Russian Power Reform

The Government of Russia announced their commitment to an aggressive reform program in a Decree issued April 28, 1997. The Government's reform program focuses on establishing a competitive market where feasible (in generation) and improved regulation of the natural monopoly components of the sector. The Government has a proven record of supporting privatization and has established prices at a level which would enable financial viability. However, many problems remain: cross-subsidies from industrial customers to households are high but decreasing (the Government is on-track to eliminate these cross-subsidies by mid-2000), collection rates are terribly low (averaging about 10% cash collections among all entities) and productivity is well below industry norms.

The bank was asked to help support these reforms with a $40 million Technical Assistance Loan. To help accelerate the reforms, the loan was complemented by a $5.39 million allocation from an existing line of credit (the Portfolio Development Loan-PDL). An Electricity Reform Implementation Unit (ERIU) has been established to help RAO Unified Energy Systems (UES), the Federal Energy Commission (FEC) and the Government further develop and implement the reform program.

The regulatory component has a significant training component. Five regulators have been sent to each of the last three PURC/World Bank International Training Programs (http://www.cba.ufl.edu/ecco/purc/) courses in Florida. FEC staff and management have been extremely pleased with this program and will engage consultants to institute a comparable training program for regulators in Russia. The initial focus will be at the FEC, followed by training for staff of the 72 Regional Energy Commissions (RECs). The REC staff must take the course and pass a test to become certified as regulators.

To address the problem of cash collections and efficiency, a "National Energy Market" was established in August 97 in which customers could directly continue on page 2

Brown Bags & Presentations

CIGRE The President of CIGRE (Conférence Internationale des Grands Réseaux Electriques), Dr. Michel Chamia, will visit Washington on February 5 to discuss cooperation between CIGRE and the Bank. Following this discussion, Dr. Chamia will give a presentation of CIGRE at a Brown Bag lunch on Thursday Feb. 5 at 12:30 in H5-160, (its mission, organization, procedures, benefits to members, etc.).
Contact: Lennart Carlsson.

Seminar on Small Hydropower Development Representatives of the US Hydro Council will conduct a seminar on Tuesday Feb. 3 from 1:00-4:00 pm in J1-050. Topics to be addressed include: small hydropower case studies; World Bank-private sector collaboration in small hydropower development; and a Question-Answer session.
Contact Judy Siegel.

Dr. Naidu, Director of Winrock International's Renewable Energy Project Support Office (REPSO) in New Delhi, on Jan 15, discussed the status, challenges and opportunities of Renewable Energy in India. He estimated that of the 900 MW of installed wind capacity in India just 10 per cent was operating sub optimally. Problems he discussed were ones of adapting foreign technology to India's particular wind regimes (low ground velocity, high shear during the monsoon period), paucity of extensive wind data and limited consideration of micro-climatic effects. Despite the ramp up in installed capacity, local manufacturing prices had not fallen as much as was hoped. Tax-based incentives that reward MW installed rather than energy (kWh) output was partly to blame for inadequate performance and lack of cost reduction. He discussed SELCO India (there are also SELCO subsidiaries in Vietnam and Sri Lanka) which has been successful in selling a domestic solar PV lighting system (2 light point or 4 point systems) to poor people. A handout was provided.
Contact: Anil Cabraal.

Lennart Carlsson, SASEG, gave a presentation on Technologies for Power System Interconnection on Jan. 13. The presentation focused on the technical issues that need to be addressed during the planning of an interconnection between separate power systems. Two fundamentally different technologies can be used, AC (Alternating Current) or HVDC (High Voltage Direct Current) having different technical and economic characteristics. The discussion also touched upon comparisons between energy transmission by gas pipeline and electric power transmission. A paper is available.
Russia, continued...

tract for supply with generation plants. Third party access of transmission and distribution has been established with wheeling charges regulated by the FEC and RECs. A pre-condition of participation in this market is that the customer must become current with their bills, and pay cash two weeks in advance for their consumption. As a result, UES' cash collections during the latter half of 1997 have tripled and prices to industrial customers have plummeted to market-clearing levels.

UES has engaged consultants to assist with corporate restructuring. It has been announced that generation will be separated from the transmission and dispatch components of UES. Consultants have been engaged to establish UES into separate and separable profit centers to enable this restructuring.

The Energo program has recently taken an interesting twist. RAO UES, as a controlling shareholder of most of the Energos (vertically integrated regional utilities), is engaged in negotiations with a number of foreign power companies to provide management services for selected Energos through a management contract. This effort is expected to focus on accounting, with particular attention paid to increasing collections.

The following consultants are involved in the project:

- Arthur Anderson has been responsible for establishing systems and procedures to improve financial controls. This has enabled UES to reduce its costs, particularly theft and corruption. They are also undertaking audits of Energos.
- Bain and Company, Inc. is working with the newly formed Independent Financial Operator who is responsible for developing the National Energy Market. The NEB was established to enable customers to directly contract for power supply with generating plants, with a guaranteed access to the transmission and distribution network. This effort was initiated in August last and currently has five customers and four generators participating. This is expected to increase to 25 in the next three months. This market also addresses sector liquidity as the payments are made in cash, in advance.
- Hagler Bailly is assisting the dispatch and settlements group under one contract and two Energos under a separate contract. The focus of the efforts on dispatch is to improve operations to decrease fuel use, with an estimated potential benefit of $1 billion per year. The Energo support is initially focusing on improving collections.
- IRIS is providing support to the FEC on principles and procedures.
- KPMG and STEAG are assisting UES in an investment review with a view to removing "white elephants" from the investment program and prioritizing the proposed existing commitments.
- L.O. Recruitment is assisting UES to recruit staff for key managerial positions.
- McKinsey & Company first assisted the Government in defining a vision and roadmap for sector reforms and is about to enter into a contract to assist UES in corporate restructuring.
- Price Waterhouse has been engaged to audit UES accounts and establish accounting to IAS standards.
- Putnam, Hayes, and Bartlett were engaged initially to provide general policy advice on the reform agenda to the Government.
- Steptoe and Johnson has been engaged to provide legal advice to UES on corporate matters.
- LeBoeuf, Lamb, Greene & MacRae are currently negotiating a contract to provide general legal services.

Contributor: Gary Staggins

Reports received...

The ongoing World Bank project Environmental Issues in the Power Sector has commissioned a number of studies. The following reports are available.

Renewable Energy In India, ERM
Elasticitics of Electricity Demand in India, TERI
Interfuel Substitution, TERI
Welfare Effects of Policy Changes, ERM
Demand Side Management, ERM
Mitigation Options for Power Development, Ghosh, Bosch & Associates
Ash Management, Disposal & Utilization Study, WESA
Implementing Market Based Instruments in India, Sheekant Gupta

TERI's econometric analysis showed high income elasticity for electricity of between 1.5 and 2.0 (at the aggregate sectoral level and on a per capita basis). Price elasticities vary from -1.23 in agriculture to -0.32 in industry. For the period 85/86 to 93/94 the real price of electricity for commercial and agriculture consumers has fallen in half of the states. Industrial tariffs increased in all the states during the period.

Reports available from Mudassar Imran or Robin Bates

Economic Cost of Electricity in Southern Africa
Mertz and McLennan. The study looks at the available generation options and fuel costs and provides ranges of average electricity costs for each country in the region.

Report available from Mark Tomlinson or Kyran O'Sullivan
On the Move

Recent appointments have been....

Manuel Dussan has joined ECSEG from EMT. Manuel joined the Bank in '95. From '92 to '95 he was responsible for the implementation of the power sector reform in Colombia as an advisor to the MoE and Commissioner and first Director of the new Regulatory Commission. Earlier he worked for about 20 years in the areas of power pool operation, transmission and distribution planning in Latin America with the Bank, IDB and a power utility. He likes snow skiing.

Stephen Howes EASEG, has taken over task management of the Indonesia Gas Transmission Project and Indonesia West Java Gas Distribution Project in Indonesia in addition to his work in preparation of the Java Power Distribution Project. Stephen joined the Bank in 1994. He has PhD in economics from the London School of Economics. He likes long-distance running and has run marathons.

Charles McPherson has been appointed Manager, Oil & Gas Unit, EMT. Prior to joining the Bank in '80, he held positions in corporate planning and international government negotiations with Conoco. He worked for Amoco between '83 and '92, holding senior management positions in international negotiations and new business development. Charles rejoined the Bank in '90 and in '92 he transferred to ECA where he had responsibility for the Bank’s petroleum lending and policy dialogue in Russia. He likes to row.

Joshihiko Sumi was recently named Sector Manager in EASEG. He joins the Bank from MITI where as Director of International Affairs he was coordinating issues such as government support of energy development projects and regulatory reform of energy industries. He was one of MITI’s senior policy coordinators in charge of the UNFCC COP-3 meeting in Kyoto in Dec. ‘97. Yoshihiko worked in the Bank between ‘87 and ‘91 when he task managed industry projects in eastern Europe. He likes to play classical piano.

Helen Sym has joined ECSEG as an energy specialist. Prior to the Bank, Helen worked for eight years as a project economist and commercial advisor with BP. She worked on the development of a fiscal and legislative environment for oil and gas in Ukraine and was a commercial advisor in a team working on offshore oil production sharing contracts in Azerbaijan.

Conference reports...

Kyoto Protocol on Climate Change.

Charles Feinstein was in the Bank team that went to Kyoto in December last. He reported to the EMT Sector Board.

on what the Protocol says:
- Institutes legally binding emission levels on 6 greenhouse gases (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆)
- Implements differentiated targets in 2008-2012 for Annex I countries
- Includes carbon sinks (e.g. forestry)
- Accepts, in principle, rights for trading carbon emissions in Annex I countries
- Institutes unlimited project joint implementation (JI) in Annex-I countries (but the starting date for credits remain undecided)
- Creates “Clean Development Mechanism” for Annex I and LDC JI countries beginning in 2000. (The GEF may be named operator of the Fund
- Commits all countries to cooperate in development & transfer of climate-friendly technologies.

on what the Protocol doesn’t say:
- No “harmonized” policies and measures (e.g. minimum fuel efficiency standards)
- No “borrowing” from future targets to meet current targets
- No defined enforcement/sanction mechanisms
- No new commitments by developing countries (not even “commitment to commit”)
- No voluntary adoption by LDCs of Annex-I obligations (China, India and OPEC were vocal objectors).

Contributor: Charles Feinstein
The text of the Protocol is on the official web site of the 3rd Conference of the Parties http://www.cop3.org. An account of the conference is in the BTO of Charles Di Lella. W\dileva\kyoto.doc

WEC Financing the Global Energy Sector

Charles McPherson represented the World Bank in November at a meeting of the World Energy Council (WEC) in Bangkok to discuss the recently completed WEC paper Financing the Global Energy Sector; The Task Ahead

WEC estimates that up to US$ 30 million will be required during the 1990 - 2020 period to finance energy projects adequate to meet a projected 70 per cent increase in global energy demand. Annual energy investments are likely to continue to equate to 3 - 4 per cent of world GDP or 20 - 30 per cent of global investment. There is growing concern that many countries will not be able to mobilize the private sector finance necessary if they do not undertake fundamental reforms. Most of the 2 billion people in the world with no access to commercial energy live in these countries.

Contributor: Charles McPherson.
Report is available from Fikerte Solomon
Petroleum Forecast

Oil prices are expected to weaken in 1998 according to Bank analysts. Prices have declined by more than 20% since November due to rising OPEC supplies, mild winter weather, and weaker demand stemming from financial crisis in Asia. At end-November, OPEC raised its quotas by 10% for the first half of 1998, and Iraq’s third round of UN-sponsored oil-for-food exports commenced in January of this year. Rising supplies come at a time of weakening demand in Asia. All of Asia, including Japan, consume nearly a quarter of global petroleum output (and produce only 10% of world supply). However Asia—including Japan—has accounted for half of the growth in world oil consumption since 1985. Oil demand growth in Asia could fall to less than half this year, and without some sort of production restraint prices are apt to remain low this year. Spreading of the crisis and further economic slowdown would increasingly add to the pressure on prices and oil producers.

According to the Bank’s latest published forecast, international prices for crude oil and coal, and natural gas prices in the US and Europe are projected to fall both in the short and longer term, with crude oil falling from $17.82/bbl in 1997 to $14.94/bbl in 2000 and to $13.81/bbl by 2010 (constant 1990 dollars).

*Contributor: Shane Sireifel

World Bank Group’s Energy Portfolio

<table>
<thead>
<tr>
<th>Region</th>
<th>Power</th>
<th>Oil+Gas</th>
<th>Mining</th>
<th>Total</th>
<th>Power</th>
<th>Oil+Gas</th>
<th>Mining</th>
<th>Total</th>
<th>Power</th>
<th>Oil+Gas</th>
<th>Mining</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>IBRD</td>
<td>1803</td>
<td>462</td>
<td>0</td>
<td>2264</td>
<td>2459</td>
<td>30</td>
<td>571</td>
<td>3060</td>
<td>1613</td>
<td>114</td>
<td>300</td>
<td>2027</td>
</tr>
<tr>
<td>IDA</td>
<td>439</td>
<td>142</td>
<td>25</td>
<td>605</td>
<td>348</td>
<td>28</td>
<td>121</td>
<td>495</td>
<td>276</td>
<td>22</td>
<td>21</td>
<td>319</td>
</tr>
<tr>
<td>IFC</td>
<td>328</td>
<td>208</td>
<td>0</td>
<td>536</td>
<td>311</td>
<td>288</td>
<td>0</td>
<td>599</td>
<td>247</td>
<td>83</td>
<td>0</td>
<td>330</td>
</tr>
<tr>
<td>Total</td>
<td>2569</td>
<td>811</td>
<td>25</td>
<td>3405</td>
<td>3118</td>
<td>344</td>
<td>692</td>
<td>4154</td>
<td>2136</td>
<td>219</td>
<td>321</td>
<td>2676</td>
</tr>
</tbody>
</table>

*IFC data for Power includes Oil/Gas transportation, IFC data for Oil & Gas includes Mining

1998 Status of EMT Pipeline US $millions (number of projects)

<table>
<thead>
<tr>
<th>Regions</th>
<th>Identification</th>
<th>Concept Review</th>
<th>Pre-Appraisal</th>
<th>Appraisal</th>
<th>Negotiations</th>
<th>Approved</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>115 (2)</td>
<td>22 (2)</td>
<td>10 (1)</td>
<td>356 (3)</td>
<td>0</td>
<td>200 (1)</td>
<td>703 (9)</td>
</tr>
<tr>
<td>East Asia Pacific</td>
<td>0.0</td>
<td>0.0</td>
<td>400 (2)</td>
<td>814 (7)</td>
<td>0</td>
<td>174.5 (2)</td>
<td>1388.5 (11)</td>
</tr>
<tr>
<td>Europe &amp; C. Asia</td>
<td>556.9 (5)</td>
<td>105 (2)</td>
<td>25 (1)</td>
<td>270 (3)</td>
<td>70 (2)</td>
<td>810 (2)</td>
<td>1836.9 (15)</td>
</tr>
<tr>
<td>Latin America &amp; Car.</td>
<td>110 (2)</td>
<td>0.0</td>
<td>60 (1)</td>
<td>0.0</td>
<td>35 (1)</td>
<td>142.7 (2)</td>
<td>347.7 (7)</td>
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<tr>
<td>Middle East &amp; N. Africa</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>15 (1)</td>
<td>0.0</td>
<td>184 (1)</td>
<td>199 (2)</td>
</tr>
<tr>
<td>South Asia</td>
<td>0.0</td>
<td>440 (2)</td>
<td>65 (1)</td>
<td>350 (3)</td>
<td>0.0</td>
<td>827 (3)</td>
<td>1682 (9)</td>
</tr>
<tr>
<td>All</td>
<td>781.9 (9)</td>
<td>567 (6)</td>
<td>560 (7)</td>
<td>1805 (17)</td>
<td>105 (3)</td>
<td>2338.2 (11)</td>
<td>6157.1 (53)</td>
</tr>
</tbody>
</table>

IFC approved the following between 07/01/97 and 12/31/97

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Azerbaijan Atoil</td>
<td>Oil refining</td>
<td>26.3</td>
<td>6.56</td>
</tr>
<tr>
<td>Honduras Elcosa Swap</td>
<td>Power G+T</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Mexico Merida III</td>
<td>Power G+T</td>
<td>250</td>
<td>120</td>
</tr>
<tr>
<td>Nepal Bhotekoshi BLINC</td>
<td>Power G+T</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Nepal Bhotekoshi/Swap</td>
<td>Power G+T</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

World Bank approved the following in the fiscal year to 1/20/98

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project size US$ mill.</th>
<th>World Bank commitment US$ mill.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh Priv. sec. infr. dev.</td>
<td>866</td>
<td>235 IFC credit</td>
</tr>
<tr>
<td>Brazil Gas sec. dev.</td>
<td>2086</td>
<td>130 IBRD loan</td>
</tr>
<tr>
<td>Bosnia-Herzegovina Emergency gas rehab.</td>
<td>65</td>
<td>10 IFC credit</td>
</tr>
<tr>
<td>Ethiopia Energy sec.</td>
<td>295</td>
<td>200 IBRD loan</td>
</tr>
<tr>
<td>India Coal sec. rehab.</td>
<td>1797</td>
<td>530 IBRD loan &amp; 2 IFC credit</td>
</tr>
<tr>
<td>India Power sector</td>
<td>60</td>
<td>60 IBRD loan</td>
</tr>
<tr>
<td>Indonesia IIDP (Information infrastructure)</td>
<td>34.5</td>
<td>34.5 IBRD loan</td>
</tr>
<tr>
<td>Morocco Jorf Lasfar (guarantee)</td>
<td>1057</td>
<td>184 Guarantee</td>
</tr>
<tr>
<td>Panama Utility restr. TA</td>
<td>12.7</td>
<td>12.7 IBRD loan</td>
</tr>
<tr>
<td>Russian Federation Coal secal II</td>
<td>800</td>
<td>800 IBRD loan</td>
</tr>
<tr>
<td>Vietnam Trans. &amp; Dist.</td>
<td>262</td>
<td>140 IFC credit</td>
</tr>
</tbody>
</table>

Contributor: Monika Hencsey x87566