Russian energy future:WWF vision

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Athens, November 9, 2011

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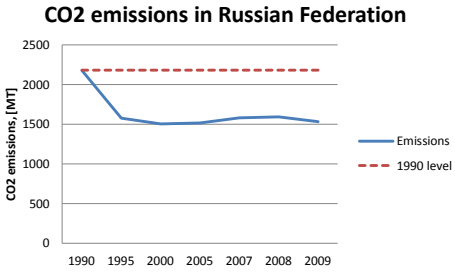
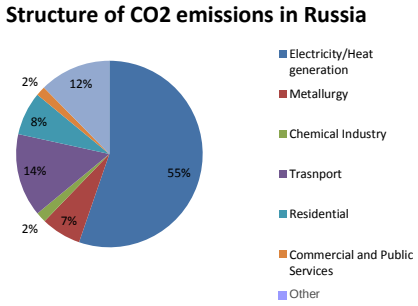
Current situation in Russia





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Methodology

- Calibrated RU-TIMES model
- 85% of emissions are covered with high details
- Official scenarios for drivers
- Increasing cost of each primary energy source depending on its consumption

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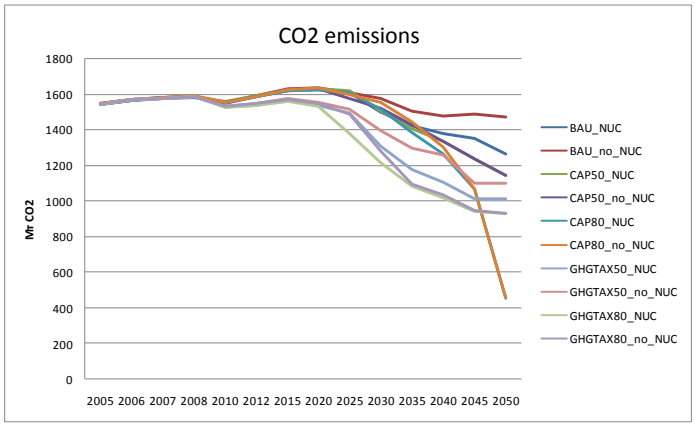
Main assumptions

- Population decreases to 130 Million by 2050
- GDP grows for 4% till 2030, 3.5% till 2040 3% till 2050
- Growth in per capita living area 2 times to 2050
- Light vehicles growth 1.5 times
- Energy efficiency of buildings will increase 4 times by 2030 and 6 times by 2050
- With and without nuclear energy
- Coal is competitive to Gas only if its cost is about 2 times less

Scenarios

- BAU
- CAP 50
- CAP 80
- GHGTAX 50
- GHGTAX 80
- With Nuclear/without nuclear

Results



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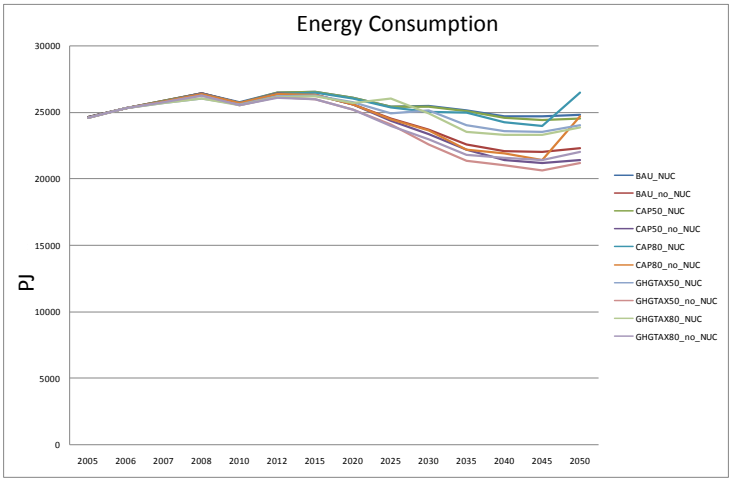
Results



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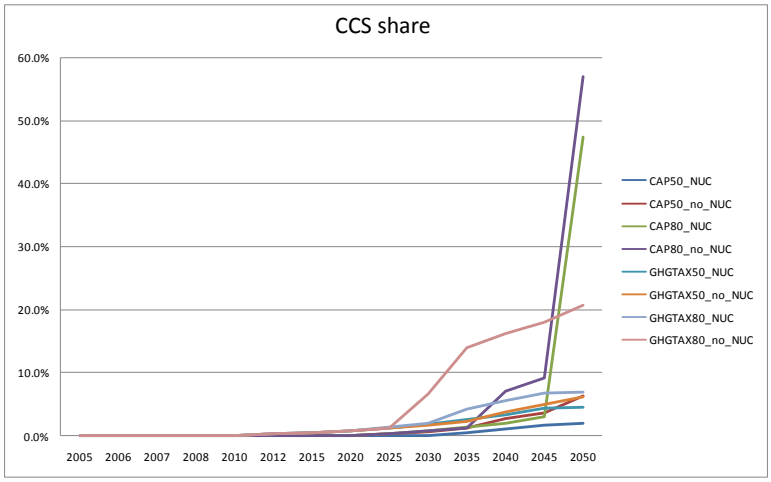

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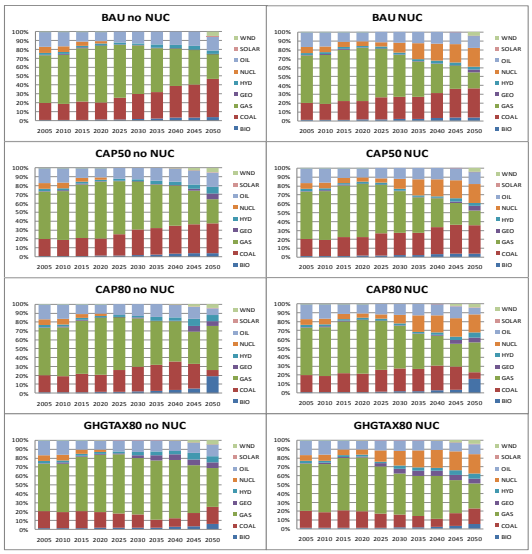
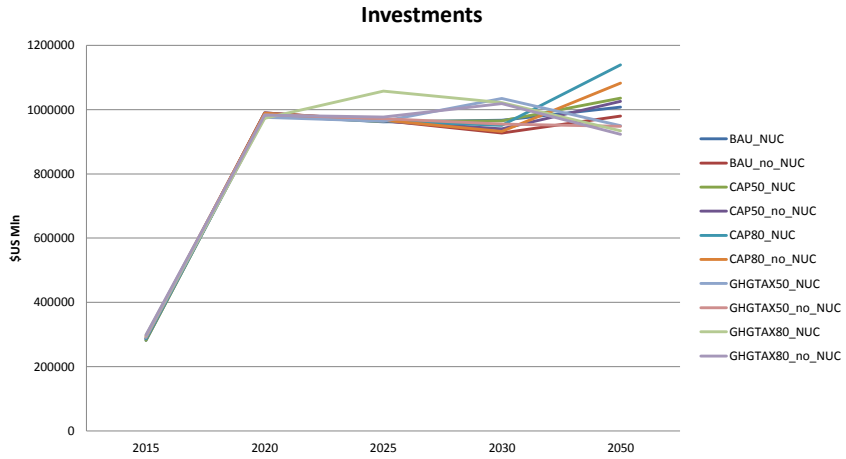


Results



From 9% to 10.9% of GDP in 2050

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Conclusions

- In the case of economically optimized development in Russia with an (only) addition of intensive energy efficiency/saving measures in buildings (which is a "must" for Russia) gives us a stable CO_2 emission level in energy of 35% below 1990 CO_2.
- Special CO2 reduction measures case with carbon price growing from $15 to $50 or $80 USD2009 per ton CO2 by 2050 brings CO_2 emissions level in energy down to 45-55% below 1990. Fee of 50 USD provides for -45%, increase to 80 USD adds another 10% reduction It includes additional economic impact on firms and households, which creates more incentives for energy efficiency and energy saving.
- Nuclear energy is not required for achievement of GHG emission reduction. Use of nuclear energy leads to small, but increase in total investments to achieve the same GHG level.
- Investments in economically optimal development (baseline with measures for energy efficiency/savings in building) are estimated as 9,3-9,6% of GDP in 2050; required additional 'carbon investments' (to achieve 50% GHG emissions reduction) are much smaller accounting for 1,0-1,3% of GDP (i.e. total investments are up to 10,3 – 10,9%).
- GHG emission reduction by 80% (down to 20% of 1990 level) is theoretically possible, but by carbon capture and storage (CCS) technologies, which are to jump up to 45-55% of all energy units in 2040-s. It probably means that GHG reduction by 80% requires more innovative approaches, which can be expected in future.

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Thank you!

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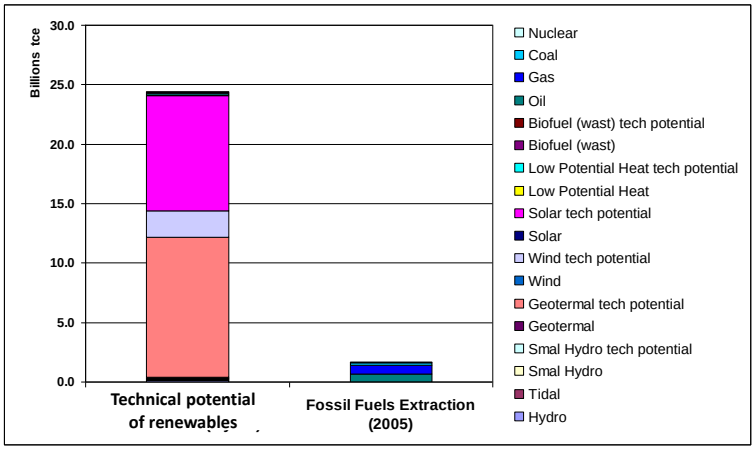
Extra



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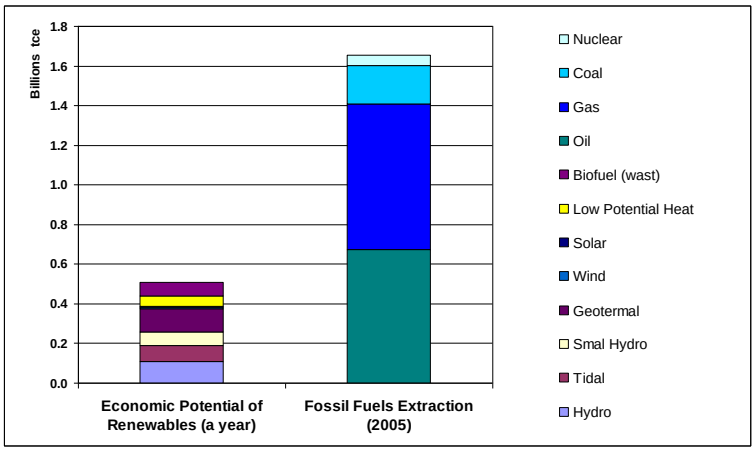

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