



## Thorium Energy Resources and its Potential of Georgian Republic, The Caucasus

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Energy resources, currently consumed by modern civilization, are represented by hydrocarbons - 78-80 %, however these reserves are exhausting. In light of these challenges, search of new energy resources is vital importance problem for the modern civilization. Based on the analysis of existing energy reserves and potential, as the main energy resources for the future of our civilization, the renewable and nuclear energy should be considered. However, thorium has a number of advantages compared to Uranium (Kazimi, 2003; et al.): It is concentrated in the earth crust 4-5 times more than uranium; extraction and enrichment of thorium is much cheaper than uranium's; It is less radioactive; complete destruction of its waste products is possible; thorium yields much more energy than uranium. Because of unique properties and currently existed difficult energetic situation thorium is considered as the main green energy resource in the 3<sup>rd</sup> millennium of the human civilization (Martin, 2009).

Georgia republic, which is situated in the central part of Caucasus, poor of hydrocarbons, but has a thorium resource important potential. In general the Caucasus represents a collisional orogen, that formed along the Eurasian North continental margin and extends over 1200 km from Caspian to Black Sea. Three major units are distinguished in its construction: the Greater and Lesser Caucasian mobile belts and the Transcaucasus microplate. Currently it represents the Tethyan segment connecting the Mediterranean and Iran-Himalayan orogenic belts, between the Gondwana-derived Arabian plate and East European platform.

Now in Georgian Republic are marked thorium four ore occurrences (Okrostsvaridze, 2014): 1- in the Southern slope of the Greater Caucasus, in the quartz -plagioclases veins (Th concentrations vary between 51 g/t – 3882 g/t); 2- in the Transcaucasus Dzirula massif hydrothermally altered rocks of the Precambrian quartz-diorite gneisses (Th concentrations vary between 117 g/t -266 g/t); 3- in magnetite ore bodies of Vakijvari ore field (Th concentrations vary between 185 g/t - 1600 g/t); 4- in the black sand (magnetite sand) of the Black Sea Guria region coast (Th concentrations vary between 200 g/t - 450 g/t). Based on these data and on the correlation of these information on the other thorium deposit of the world, the Georgian thorium ore occurrences should be treated as a prospective objects. Because of this, we consider that complex investigation of thorium resources of Georgia should be included into the sphere of strategic interests of the state.

### REFERENCES

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