

EXECUTIVE SUMMARY

ELECTRICITY REFORM: A KEY TO FUTURE PROSPERITY

Russia is pursuing a strategy of very high economic growth, with an objective of doubling its gross domestic product in ten years. Efficient and reliable electricity markets will be critical to the success of this policy.

The Russian government has embarked on a highly ambitious program of electricity reform. If it is to succeed, the reform program will have to create market structures, market rules and a regulatory framework that will foster the emergence of competitive wholesale and retail markets in electricity. Only such markets, in which competition is based on transparent prices that accurately reflect prices, can deliver the efficient, reliable and internationally competitive performance needed to meet the government's economic targets. Such markets would also attract the new investment that the industry will need, especially in order to ensure security of electricity supply after 2010. It is important the Russian Government use this window of opportunity for implementing electricity reform before the supply-demand balance begins to tighten across the market. If the reforms succeed, they could open the way to synchronizing the Russian network with that of Western Europe.

Many challenges are to be expected over the course of the reform process, both at the policy stage and during implementation. This book does not address the many detailed issues that may arise. It focuses on some aspects of the proposed reform that could have a key bearing on its ultimate success.

KEY ISSUES

Market structure and ownership

The emergence and development of a sustainably competitive marketplace will depend in large part on its structure. The government currently proposes to create as many as 26 wholesale generation companies which could compete among themselves across the entire wholesale market.

The proposal as it stands could produce considerable diversity of ownership and a highly competitive wholesale market structure. Overall, the three largest generators would control about 34% of generating capacity. The single largest, the aggregated hydroelectric generator, would control about 15%.

Network congestion can, however, be expected to provoke the appearance, from time to time, of separate regional markets within the wholesale market. This is most likely to happen when supply is tight during peak periods. The structural diversity of the system could deteriorate seriously when this happens. Under the proposed restructuring, and with the existing integrated electric systems in place, the three largest generators in each region would control between 45% and 75% of regional generating capacity. This would imply that in, at least three of the six electricity systems that will ultimately form the competitive market, the concentration of generating capacity would amount to "market power."¹

¹. "Market power" in the context of this book is the ability of a market participant to affect price by the quantity of the product it delivers to the market at a given point in time.

Further unbundling to create more generation companies at regional level could ease this concern. But it may not prove feasible, due to opposition from private stockholders. It may, moreover, be difficult to create commercially viable enterprises capable of raising capital for new investment.

Competition at wholesale level could also be strengthened by the creation of a robust transmission network linking major centres of generation and consumption. Indeed, this may be the best way to deal with the issue of market power, at least initially. In a number of other countries, the initial restructuring and opening of electricity markets has been followed by a strong trend toward rationalization and concentration of ownership. Russia is likely to see a similar trend. As a result, regulation will be particularly important in the post-reform period. A strong, independent and wellfunded competition regulator will be required.

It may also prove very difficult to establish a retail market structure which not only allows commercially viable companies to emerge but also maintains sufficient diversity to drive competition among them. It might help new participants to enter the market, thus strengthening competition, if they were allowed free access to information about customers in the competitive market. Improved metering and systems for switching retail customers from one company to another would also be helpful. But all this amounts to a major undertaking. The experience of other countries suggests that a very large commitment of time and resources will be required to bring it off.

The government proposes creating a network of from 70 to 80 “Guaranteeing Suppliers”, each to operate within a small protected franchise. But it might be better to set up a smaller number of larger Guaranteeing Suppliers, which could effect greater economies of scale. A more compact group of Guaranteeing Suppliers could further the movement toward regulated tariffs that are more cost-reflective. At the same time, they would contribute to a more competitive retail market structure. Such a structure will be necessary in any case, if the free choice of supplier is ultimately extended to *all* electricity customers.

The government plans to maintain its control over nuclear and hydroelectric generation, or about 25% of Russia’s total generating capacity. The continuance of government control may create pressures for government intervention in the market. It may also foster the suspicion that the government will seek to operate these assets in order to influence prices. The pressures to intervene could prove very hard to resist, especially after excess capacity is exhausted and wholesale prices start to rise. But the government must resist such pressures. Even the *perception* that it might be willing to intervene would damage the market’s credibility and the confidence of market participants. Uncertainty about possible government interventions – or the impression of “regulatory risk” – would increase; efficient and timely investment would be discouraged. Such a perception must not be allowed to arise.

In the Nordic market, privately owned and managed hydroelectric generators now operate successfully in a competitive environment sensitive public issues, such as environmental impacts and fisheries management, could be handled through licensing. Bearing in mind the inherent importance of hydro generators in wholesale price formation, and given the concerns about continued government ownership, the government should give serious consideration to the combination of licensing with unbundling and the eventual privatizing of hydro assets.

Investment

Russia has huge investment needs. The International Energy Agency's *World Energy Outlook 2003* estimated the electricity sector's total investment requirement from 2003 to 2030 at about \$380 billion. That figure amounts to 1.9% of the country's GDP over the period. But the bulk of this investment will not be needed till after 2010.

As it makes clear in the electricity legislation, the Russian Government is counting on efficient energy markets to attract new investment in generation. But there are serious doubts that the emerging electricity market *can* indeed attract the necessary capital. It is feared that potential investors may be put off by uncertainty about the direction of the Government's policy and about the shape of new regulations.

To meet these concerns, at this point the government has proposed a "capacity mechanism",² possibly a temporary one, supported by an Investment Guarantee Fund. The effectiveness of such mechanisms in other countries has been mixed. Some of them have been criticized as offering poor investment signals, and as being open to manipulation. Russia needs to exercise care in this respect. A poorly designed capacity mechanism could crowd out efficient private investment. Over time, it could help entrench a form of central planning which is incompatible with the operation and development of efficient markets.

A better case may, however, be made for a temporary capacity mechanism during Russia's transition period. It could operate as market structures, market rules and new regulatory arrangements are being put in place. It could also allow time for the substantial task of rebalancing tariffs. The breathing space thus achieved could be used by the government to allay doubts about the direction of its policy and regulatory practice.

The development of deep and liquid financial markets could also spur private investment. So would the regular publication of detailed information on electricity supply and demand and on growth trends.

Electricity reform will bring new patterns of use of the transmission network as the transitional period progresses. It could lead to congestion that would seriously undermine the development and operation of efficient electricity markets. Well-timed and precisely-located investments in transmission capacity will be required to meet this foreseeable problem.

That leads to a worrisome issue which is the likely rate of return on investments in regulated transmission facilities. A recent government resolution designed to clarify how regulated tariffs would be determined for the Federal Grid Company implies that returns will be well below what is required to attract new investment. But returns *must* be sufficient to ensure that needed new transmission facilities are funded and built.

2. "A "capacity mechanism" is a device to ensure that sufficient spare generating capacity exists to meet maximum peak demand.

The procedures for planning network additions and approving them will also have an effect on investment flows. These procedures will have to be made objective and transparent. They will have both to serve the market overall and to resolve key transmission issues quickly.

The creation of an independent national system operator could be helpful in this connection. The new body could be charged with providing accurate and detailed information about the transmission network's performance. It could thereby help to overcome the inherent conflicts of interest and the information gaps that plague so many efforts to oversee transmission planning and investment activity.

The proposed introduction of "locational" or "nodal" marginal pricing³ could also improve transparency. It would allow market participants and regulators to identify and assess more effectively the options for alleviating network congestion.

Efficient price signals

Transparent price signals which truly reflect costs are an essential element in making decisions about managing and investing in competitive electricity markets. Prices tend to be very volatile, reflecting such unique characteristics of electricity as the fact that it cannot be stored, the inelasticity of demand for it in the short term and the need to balance electricity flows in real time. Because of this volatility, the Russian government is likely to come under pressure to intervene in the price-formation process, especially when sharp spikes occur.

Russia's electricity legislation would allow the regulator to apply price caps to moderate price spikes in the event of a supply shortage – or to stem the abuse of a dominant market position. The Federal Tariff Service would have the discretionary power to determine the level and duration of price caps. But when administered price caps have been imposed in other countries in the midst of a "price crisis," they have tended to be set too low. They have, in effect, masked *legitimate* price volatility, thereby distorting price signals and removing incentives for efficient market responses.

Another approach would be to create a wholesale spot-price cap, which would reflect the economic cost of consumption at the margin. This type of price cap is transparent and predictable. Using it would remove the uncertainty that follows on the use of arbitrary and discretionary price caps; it would also reduce pressure on the government to intervene in price formation. The government should seriously consider an economic price cap set in advance rather than administrative price caps.

Cost-reflective tariffs are a further pre-condition to successful market reform. Much progress has already been made in rendering tariffs more reflective of costs and in removing cross-subsidies between groups of electricity customers. But wholesale prices may need to rise another 40% before they become perfectly cost-reflective. It may be hard to achieve an increase of that order before 2006, when electricity customers will begin to source a portion of their consumption from the competitive wholesale market. The difficulty would grow out of the greater impact of the later phases of realigning the final electricity charges paid by customers.

3. These terms refer to the cost of either injecting electricity into a particular node of the transmission network at a certain moment in time, or withdrawing it. There will be more than 5000 such nodes in the Russian electricity network as a whole.

RAO UES, the state electricity monopoly, and the government are developing a proposal to unwind cross-subsidies using a regime of regulated bilateral contracts. Under this proposal, up to 85% of total electricity consumption would be supplied through regulated vesting contracts, with the regulated proportion reduced over the contract period until all volumes are sourced from the competitive market at cost-reflective prices, possibly by around 2012. A special mechanism is also being developed to fund cross-subsidies equitably and transparently during the transition period while they are being unwound.

Although this proposal is likely to extend the transitional period, it provides a more certain and practical framework for unwinding the cross-subsidies while at the same time allowing competitive wholesale and retail markets, and customer choice, to be progressively introduced over the transitional period. It also provides the flexibility to allow the government to manage the rebalancing in a manner that is consistent with sound macro-economic management and which avoids causing undue financial stress, particularly for households. The recent public backlash against the monetization of certain public services demonstrates the importance of getting this balance right.

But there is a danger that the unwinding of cross-subsidies might stall. To avoid this, and to give impetus to the tariff-rebalancing process, the government must continue to drive the process to ensure that cross-subsidies are unwound, at least for industrial and commercial users, within the maximum 5 to 7 years period envisaged under the proposed vesting contract regime.

Convincing current and potential market participants that it will not unduly intervene in wholesale price formation is a challenge the government must meet. A combination of economic price caps and effective provisions for good corporate governance would help make the point. So would further unbundling and any move toward the government's divesting itself of its hydroelectric generating assets.

Financial markets

Financial markets that are deep, liquid and innovative can help electricity market participants manage the risks inherent in volatile wholesale markets. They will do this by allowing them to transfer those risks to other market participants who can manage them at lower cost.

Such markets can smooth wholesale price volatility without undermining efficient price formation, price signals or investment. In effect, they can remove one of the main rationales for regulatory intervention: the need to control price volatility in the interest of users.

So far, Russian policy makers have concentrated on developing a "financial transmission right," a device that would help market participants manage the risks attendant on congestion under a locational or nodal marginal-pricing regime. But the market now being designed will be much more likely to rely on other, market-driven instruments to assure effective risk management.

Financial markets to serve competitive electricity markets have been slow to develop in other countries, and they have suffered a lack of liquidity, particularly for longer-term products. Nord Pool is an exception. It has received active support from the transmission system operators, and indirect backing from member country governments.

Governance and regulatory arrangements

The Russian government should consider initiatives to encourage participation in and the timely development of innovative financial markets. Nord Pool could provide a useful model.

Good regulation starts with good governance. In a competitive electricity market, this means a clear delineation of the legal rights and responsibilities of all participants, the creation of effective accountability and appeal mechanisms and a guarantee of transparency. These arrangements should reinforce the incentives and sanctions that lead to good commercial behaviour.

In this respect, existing electricity legislation provides a good foundation. But many key details have yet to be resolved. The effectiveness of the law in practice will be largely determined by arrangements currently being made, and by how they will be enforced.

Regulatory processes must be – and must be seen to be – robust, objective, consistent and transparent. Failures in this respect could quickly erode the market's credibility, create regulatory risk and alienate private investors.

In some other countries, governments have sought to enhance confidence by setting up regulatory institutions as independent bodies with independent funding. This has happened most often where governments have retained some ownership in the market.

Russia's current reform proposals do not include independent regulatory institutions, and that is very regrettable. In the recent government restructuring, the federal agencies charged with electricity sector regulation and the regulation of competition were both placed under the direct authority of the prime minister. There may be good reasons for this arrangement during the period when the market structure, market rules and a regulatory regime are being developed and put in place. But if they persist, there is a real danger that market participants will see a serious conflict of interest between the government as rule-maker and regulator and the government as a substantial market participant. If such perceptions are widespread, they could undermine the credibility of the regulatory regime and the regulatory decision-making process.

The creation of strong, well-financed and independent regulatory institutions would send a strong signal that the government is committed to effective regulation. The government should re-examine the issues of regulatory independence and the adequacy of the resources provided to the regulator. The goal should be to establish independent regulatory bodies as soon as the transition period is completed.

Regulatory functions are currently spread out among a number of regulators, market institutions and federal agencies. They are also divided between the federal government and the regions. This can lead to uncoordinated, even contradictory, interpretations and applications of the rules. The potential for regulatory uncertainty or risk is high. Managing this risk during the transition has been recognized by the government as a task that must be performed. But the same risks will exist *after* the transition period.

Implementation

A set of processes needs to be put in place to ensure effective, ongoing and transparent co-ordination among these bodies after the transition period. Russia's implementation strategy calls for the planning and execution of industry restructuring, market rules and regulatory reform to start at the same time and to be carried on simultaneously. The timetable calls for establishing the regulatory framework and the industry structure by around 2006. The whole of the broad and very ambitious program is to be completed in three stages by around 2012. If the deadlines are met, Russia will have done very well by comparison with other countries that have been through similar processes.

The idea behind moving various reform projects forward in parallel is to strike a balance between promptness and quality. Russian planners believe that the way they have chosen to proceed will both reduce uncertainty and risk during the transition and avoid design flaws. If it works, the plan will have kept the transition period as short as practicable. But it is not without risks and difficulties of its own.

Parallel implementation could lead to cascading delays where the integrated reform elements clash rather than complement one another. For example, the restructuring of government activities in 2004 slowed progress on market design and regulatory reform. It has already begun to affect the timetable for industrial restructuring. Minority private shareholders could complicate implementation with inflated claims for reparations or other delaying tactics.

Delays are endemic to complex and sensitive reform processes. Russia's implementation schedule has slipped already, and further slippage is to be expected. This, in itself, is not necessarily a cause for great concern. More important is the government's commitment to complete the process. More worrying is the possibility of inappropriate compromises along the way.

The government's announcement in June 2004 that it would review the implementation process and that it was suspending all decisions on structural reforms sowed doubt about its commitment to reforms. There may be some cause for concern, but there are also optimistic signs. At RAO UES and in several federal agencies, officials are actively working to develop and implement the reforms. The December 2004 resolution on implementing the electricity reform provides further positive indications of renewed impetus. Nonetheless, the possibility that reform will be seriously delayed or distorted cannot be dismissed.

The government could advance implementation by pushing forward with work on key elements of market rules and regulatory arrangements, two dossiers which have fallen behind that of industry restructuring. Progress in these two areas could increase confidence in the regulatory process for corporate restructuring and the proposed asset sales.

Effective and consistent leadership from the government will be critical to keeping implementation on track and completing it successfully. The government initially established a system of co-ordinating committees to smooth the implementation process, but they have stopped functioning since the government restructure of June 2004. There have been recent efforts to revive such co-ordination, and they are very welcome. But further efforts may well be needed. Confidence in

the government's commitment to the reform program would be enhanced if it were to set explicit deadlines for implementing the main transitional steps for full implementation of the reform.

Complementary energy reforms

Natural gas will be a key factor in the development and operation of competitive electricity markets. Gazprom is the overwhelmingly dominant supplier of natural gas to Russian thermal generators. The company may be seeking to expand its activities into electricity generation. If such diversification did occur, it would increase the incentive for Gazprom to discriminate against competing thermal generators, possibly by denying them competitively-priced gas. It could also lead to Gazprom's crosssubsidizing its commercial enterprises in order to strengthen the position of its own thermal generators. Such activities could undermine investment in, and competition among, electricity generators. The result would be high extra costs for electricity users and the economy as a whole.

Russian policy makers acknowledge the need for reform of the gas sector, but recent events suggest that it may not materialize in the near future. Effective gas market reform would, directly and indirectly, abet the development of competitive electricity markets. Regulated fuel supply contracts are being considered and may represent a positive first step to ensure that all gas fired generators enjoy non-discriminatory access to natural gas at fair and reasonable prices. Later, it should develop and implement a more comprehensive strategy for gas sector reform. A public recommitment to reform the domestic gas sector may also warrant consideration at this time.