ASSESSMENT OF THE IMPACT OF ELECTRICITY TARIFF CHANGE FOR AZERBAIJAN

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Overview

Being an important utility service, electricity supply has virtually been the main driver in technological development for more than 120 years. Affecting the everyday lives of people and operations of businesses and governments, any change in electricity supply can significantly affect the overall economic activities. In this regard, any electricity price change would be have certain impact on other sectors. In liberal electricity markets, electricity prices can vary by hours and days, triggering rapid electricity sale and purchases between buyers and sellers.

The current stricture of Azerbaijan's electricity sector is dominated by vertically integrated state-owned generation, transmission and distribution companies. With little private sector share in the market and total tariff regulation by the state, electricity tariff is among the socially important utility prices for the Government of Azerbaijan. It is therefore vital for the Government of Azerbaijan to thoroughly review any electricity tariff – irrespective of being generation, transmission or distribution – from electric utility companies and weigh it against potential economic consequences. Playing an important role in the country's economy, electricity sector has therefore multi-sectoral impact in the economy. In this context, potential electricity price changes should be assessed in terms of potential impacts to other economic sector, i.e. whether electricity price changes trigger any price changes in other sectors. Considering the above matters, relevant impact assessment for potential electricity price changes are conducted in this paper. The estimated impacts show potential price changes in other sectors and overall inflation in the economy.

The paper has the following structure: (i) Introduction (covering an overview of institutional structure of electricity sector and electricity tariff setting in Azerbaijan, and the objective of paper); (ii) The economic concept on assessing price impacts in multi-sectoral economic context (iii) Applied methodological approach; (iv) Data used in the paper; (v) Results; (vi) Conclusions and policy recommendations.

Methodology

The key data source for this research was the Inter-Industry Balance (Input-Output Tables) for Azerbaijan Republic for 2011 issued by the State Statistical Committee of Azerbaijan Republic, covering 96 economic areas.

The main methodological tool for the assessment of electricity tariff change impacts is the Equilibrium Price Model, a modification of the Leontieff's Inter-Industry Balance Model. In general, the price change impact assessment process follows the following options:

(i) Equilibrium prices are determined based on known direct cost multipliers and the Added Value norm of the relevant sector;
(ii) The Added Value norms of sectors are determined based on direct costs and prices of sectors;
(iii) The unknown parts of Added Value norms and prices of the sectors are determined based on known Added Value norms and prices of the sectors.

The impact of prices changes in any sector is assessed by building a simulation model as per the (iii) case above, and was applied for the electricity sector.

Results

The simulation was made for three scenarios – 10%, 20% and 30% increase in the electricity tariff. By increasing electricity tariff accordingly by these numbers, the relevant potential price changes in percentage terms for other sectors, as well as the potential inflation for the country, were determined per each scenario. The sectors with the expected highest price increases were ranked (top ten) for each scenario.

Conclusions

The key results of the research were the estimated price increases in other sectors in accordance with its objective. In 10% electricity tariff increase scenario, the price increases in other sectors are little, resulting in little countrywide inflation. In 20% and 30%, the price increases in other sector are higher significantly higher than in the 10% scenario, In this context, these has the following policy implications for the Azerbaijan, where the Government sets a single tariff for electricity distribution:

- The non-residential sectors have single electricity tariff, irrespective of time of day. The lack of electricity price discrimination for time of day, which would imply night tariff being lower and day tariff being higher, forces the non-residential consumers manufacture goods and/or provide services at stable prices, and does not provide any incentive for cost optimization;
- Maintaining same production costs results in stable electricity consumption, with no interest for energy efficiency. This contribute to the current high variation between day and night consumption for the power system;
- In power system context, potential introduction of time of day electricity tariffs for non-residential consumers would reduce the high fluctuation between day and night loads, resulting in optimal use of electricity generation costs. Finally, potential introduction of time of day electricity tariffs for non-residential consumers would result in flexible costs of production or services, thus, making the businesses more cost competitive.

The proposed approach on assessment of impacts of potential electricity tariff changes can be used by the Tariff Council of Azerbaijan Republic and the State Agency for Regulation of Energy Issues under the Ministry of Energy that are involved in market and tariff regulation in the power sector, in order to foresee the potential economic impacts of electricity tariff changes. It could be also used similarly for other types of utility services to assess their impacts.

References

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