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Geological and economic monitoring of hydrocarbon resources of the Russian Federation using GIS technologies

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Geological and economic evaluation of oil, gas and condensate resources is the basis for the planning of exploration works at the expense of the state budget in regions that are the most promising and economically attractive for commercial exploitation, development of long-term strategies for hydrocarbon mineral resource base reproduction, licensing, oil and gas industry growth.

GIS project "Geological and economic evaluation of oil and gas resources" is the information base for geological and economic analysis and management decision-making in the area of subsoil use. GIS project is implemented within geographic information system ESRI ArcGIS 10 on the basis of digital vector data on geology and subsoil use in the Russian Federation in the field of raw hydrocarbons. Customers are provided with the following layers, common for the whole territory of the Russian Federation:

- administrative zoning;
- hydrography (line and polygonal river reach, lakes, offshore and onshore areas);
- topography (contour line and simulation model);
- industrial infrastructure (population places, transportation infrastructure, oil and gas pipe line infrastructure, conservation areas);
- geological oil and gas zonation (oil-and-gas provinces, areas, regions);
- structural and tectonic zoning;
- hydrocarbon deposits and prospective targets;
- density distribution model of total initial resources;
- available geological and geophysical data (2-d and 3-d seismic survey, deep drilling);
- licensing for oil and gas;
- geological and economic zoning of oil, gas, condensate resources and subjects of Federation and Russian Federation all in all.

GIS project "Geological and economic monitoring of hydrocarbon resources of the Russian Federation" allows:

- calculation of total hydrocarbon resources, total commercial hydrocarbon resources, density of seismics and exploration drilling maturity, net present value (NPV) of state and private investors on the territory with prospective and possible resources;
- production of reports (tables, diagrams, Excel figures and accessible graphics formats) for drafting of analytical notes on the status of the hydrocarbon resource base.

