

Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) Clean Energy Program

US Agency for International Development
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Memo on the mitigation measures for MARKAL-Georgia

This memo constitutes our Component 3 Year 3 deliverable summarizing mitigation data prepared in the MARKAL Georgia model.

EC-LEDS' sub-contractor Remissia is currently preparing the descriptions of mitigation measures for analysis in MARKAL-Georgia, planned to start in March 2016. This memo gives the preliminary list of mitigation measures for analysis. There are two lists currently developed, one covers the national measures and another defines local (municipal) measures from SEAPs to assess their joint impact on Georgia's emissions as well as the impact of extending these measures nationwide.

Table 1. Preliminary list of National LEDS measures for analysis in MARKAL-Georgia

| Measure Name | Measure Description |
|--|--|
| Sensitivity Scenario | |
| Optimistic growth of economy | Assume that GDP growth of 7.3% (normalized value from Georgia's 2020 strategy) |
| Power and Supply | |
| More efficient thermal generation | The existing inefficient gas plants are replaced with new efficient plants |
| Reduce gas losses in distribution systems | According to Geostat natural gas balance, the gas losses make about 6% of all final energy consumed in Georgia (Added 4.15% if power sector consumption). Measure considers decreasing gas losses to 2% by 2030) |
| Buildings Sector | |
| New building code | The scenario assumes that there will be a new building code with efficiency standards, which will affect new buildings. |
| NAMA for public buildings | NAMA proposes the use of energy service contracting for complete renovation of public buildings |
| NAMA for public buildings (upscale for residential sector) | NAMA proposes the use of energy service contracting for complete renovation of residential buildings |
| NAMA for solar and biomass | Promote installation of solar water heaters and efficient biomass stoves |
| Efficient lighting | The measures that aim at reduction of the use of incandescence bulbs (surcharge during import, no import or others) and promotion of the use of efficient bulbs |

| Measure Name | Measure Description |
|--|--|
| Labeling of appliances | Labeling of electric appliances increases the penetration of more advanced technologies |
| Transport Measure | |
| Improved vehicle stock and fuel standards | Introducing vehicle mandatory inspection and improved fuel standards (mandatory and Eco labeling), as well as higher taxes on import of older vehicles |
| Promote modal shift to rail in freight transport | New railway to Turkey will shift the freight from road to rail |
| Promote multimodal passenger travel | This will mostly cover rail, because SEAPS cover buses. Actions will include new rail to Turkey, as well as improvement of rail passenger service and infrastructure |
| Promote hybrid and electric vehicles | Legislative changes that put higher tax on import of older vehicles, and 0 tax on import of electric and hybrid vehicles |
| Promote the use of biofuels | The obligation to have some percentage of fuel in transport from biofuels |
| Industry | |
| Energy Efficiency in cement industry | under development (will be based on survey of industrial plants) |
| Energy efficiency in iron & steel industry | under development (will be based on survey of industrial plants) |
| Energy efficiency in chemical industry | under development (will be based on survey of industrial plants) |
| Energy efficiency in food industry | under development (will be based on survey of industrial plants) |
| | |

Table 2. Preliminary list of municipal measures for analysis in MARKAL-Georgia

| Measure Name | Measure Description |
|---|---|
| Buildings sector | |
| Municipal Buildings | |
| Building insulation | Different insulation measures in municipal building (roof insulation, wall insulation) |
| Biomass heating systems | Installing biomass heating system, heating the whole building instead of system which uses gas |
| Heat pumps | Installing heating system with heat pump, heating the whole building instead of system which uses gas |
| Solar water heaters | Installing solar water heaters in municipal buildings |
| Residential Buildings | |
| Building insulation | Different insulation measures in residential building covering multi-apartment blocks and single houses |
| Solar water heaters in private houses | Solar water heaters in stand-alone houses |
| Biomass heating systems in private houses | Biomass heating systems (furnaces) |
| Transport Sector | |
| Improvement of public transportation system where it exists | This is for cities that already have municipal public transport and are just looking to improve service to attract more citizens. This measure doesn't require purchasing new buses - existing buses run more frequently and carry more citizens) |
| Development of public transportation system where it doesn't exist | This is for cities where there is no municipal public system and they need to develop it (so include purchasing of new buses) |
| substituting exiting buses with Compressed Natural Gas (CNG) busses | Diesel busses are substituted by CNG or hybrid busses |

| Measure Name | Measure Description |
|--|--|
| promote cycling | development and maintenance of cycling infrastructure |
| walking | promoting walkable locality |
| promote two wheelers | this is an alternative measure for cycling in cities where hills don't favor cycling |
| Parking systems | developing parking systems with increased costs for parking |
| Improving road & street infrastructure | shorter routes, better traffic management |
| Public Lighting | |
| LED lamps for public lighting | installation of LED bulbs in public lighting |

Due to the delayed signing of questionnaires for Industrial plants from the Ministry of Economy and Sustainable Development, there is a delay in preparing measures for the industry (signed on February 24-26, 2016). Remissia plans to finalize this survey by mid- March, which will enable defining measures in this sector as well.