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## **Economic Commission for Europe**

### **Inland Transport Committee**

#### **Seventy-seventh session**

Geneva, 24–26 February 2015

Item 4 (b) (ii) of the provisional agenda

#### **Strategic questions of a horizontal policy nature:**

**Environment, climate change and transport –**

**Mitigation of environmentally harmful effects of inland transport**

### **Application of ForFITS within the context of the third Environmental Performance Review of Georgia**

#### **Note by the secretariat**

The review of transport generated CO<sub>2</sub> emissions in Georgia was carried out as part of the 3rd Environmental Performance Review of Georgia that was led by the UNECE Environment Division. The chapter incorporates a report of the For Future Inland Transport Systems (ForFITS) tool to assess the country's CO<sub>2</sub> emissions by transport, and the relative impacts of alternative policy scenarios on CO<sub>2</sub> emissions. Analysis was done by the UNECE Transport Division with the support of local consultants for data collection purposes.

## **I. Context and Scope**

1. In January 2014, the Ministry of Environment and Natural Resources of Georgia requested the United Nations Economic Commission for Europe (UNECE) to undergo a third Environmental Performance Review (EPR), including a chapter on transport and the environment that covers all transport modes (road, railway, air, inland water and maritime transport, cycling, walking, pipelines) and all types of transport (passengers, freight, including transport of dangerous goods).
2. The chapter incorporates a report of the For Future Inland Transport Systems (ForFITS) tool to assess the country's CO<sub>2</sub> emissions by transport, and the relative impacts of alternative policy scenarios on CO<sub>2</sub> emissions.
3. The ForFITS report consists of a brief introduction followed by a summary of the results and a general description of the ForFITS model. A section on Georgia's baseline

status will present the situation of the country today in terms of the input data used for generating projections. The current impact of the transport sector of Georgia on the overall CO<sub>2</sub> emissions is quantified and future emissions are projected based on a reference scenario where no major shifts in the development of the transportation sector take place.

4. The alternative scenarios section provides projections of transport sector CO<sub>2</sub> emissions under the reference scenario and three additional scenarios:

- Scenario A (reference): Accounts for the expected evolution of socio-economic parameters such as population and GDP. Includes default data in ForFITS on the expected evolution of fuel consumption characteristics by powertrain to reflect future improvements in vehicle technology and their associated costs. Other characteristics defining the transport system in the base year (e.g. fuel taxation schemes, road pricing, passenger/freight transport system structure, fuel characteristics, powertrain technology shares, behavioral aspects) remain unchanged in projections.
- Scenario B (shift to public transport): Simulates a shift from private vehicles to public transport modes due to structural changes in the passenger transport system. This is mimicked through the ForFITS input “passenger transport system index” detailed in the Alternative Scenarios section.
- Scenario C (shift to freight rail): Evaluates the impact of changing the freight transport system by increasing the competitiveness of rail over time. This is simulated through raising the share of tonnes lifted by trains at the expense of road trucks. More details are provided in the Alternative Scenarios section.
- Scenario D (vehicle fleet renewal): Quantifies the impact of renewing the personal passenger cars fleet through the reduction of the average vehicle life by half of the base year value. More details are provided in the Alternative Scenarios section.

## II. Summary Results

5. The estimated *well to wheel (WTW)*<sup>1</sup> CO<sub>2</sub> emissions in 2012 from the transport sector for Georgia show that emissions from freight vehicles are approximately 60 percent less than those from passenger vehicles (1.4 billion kg vs 3.4 billion kg).

6. Projections of CO<sub>2</sub> emissions from the transport sector in Georgia show an overall increase of more than 130 percent by 2030. However, the projected trends of the freight and passenger sectors are quite different. While emissions from the passenger sector are projected to almost double by 2040, emissions from the freight sector are projected to more than triple. This difference can be largely explained by the projected decline in population over this time period in contrast with the projected economic growth and shows the large impact of expected economic growth on CO<sub>2</sub> emissions, particularly those from freight vehicles.

7. While much of the variation in future emissions will be the result of socio-economic factors, there are still ways that Georgia can address the issue of limiting CO<sub>2</sub> emissions from the transport sector. The analysis of Georgia performed by the UNECE demonstrates that savings in emissions could be substantial compared to the a reference scenario where few mitigation measures are implemented. Compared to such a scenario, emissions from the freight sector in 2040 are projected to be 17.3 percent less if freight transport shifts

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<sup>1</sup> Well to wheel (WTW) refers to CO<sub>2</sub> emissions from both a vehicle itself through its operation as well as emissions from the production of the fuel used for the vehicle's operation.

significantly from road to rail and 7.6 percent less for the passenger sector if the country's transport patterns shift toward those of countries with the most developed public transport systems. These results show that positive steps can be taken by Georgia to limit emissions from both the passenger and freight transport sectors.

### **III. Publication timeline**

8. The EPR intergovernmental Expert Group and a delegation of the reviewed country will discuss conclusions and recommendations drawn in the report. The UNECE Committee on Environmental Policy at its twenty-first session (27 - 30 October 2015) will carry out a peer review with Georgia, based on the EPR report. It will adopt the EPR recommendations to the country. The publication of the 3<sup>rd</sup> EPR of Georgia, including the chapter on Transport and the annex including the ForFITS report are expected to be completed in 2015.

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