EXECUTIVE SUMMARY AND RECOMMENDATIONS

Rapid, Radical Reforms

Slovakia has implemented a range of thorough energy reforms over a short period of time with impressive results. As a medium-sized new EU member state, it plays a strategic role in European natural gas supply.

With limited domestic energy resources, Slovakia relies on imports for almost 80% of its (net) primary energy supply, mainly from Russia. Its energy mix relies heavily on gas (31%) and coal (25%) for electricity and heat generation followed by oil (17%), nuclear (8%) and renewable energy (3.4%), mainly hydropower. Between 1990 and 2003, as a result of structural reforms and energy price increases, TPES decreased by 14% and energy and carbon intensities fell by 30% and 43%, respectively.

Energy Policy: Foundation of Reforms

On the basis of Slovakia’s 2000 energy policy, the government has initiated structural reforms and sectoral policies. It separated policy-making functions, enforcement of regulations, now ensured by an independent regulator, and the operation of energy suppliers. Such separation is required to foster market conditions and limit conflicts of interest on the part of the government as policy-maker, regulator and shareholder, and to establish a better balance between energy supply and demand.

Market Reforms: Impressive Results

The 2001 and 2004 energy legislation has helped the government achieve and consolidate a market-based regulatory framework in line with EU directives. The result has been cost-reflective prices and favourable investment conditions, in particular through careful privatisation, attracting major foreign direct investment. Challenges remain in establishing real consumer choice and protection, enabling competition with effective third party access to energy facilities, and integrating the Central European energy market where incumbents maintain dominant positions and gas supply is sourced primarily from one country. A more market-driven and regional approach to the Slovak energy market should be a short-term objective.
A longer-term goal should be the establishment of a common regional energy market with open borders and an integrated point-tariff system.

**Sectoral Policies: Crucial Components to be Strengthened**

High import dependency and reliance on a single dominant hydrocarbon supplier highlight the importance of vigorous energy security policies based on a combination of measures, focused on oil and gas stocks and an emergency preparedness system, enforced by strong institutional links in order to attain EU and IEA requirements. Securing alternative supply options and diversification of oil and gas supplies can also play a critical role.

Despite improvements, energy policy focuses on the supply side, undervaluing the negative impact of the high costs of energy to the economy and to households. Future decommissioning of electricity generating capacity and high import dependency highlight the need for a robust energy efficiency action plan. This plan would be implemented through an energy efficiency act with a strong national energy agency, and backed by financial mechanisms such as energy efficiency funds and third party financing to tap into significant economic energy saving potential. Additional and sustained benefits include increased business competitiveness, improved household welfare, environmental performance and enhanced convergence with IEA and EU energy performance levels in a cost-effective way.

The environmental impacts of energy use, mainly pollutants and greenhouse gases (GHG), have been dramatically reduced thanks to voluntary policies but pollutant and carbon intensities still remain much higher than the average for OECD Europe. Growth in air pollutants and GHG emissions has been decoupled from economic growth. In addition, climate change issues have been progressively integrated in the policy-making process and sulphur dioxide and carbon trading schemes have been put in place.

Energy research and development might be better integrated with energy policy priorities, in particular energy efficiency and environmental protection, and its resources aligned with the level of Western Europe.

**Energy Sector and Markets: Radical Changes and Rapid Transformation**

In less than a decade, regulatory reforms and thorough energy company restructuring and privatisation have transformed the energy sector as well as rationalising its markets.
The oil industry is the most advanced in this process and complies now with the latest international standards, and is integrated in the regional market. In the domestic market, stronger and sustained regulatory enforcement, close market monitoring and fair access to facilities are required to enhance competition and attract new players.

Coal use has been decreasing and largely relies on imports as domestic lignite production has continued to decline. This trend is expected to accelerate with stricter emission limits and carbon quotas.

In the gas sector, end-use price rebalancing and partial privatisation have enhanced modernisation of SPP, the national gas company, and consolidated the transit system, which supplied 16% of EU 15 gas supply in 2004. New challenges include the effective opening of the retail gas market (more than one third of final energy consumption) to competition in the face of a dominant external supplier and a domestic integrated incumbent. So attentive regulatory monitoring, in particular of access to gas supply and facilities, as well as an effective and durable diversification of gas supply, are crucial. Apart from the legal unbundling of SPP Transmission and SPP Distribution, the EU Gas Directive requires their functional unbundling.

Nuclear energy, which is dominant in electricity generation, has entered into a phase of substantial changes with the forthcoming decommissioning of a second plant, important waste management investments and the privatisation of the operating company with the planned completion of a new plant in the context of market opening. Given these changes, the nuclear sector will require significant additional resources as well as a close monitoring of safety and financial balance, by the authorities.

The use of renewable energy is still marginal, except for large hydropower and its market potential is modest (4%). Nevertheless, biomass, geothermal and solar thermal could provide low-temperature heat and electricity under economically viable conditions (partly compensating for the declining lignite production) reducing the energy trade deficit and reinforcing reliability of supplies. To this end, an action plan based on realistic objectives can play a key role.

The unbundling of electricity generation ownership from transmission and distribution, large import capacities as well as price reform, have improved market fundamentals and created conditions for competition that should be enhanced by the finalisation of privatisation (in generation and distribution) while keeping the grid operator state-owned. While Slovakia has advanced towards a competitive power market, challenges remain in harnessing the full advantages of cross-border trading opportunities so as to increase efficiency,
reduce costs and improve reliability and security. However, the construction or acquisition of new generation plants by SE, the national electricity generation company, persistence of long-term contracts and the concept of national self-sufficiency in electricity may further reinforce SE's dominant position and conflict with the objectives of creating a competitive market and its progressive integration with the EU internal electricity market.

A single regulation for heat and the establishment of cost-reflective prices have contributed to the rehabilitation and modernisation of existing district heating networks, notably through partial privatisation, which is expected to be finalised in 2006.

Conclusions

Energy reforms in Slovakia have entered a crucial stage, simultaneously consolidating achievements of rapid market reforms, integrating EU energy markets and strengthening energy security. The challenges are even greater up to 2010. They include the gradual decommissioning of electricity generation capacity, increasing hydrocarbon prices, controlling pollutant emissions in line with EU and international obligations, and reducing energy consumption growth and intensity. These tasks require vigorous policies based on clear objectives and time frames within co-coordinated, independent and robust administrations.

The future of Slovakia depends to a large extent on its ability to acquire new knowledge, and rapidly and efficiently to apply it to the design and marketing of products and services that are competitive in European and global markets. Safer, cleaner and more efficient energy can greatly contribute to this objective.

Recommendations

The government of the Slovak Republic should:

- **Energy Policy**

  General Energy Policy
  
  - Finalise the separation of state functions between policy making, regulation enforcement, and ownership and operation of energy services.
  
  - Consider reinforcement of policy monitoring, in particular with mid-term policy cycle assessment, and ensure involvement of all stakeholders, including consumers, when developing energy policies and widely disseminating information.
Ensure that policy design and implementation are balanced between supply and demand, and that energy efficiency/demand-side management (DSM) is made a priority.

Ensure sufficient independence from political and industry influence, and provide adequate resources to state agencies, in particular the Regulatory Office for Network Industries (URSO), Nuclear Regulatory Authority (UJD), Slovak Energy Agency (SEA), Administration of State Reserves (ASMR) and the Anti-Monopoly Office.

Ensure the quality of statistics and forecasts, on both supply and demand sides, in compliance with international standards, and satisfy new needs.

Ensure that the EU acquis communautaire and complementary regulation related to energy and energy-related issues are effectively enforced with appropriate monitoring.

Ensure synergies and joint actions between the energy policies and other state policies such as environment, transport, housing, social and regional development.

Prioritise on a least cost basis the use of EU structural funds and BIDSF for energy efficiency and sustainable renewable energy projects.

Ensure that research and development on energy is integrated in a systematic way into state policies and programmes.

Energy Market Reforms and Regulation

Consider developing regulatory, fiscal and market structures that seek to reflect environmental externalities in energy prices.

Undertake an assessment of the feasibility of introducing peak tariff and interruptible contracts as a means to ensure investment and reduce peak demand.

Implement the EU Directives for the internal energy markets as well as market rules that facilitate third party access (TPA) and customer choice.

Ensure effective unbundling of monopoly activities using the most effective approach and adequate regulatory monitoring to ensure fair competition.

Ensure co-operation and effective market monitoring by and between URSO, the Anti-Monopoly Office, and the designated system operators for electricity (SEPS) and gas (to be unbundled from SPP), so as to ensure effective market conditions and consumer protection; consider adopting a written agreement of co-operation on competition law enforcement.
• Ensure a transparent and non-discriminatory authorisation procedure for the construction of additional energy capacities to stimulate competition.

• Complete the privatisation of companies in a manner compatible with supply security priorities, diversification and market opening.

• Encourage URSO to develop rules and regulations for energy distributors to develop DSM programmes for their customers.

Energy Security

• Enhance energy security policy by strengthening institutions and diversified instruments with a priority to demand-side policy; assess its effectiveness, preparedness and cost-effectiveness.

• Achieve an energy security system which complies with quantitative and qualitative EU and IEA requirements.

• Consider ways to diversify oil, gas and nuclear fuel supply.

• Clearly define government legal authority to draw upon industry stocks in an oil supply disruption.

• Clarify the ownership of existing oil terminals and storage facilities on a fair value evaluation by 2006 as agreed; ensure that facilities for emergency reserves continue to be used solely for this purpose.

• Enhance efforts to ensure oil supply diversification with at least one viable option for supply of crude oil as for oil products.

• Ensure an effective monitoring of markets to avoid abuse of dominant positions by external and internal suppliers.

Energy Efficiency

• Consider adopting a robust multi-sector energy efficiency action plan with binding sectoral objectives, targeting an energy-efficient economy, and clear institutional responsibilities; an energy efficiency act will support implementation.

• Provide adequate resources to the national energy agency and local energy efficiency programmes and institutions to comply with the objectives; ensure independent monitoring of policies and programmes.

• Ensure co-ordination of activities within the central, regional and local administrations and other stakeholders; adopt most energy efficient standards for state-owned buildings and for the purchase of energy appliances and vehicles.
• Consider as a priority energy efficiency measures for energy poverty mitigation and building rehabilitation programmes.

• Implement EU directives on energy efficiency, including the Buildings and CHP Directives, on a timely and effective basis.

• Ensure that demand side measures are properly considered in least cost plans, in particular to replace future decommissioning of electricity capacities.

**Energy and the Environment**

• Monitor and evaluate the implementation and cost-effectiveness of the policies and measures in the National Environmental Action Programme (NEAP) and the Climate Change Strategy, using quantitative objectives and time frames.

• Continue to reduce the level of emissions of local pollution and enhance the monitoring system of local pollution.

• Ensure adequate control of emissions rights and trading, and monitor their evolution notably by reinforcing the Slovak Environmental Inspection (SEI) capacities.

• Implement ambitious action plans in sectors, in particular residential and transport which are not covered by the current pollution fee system or EU-Emission Trading Scheme (EU ETS).

• Enhance the promotion of Joint Implementation (JI) projects.

• Consider adding a CO₂ component in the emission tax and vehicle registration tax to support the Environmental Fund.

**Research and Development**

• Develop an energy R&D strategy by targeting those technologies that can help the country achieve its specific energy goals, in particular improvement of energy efficiency and reduction of CO₂ and pollutant emissions.

• Consider reversing the downward trend in government spending on energy R&D and bringing it more in line with other EU and IEA countries and ensuring its cost-effectiveness.

• Investigate private/public partnerships to ensure continued energy R&D efforts by energy companies in the competitive market.

• Enhance co-operation between institutions and examine advantages for greater participation in international energy R&D programmes such as these developed by the EU and the IEA.
Energy Sector

Oil
- Ensure effective wholesale and retail oil product competition through open trade, access to new entrants and active monitoring of competitive conditions, based on liberal legislation and using market tools by an independent and empowered agency (Anti-Monopoly Office); price regulation should be avoided.
- Ensure fair access to oil terminals to all market players.
- Continue enhancement of fuel quality and modernisation of transport, refining and retail facilities in compliance with international standards.
- In line with the objectives, promote sufficient demand for biofuels to stimulate increased investment in production facilities.
- Ensure that the ownership and operation of oil transit does not conflict with supply diversification, market competition and its sustainability.

Coal
- Continue sector restructuring and closure of non-economical mines in compliance with EU competition, social and environmental rules.
- Allocate adequate support for the employees during the mine closure process and explore alternatives such as natural gas and biomass conversion of power and heat plants.
- Ensure that imports can compete on a fair basis.
- Ensure that large to medium-size coal users comply with the EU and domestic environmental standards.

Natural Gas
- Consider ways to diversify supplies, including regional initiatives, and ensure sufficient gas storage.
- Evaluate whether the long-term contracts that exist in this sector are compatible with EU and Slovak competition rules.
- Evaluate the consequences for competition and diversification of the presence of integrated companies, both upstream and downstream; ensure commercial transparency of supply and import contracts.
- Continue to develop competition in the gas sector in a manner compatible with the objectives of security of supply and new investments.
• Implement the legal unbundling of SPP as soon as possible in order to improve transparency and non-discrimination in the sector.

• Ensure that newcomers have fair access to gas supply transmission, storage and distribution facilities.

• Ensure a fair and transparent entry and exit tariff system for access to the transport network including at international points.

**Nuclear Energy**

• Continue to ensure the independence and power of the Nuclear Regulatory Authority (UJD), and harmonise the current quality management system with existing and future international standards, taking into account future challenges in the nuclear sector.

• Provide adequate resources to UJD, possibly through licensing fees, in order to maintain, recruit and retain high-level nuclear safety professionals and to involve independent technical support organisations.

• Follow the highest available safety standards by closely monitoring the level of safety and security of all nuclear facilities in the new context of private ownership and liberalisation of the electricity market.

• Make efforts to diversify nuclear fuels supply.

• Ensure that the costs of decommissioning and waste management and storage, including the long term, are covered by the operator, and that the nuclear account is adequately funded and managed.

• In accordance with previous commitments, prepare the shut-down and decommissioning of the two units of Bohunice V-1 NPP, applying the highest available safety and radiation standards; continue timely decommissioning of A1 Bohunice.

• Ensure that the new SE majority owner performs a feasibility study on the completion of EMO 3&4 at Mochovce that will comply with the highest available safety standards and ensure that its commissioning will be carried out under open market conditions, limiting the impact of stranded costs.

**Renewable Energy**

• Ensure a realistic and ambitious share of renewable energy in the energy mix, supported by an adequate action plan, resources and specific regulations; assess its effectiveness and cost-benefit.

• Consider temporary tax, regulatory and financial incentives, in particular for market and project studies, and renewable energy investment projects.
• Consider the introduction of a purchase obligation for renewable energy supply for electricity distributors.

• Prioritise the use of market tools, in particular green certificates as well as the Kyoto Protocol flexibility mechanisms.

Electricity

• Implement additional measures to promote energy efficiency, possibly through new tendering procedures for electricity operators.

• Complement the BIDSF least cost supply plan for meeting the future loss of generation capacity through studies and audits to identify energy efficiency projects.

• Progressively eliminate distortions in electrical heating tariffs and provide alternative solutions, and phase out fixed long-term purchase and sale contracts.

• Publish authorisation procedures and implement and respect the EU rules for public participation in integrated licensing and environmental assessment of new power plants.

• Ensure a strong regulatory regime, both for nuclear safety and for the power market, including nuclear liabilities and BIDSF funding, especially when SE is privatised; ensure the independence of SEPS from industry and government.

• Establish a more transparent and competitive market structure through more systematic co-operation among the Ministry of Economy, URSO, SEPS, and the Anti-Monopoly Office.

• Establish a framework for short-term power trading in co-operation with the Czech market operator (OTE) anticipating a Central European approach.

• Continue with privatisation of distribution companies to stimulate competition at wholesale level, replacing the current single buyer system.

• Ensure that distribution companies and eligible customers are free to choose and buy from generators, external suppliers, and traders.

• Consider divesting generation assets from SE to set competitive conditions in generation.

• Take additional measures to implement the requirements of the EU directives relating to network access for producers using renewable energy sources or CHP by improving rules for connections and balancing at distribution level.
**Heat**

- Maintain competitiveness, technical and environmental performance of district heating through active state policy and adequate investment.
- Ensure effective enforcement of the 2004 Thermal Energy Act and consider adaptations when necessary.
- Develop incentive regulation to promote energy efficiency investment, demand-side measures and third party financing; anticipate the abolition of price control.
- Provide financial support for studies on district heating plants' switching from solid and liquid fuels to biomass, geothermal, solar thermal or gas.
- Complete privatisation of district heating companies without hindering heat and electricity competition.