission due date for the NIR is April 15. Therefore, the time given to adopt some of the recommendations was too short. Another main reason is that Liechtenstein has limited resources for the preparation of the NIR and therefore, some recommendations will be adopted in an efficient manner at a later time. As the reporting guidelines underwent major alterations for the submission in 2015 Liechtenstein decided wait for some adoptions for this submission.

[Question by European Union](#) at Wednesday, 25 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Use of market mechanisms

Does Liechtenstein intend to use market mechanisms to achieve the targets? If yes, to which extent and what is the associated effect on the emission level projections for the period up to 2020? Is use of international credits foreseen and if so, to what extent?

[Answer by Liechtenstein](#) at Thursday, 28 May 2015

Yes, even if the main focus of Liechtenstein is to reduce most of its emissions domestically, the target will only be reached by using international credits. The use of international credits is foreseen, but at the moment no estimates can be provided to what extent.

Question by European Union at Wednesday, 25 March 2015

Category: Progress towards the achievement of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Decoupling of economic growth from GHG emissions

To what extent is economic growth decoupled from GHG emissions?

What have been the main effects of the existing policies and measures on the emission trends? What have been the main deviations from expected results and what in your view has caused this?

Answer by Liechtenstein at Thursday, 28 May 2015

To what extent is economic growth decoupled from GHG emissions?

For a better understanding figure 1 is provided. The economic growth in Liechtenstein is coupled to an increase in population, number of employees as well as increase of commuters.

The emissions in Liechtenstein peaked in 2006. From 2007 onwards a decrease in emissions is observed. Around the same time a huge increase in GDP is observed and now GDP is somehow stabilized at a high level while emissions slowly decrease.

Figure 1: Trend from 1990-2012 of resident population, employed persons and commuters in Liechtenstein as well GDP and greenhouse gas emissions in percent to 1991.

1Source: Gross domestic product (GDP) 1990 - 1997: Office of Statistics (OS), Statistical yearbook. GDP 1998 - 2012: OS, National accounts. Resident population: OS, Population Statistics. Greenhouse gas emissions: OS, Environment statistics. Please note gross domestic product (GDP) at current prices, source data in billion CHF. Number of employees and commuters origin from Table 3_1_01 and T_3.1_02 of the statistical year book. Please note that the number of commuters is corrected for out-bound commuters.

What have been the main effects of the existing policies and measures on the emission trends?

The effects of the existing policies and measures on emission trends vary depending on the respective economy sector. The main effect of policies and measures within the households and industry sectors led to stabilization and later on to a decrease of GHG emissions. The reduction effects of policies and measures within the transportation sector have not led to comparable results. Despite existing policies

and measures, emission trends within the transportation sector remain on a relatively high and constant level.

What have been the main deviations from expected results and what in your view has caused this?

The main deviations from expected results occur within the transportation sector where policies and measures aimed at strengthening the role of alternative drive technologies. The effects on emission trends until today remain relatively low. The introduction of more efficient technologies for example led to a respective decrease in fuels. However, these savings were rebound by more powerful and heavier cars based on numbers of newly registered vehicles.

Question by European Union at Wednesday, 25 March 2015

Category: Assumptions, conditions and methodologies related to the attainment of its quantified economy-wide emission reduction target

Type: Before 31 of March

Title: Estimation of LULUCF emissions and removals

How does Liechtenstein estimate its LULUCF emissions and removals in its emission levels' projections over the period? What are the methodological approaches used and how do they impact on the assessment of the progress to the QEWERT?

Answer by Liechtenstein at Thursday, 28 May 2015

Liechtenstein's projections (WM and WAM) of the LULUCF sector are based on the non-energy-related effects of measures for the two time steps 2020 and 2030. As described on page 98 of Liechtenstein's Sixth National Communication under the UNFCCC and the Kyoto Protocol (NC6 LIE) the LULUCF emissions are simple linear extrapolations of the underlying trend in LULUCF emissions and removals between 2008 and 2011. In accordance with the current legislation on wood-harvesting it is intended to sustain Liechtenstein's forests as a net sink of GHG emissions. Nevertheless, the increase of biomass in forests shows a slight decline within the period 2008-2011. This trend was assumed to continue until 2030 in the projections of NC6. The net sink decreased between 2008 and 2011 by 4.7 %, and continuing the trend until 2030, the sink will then be reduced by another 30 %. This trend is of course not in line with the general target of reducing the GHG emissions but the extrapolated value is only based on a simple linear extrapolation and on a very short (3 years) period. Therefore, the uncertainty of this projection is very large. Until now Liechtenstein's government has not planned to modify its forest strategy.