COOPERATION ON ELECTRICITY TRADE IN BETWEEN CARs AND WITH – SOUTH ASIA

By

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Bishkek
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South Asia – Economy & Energy Situation
South Asia – An Overview

- Highest population density – over 22% of world population living on 5% of land mass
- All developing nations with high GDP growth (8%+)
- All energy importing countries, mainly oil (up to 98%)
- Vast undeveloped hydro and renewable energy resources
- Financial and physical resources the main impediment in exploiting indigenous resources
- Energy trade opportunities exist but not exploited
- Energy import dependence will continue to sustain economic growth rate and to alleviate poverty
- Energy imports at reasonable prices an ideal options
<table>
<thead>
<tr>
<th>Country</th>
<th>Population (Million)</th>
<th>GNP (b$)</th>
<th>GNP per capita ($)</th>
<th>En. Cons. / capita (kgoe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>22</td>
<td>4</td>
<td>186</td>
<td>16</td>
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<tr>
<td>Bangladesh</td>
<td>138</td>
<td>55</td>
<td>398</td>
<td>89</td>
</tr>
<tr>
<td>Bhutan</td>
<td>0.7</td>
<td>-</td>
<td>-</td>
<td>243</td>
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<td>India</td>
<td>1,064</td>
<td>568</td>
<td>534</td>
<td>315</td>
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<tr>
<td>Maldives</td>
<td>0.3</td>
<td>0.5</td>
<td>1,800</td>
<td>-</td>
</tr>
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<td>Nepal</td>
<td>25</td>
<td>6</td>
<td>243</td>
<td>44</td>
</tr>
<tr>
<td>Pakistan</td>
<td>146</td>
<td>85</td>
<td>582</td>
<td>380</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>19</td>
<td>18</td>
<td>938</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,416</strong></td>
<td><strong>737</strong></td>
<td><strong>520</strong></td>
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## Commercial Energy Resources-SA

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy Potential</th>
</tr>
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<tbody>
<tr>
<td>Afghanistan</td>
<td>Moderate Gas/hydro potential</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Large Gas/Coal, Low Hydro</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Large Hydro potential</td>
</tr>
<tr>
<td>India</td>
<td>Large Coal/Hydro/Wind/Solar Moderate Gas/Oil.</td>
</tr>
<tr>
<td>Maldives</td>
<td>Moderate Wind; High solar</td>
</tr>
<tr>
<td>Nepal</td>
<td>Large Hydro potential</td>
</tr>
<tr>
<td>Pakistan</td>
<td>High Coal/Gas/Hydro, Low oil</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Moderate hydro, no fossil fuels</td>
</tr>
</tbody>
</table>
Commercial Energy Resource Mix - SA

- Coal: 46%
- Petroleum: 34%
- Natural gas: 12%
- Hydropower: 6%
- Nuclear: 1%
- Others: 0.3%
Petroleum imports pose a major challenge to the economies of all these countries.
<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Afghanistan</th>
<th>Bangladesh</th>
<th>Bhutan</th>
<th>India</th>
<th>Maldives</th>
<th>Nepal</th>
<th>Pakistan</th>
<th>Sri Lanka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity sold</td>
<td>mkWh</td>
<td>315</td>
<td>14,777</td>
<td>640</td>
<td>379,531</td>
<td>146</td>
<td>1,778</td>
<td>57,491</td>
<td>6,161</td>
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<tr>
<td>Electricity supply</td>
<td>mkWh</td>
<td>423</td>
<td>19,179</td>
<td>640</td>
<td>588134</td>
<td>146</td>
<td>2,362</td>
<td>80,827</td>
<td>7,087</td>
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<tr>
<td>Per capita electricity supply</td>
<td>kWh/yr/pers</td>
<td>19</td>
<td>139</td>
<td>914</td>
<td>553</td>
<td>429</td>
<td>96</td>
<td>545</td>
<td>369</td>
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<tr>
<td>Generation capacity</td>
<td>MW</td>
<td>454*</td>
<td>4,710</td>
<td>445</td>
<td>112,683</td>
<td>106</td>
<td>628</td>
<td>19,252</td>
<td>2,168</td>
</tr>
<tr>
<td>Capacity</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Hydro</td>
<td>MW</td>
<td>261</td>
<td>230</td>
<td>428</td>
<td>29,507</td>
<td>0.0</td>
<td>571</td>
<td>6,491</td>
<td>1,259</td>
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<tr>
<td>(ii) Nuclear</td>
<td>MW</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2,720</td>
<td>0.0</td>
<td>0.0</td>
<td>462</td>
<td>0.0</td>
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<tr>
<td>(iii) Renewable</td>
<td>MW</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>1,870</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Capacity thermal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Oil</td>
<td>MW</td>
<td>193</td>
<td>(i) 494</td>
<td>17</td>
<td>3,661</td>
<td>106</td>
<td>57</td>
<td>***</td>
<td>909</td>
</tr>
<tr>
<td>(ii) Gas</td>
<td>MW</td>
<td>-</td>
<td>(ii)3986</td>
<td>0.0</td>
<td>11,840</td>
<td>0.0</td>
<td>0.0</td>
<td>12,149</td>
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<td>(iii) Coal</td>
<td>MW</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>64,956</td>
<td>0.0</td>
<td>0.0</td>
<td>150</td>
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<tr>
<td>Share of generation from primary sources</td>
<td>mkWh (%)</td>
<td>113</td>
<td>959</td>
<td>5</td>
<td>604</td>
<td>94</td>
<td>95,905</td>
<td>10</td>
<td>0.0</td>
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<td></td>
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<td>27</td>
<td>5</td>
<td>94</td>
<td>10</td>
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<td></td>
<td></td>
<td></td>
<td>28,704</td>
<td>38</td>
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<td></td>
<td></td>
<td></td>
<td>3,493</td>
<td>40</td>
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<tr>
<td>Share of generation fossil fuels</td>
<td>mkWh (%)</td>
<td>310</td>
<td>18,220</td>
<td>95</td>
<td>36</td>
<td>6</td>
<td>492,229</td>
<td>84</td>
<td>146</td>
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<td></td>
<td></td>
<td>73</td>
<td>95</td>
<td>94</td>
<td>10</td>
<td>0.0</td>
<td>1,779</td>
<td>75</td>
<td>52,123</td>
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<td>54</td>
<td>51</td>
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<tr>
<td>Capacity public sector</td>
<td>% share</td>
<td>100 %</td>
<td>73</td>
<td>100</td>
<td>90</td>
<td>39</td>
<td>79</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td>Capacity private sector</td>
<td>% share</td>
<td>0.0</td>
<td>25</td>
<td>0</td>
<td>10</td>
<td>61</td>
<td>21</td>
<td>0</td>
<td>15</td>
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<tr>
<td>Country</td>
<td>Energy Imports as % of Total Commercial Energy Consumption</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Afghanistan</td>
<td>60 %</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>81 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>29 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>India</td>
<td>27 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>98 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>87 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>30 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>78 %</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>37 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>
Energy Demand Forecast 2020 (mtoe)

<table>
<thead>
<tr>
<th>Country</th>
<th>Consumption 2004</th>
<th>Forecast 2020</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>0.4</td>
<td>5</td>
<td>19 %</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>46</td>
<td>74</td>
<td>3 %</td>
</tr>
<tr>
<td>Bhutan</td>
<td>0.2</td>
<td>2</td>
<td>18 %</td>
</tr>
<tr>
<td>India</td>
<td>336</td>
<td>1,218</td>
<td>8 %</td>
</tr>
<tr>
<td>Nepal</td>
<td>1</td>
<td>4</td>
<td>9 %</td>
</tr>
<tr>
<td>Pakistan</td>
<td>55</td>
<td>192</td>
<td>8 %</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>4</td>
<td>21</td>
<td>11 %</td>
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</tbody>
</table>
Supply-Demand Gap of Afghanistan, India and Pakistan

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Country</th>
<th>GAP (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Afghanistan</td>
<td>862</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
<td>12,763</td>
</tr>
<tr>
<td>3</td>
<td>Pakistan</td>
<td>5,500</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18,176</td>
</tr>
</tbody>
</table>

Source: Ministry of Power GOI, WAPDA Pakistan and Ministry of Water and Power Afghanistan

- Even if only 20% of the above gap had to be met thru imports from CARs the quantum works out to 3,035 MW, which is good enough to lay a robust power transmission system
Central Asia - Energy Resources
Central Asian Republics (CARs)

• One of the major energy rich regions of the world
• Inter/Intra-region energy trade already taking place
• Electricity Demand/Supply growth manageable even through energy efficiency/loss reduction measures
• Large energy export potential (Power/Gas)
• Energy resource development high on agenda of Govts.
• Energy can emerge as a major export commodity
• Energy infrastructure well laid throughout the region
• Incremental investments in energy infrastructure can bring in rich dividends through exports
### Central Asia - Primary Energy Resources

<table>
<thead>
<tr>
<th>Fossil Fuel Reserves</th>
<th>Unit</th>
<th>Kazakhstan</th>
<th>Kyrgyzstan</th>
<th>Tajikistan</th>
<th>Turkmenistan</th>
<th>Uzbekistan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude Oil</td>
<td>MTOE</td>
<td>1,100</td>
<td>5.5</td>
<td>1.7</td>
<td>75</td>
<td>82</td>
<td>1,264.20</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>MTOE</td>
<td>1,500</td>
<td>5</td>
<td>5</td>
<td>2,252</td>
<td>1,476</td>
<td>5,238</td>
</tr>
<tr>
<td>Coal</td>
<td>MTOE</td>
<td>24,300</td>
<td>580</td>
<td>500</td>
<td>Insignificant</td>
<td>2,851</td>
<td>28,231</td>
</tr>
<tr>
<td>Total</td>
<td>MTOE</td>
<td>26,900</td>
<td>591</td>
<td>507</td>
<td>2,327</td>
<td>4,409</td>
<td>34,734</td>
</tr>
<tr>
<td>% of Total</td>
<td></td>
<td>77.4</td>
<td>1.7</td>
<td>1.5</td>
<td>6.7</td>
<td>12.7</td>
<td>100</td>
</tr>
</tbody>
</table>

| Hydro Potential     | GWh/year | 27,000     | 163,000    | 317,000    | 2,000        | 15,000     | 524,000  |
|                     | MTOE/year| 2.3        | 14         | 27.3       | 0.2          | 1.3        | 45.1     |
| % of Total          |          | 5.2        | 31.1       | 60.5       | 0.4          | 2.9        | 100      |
## CAR-Electricity Supply/Demand Scenario

<table>
<thead>
<tr>
<th>Item</th>
<th>Kyrgyzstan</th>
<th>Tajikistan</th>
<th>Uzbekistan</th>
<th>Kazakhstan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed Capacity Hydro (MW)</td>
<td>2,950</td>
<td>4,059</td>
<td>1,710</td>
<td>2,000</td>
<td>10,719</td>
</tr>
<tr>
<td>Installed Capacity Therm.(MW)</td>
<td>763</td>
<td>346</td>
<td>9,870</td>
<td>16,240</td>
<td>27,219</td>
</tr>
<tr>
<td>Installed Capacity Total (MW)</td>
<td>3,713</td>
<td>4,405</td>
<td>11,580</td>
<td>18,240</td>
<td>37,938</td>
</tr>
<tr>
<td>Available Capacity (MW)</td>
<td>About 3,100</td>
<td>3,428</td>
<td>7,800</td>
<td>13,840</td>
<td>25,068</td>
</tr>
<tr>
<td>Peak Demand (MW)</td>
<td>2,687</td>
<td>2,901</td>
<td>7,925</td>
<td>9,432</td>
<td>22,945</td>
</tr>
<tr>
<td>Generation Hydro (GWh)</td>
<td>10,778</td>
<td>15,086</td>
<td>7,278</td>
<td>8,861</td>
<td>42,003</td>
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<tr>
<td>Generation Thermal (GWh)</td>
<td>1,115</td>
<td>138</td>
<td>42,021</td>
<td>49,317</td>
<td>92,591</td>
</tr>
<tr>
<td>Generation Total (GWh)</td>
<td>11,893</td>
<td>15,224</td>
<td>49,299</td>
<td>58,178</td>
<td>134,594</td>
</tr>
<tr>
<td>Exports (GWh)</td>
<td>1,216</td>
<td>266</td>
<td>634</td>
<td>595</td>
<td>2,711</td>
</tr>
<tr>
<td>Imports (GWh)</td>
<td>430</td>
<td>1,058</td>
<td>609</td>
<td>464</td>
<td>2,561</td>
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<tr>
<td>Gross supply to domestic Market (GWh)</td>
<td>11,107</td>
<td>16,016</td>
<td>49,274</td>
<td>58,048</td>
<td>134,445</td>
</tr>
<tr>
<td>Domestic Billed Consumption Annual (GWh)</td>
<td>6,836</td>
<td>12,988</td>
<td>38,112</td>
<td>40,053</td>
<td>97,989</td>
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</table>
# Gross Electricity Demand Projections

<table>
<thead>
<tr>
<th>Country</th>
<th>Actual</th>
<th>Forecast Demand (GWh)</th>
<th>Annual Growth rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>58,944</td>
<td>72,056</td>
<td>84,034</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>12,145</td>
<td>9,222</td>
<td>10,033</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>16,348</td>
<td>11,267</td>
<td>12,410</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>48,691</td>
<td>46,597</td>
<td>51,255</td>
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<tr>
<td>Total</td>
<td>136,128</td>
<td>139,142</td>
<td>157,731</td>
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</table>
Compatibility in CA-SA Energy

Scenarios
Compatibility of CA-SA Power Systems

- The two regions are in close proximity
- Endowed with diverse energy resources
- There is seasonal variation in Demand
- Peak Diversity due to time variation
- Power trade will provide economic benefits to both regions
CAR - Grid Map
North Eastern Power Grid Map of Afghanistan
Development of CA-SA Transmission Systems
Issues

- Implementation of 1998 Framework Agreement among CARs in energy cooperation
- The security situation in Afghanistan
- Indo-Pak relations
- Non-discriminatory Open Access on transmission systems
Prospects of Mitigating Issues

Central Asia:
• Proper implementation of the 1998 Framework Agreement would benefit all the CARs and it is expected the parties involved will address this issue

Afghanistan:
• Support of international community for reconstruction of Afghanistan
• Afghan’s craving for peace due to realization of harmful effects of war
• Economic reconstruction mediated thru electricity supports peace process
• Industrialization, rehabilitation of agricultural thru irrigation facilities and improved educational/medical facilities will wane away the support base terrorism over time
• Following stakeholders will support rehabilitation/reconstruction of the Power sector:
  ➢ Domestic consumers enjoying benefits of electricity for his day to day life
  ➢ Participants in process of economic and industrial reconstruction of Afghanistan
  ➢ Participants in Power transmission projects
Pakistan-India relationship

- Both countries realize the negative impacts of non-cooperation and its impacts on economic development
- Utilization of the scarce resources on armament instead of social sector spending which lead to deprivation and tardy progress in their social performance indicators
- Peace/reconciliation thrust areas of renewed cooperation effort
- Appreciation of benefits of cooperation in trade, commerce and other activities
- Joint efforts to negotiate agreements with energy suppliers to import natural gas supplies
Non Discriminatory Access

• Two important factors that merit attention while examining the options for the CAR-SA power trade are:

  ➢ Strengthening of intra-regional transmission system within CARs to facilitate/increase intra-regional power trade, and

  ➢ CARs to provide non-discriminatory third party access on transmission systems to assure that transmission bottlenecks would not hold back the power transfers within and outside the region

• Long distance and rugged terrain between CARs and SANs, robust HVDC transmission systems capable of handling large volumes of power, most likely at 500 kV and 800 kV would have to be built to meet the electricity import requirements of India, Pakistan and Afghanistan.
Economic, Technical and Commercial Factors

Project Financing:

- CARs or SANs may not be able to finance these projects through internal resources
- Private participation difficult to achieve for the first project
- Support of MFIs essential to address security/environment concerns
- ADB/WB committed to support infrastructure projects across CARS/SA.
- MFIs supporting proposed Tajikistan-Pakistan power transmission system
- Supporting the CARs-South Asia power transmission system would be an extension of their existing commitment to these regions
Techno commercial issues

Cost of Financing will be dictated by:
• Project profitability
• Structuring of financing
• Equity participation by promoters
• Security packages offered by project participants
• Support of participating governments
• Bank-ability of PPAs, TSAs
• Socio-political and security environment in the regions

Technical Issues:
• Technical challenges in project construction

Commercial Issues:
• Electricity tariff
• Wheeling Charges
• Transit fee levied by the transit countries
• Payment security mechanism
Existing Interconnections CAR-Afghanistan

• Four power transmission interconnections from the CARs to Afghanistan
• These are one each between Tajikistan-Afghanistan and Uzbekistan-Afghanistan and the other two are between Turkmenistan to Afghanistan.
• There are also two transmission interconnections between Iran and Afghanistan.
• These are small interconnections and help Afghanistan to import 64 MW to meet local import requirements
• Donor agencies have pledged to help build interconnections at 220kV level to facilitate transfer of larger volumes of power
Existing Interconnections in SA

Bhutan-India:

Four transmission interconnections one at 440 kV, one 220 kV and two 33/11kv levels help India import nearly 1360 MW power

India -Nepal:

Thirteen interconnections at 66/11 kV and 33/11 kV levels facilitate 50 MW power exchange to be increased to 150 MW

Iran-Pakistan:

Two interconnections exist between Iran-Pakistan for importing small quantities of electricity from Iran to meet the local demand in bordering areas
Proposed Interconnections in SA/CA-SA

- Pre-feasibility studies to establish 220 kV power transmission interconnections between India-Bangladesh and India-Sri Lanka have been completed recently, governments serious to implement these projects.

- Pre-feasibility study for 1000 MW power export from Tajikistan to Afghanistan and Pakistan initiated.
Legal and Regulatory Frameworks
Regulatory Framework in SA

- India: CERC at national level and SERC at state levels established and fully functional
- Pakistan: NEPRA fully functional
- Afghanistan: Restructuring model envisions creation of Regulator but yet to be set up
Regulatory Mechanism in CARs

- **Kazakhstan**: Regulation of the power industry in Kazakhstan is carried out by the State Committee for Regulation of Natural Monopolies and Protection of Competition. The regulatory body at the national level has also a major role to play in regulation of tariffs.

- **Kyrgyz Republic**: the State Energy Agency is the regulatory body for the whole energy sector, while the policy formulation is in the hands of the Department of Fuel and Energy Complex under the Prime Minister.

- **Tajikistan**: Barki Tajik (BT), though from a legal point of view the generation, transmission and distribution entities are separate companies, BT functions as a vertically integrated utility.

- **Uzbekistan**: UzGosEnergoNadzor, has been established as the regulatory body for regulating the technical aspects for electricity, coal and heat energy. It reports to the Cabinet of Ministers. The financial/economic regulation continues to remain with the Ministry of Finance.
Prevailing Commercial Mechanisms

- Existing PPAs/TSAs etc. are a legacy of the past and not commercially bankable
- Setting up of new projects and/or new trade deals would require bankable commercial documentation
- Retail tariffs do not cover cost of supply that would help generate resources to meet new investments
- Non-transparent/non-focused subsidies
- Present payment security mechanisms do not give confidence to investors and lenders
Advantages of Cooperation
Advantages of Cooperation

- Optimization of investments in new capacity addition
- Reduce T&D losses thru HV long haul transmission systems
- Improved reliability of supply
- Improved operational stability of electricity grids
- Reduced overall reserve requirements
- Provides forum for joint planning and operations
- Benefit from the fuel price advantages across regions
- Power wheeling from low cost areas to high cost areas possible
Advantages of Cooperation

• Merit Order Dispatch will help to reduced energy cost
• Short-term firm energy transactions in the event of temporary surplus
• Reduces capacity needs by sharing of firm resources, depending on daily and seasonal load diversity
• Remote areas along cross border transit routes can be served economically
• Power availability in border areas will trigger economic growth leading to poverty alleviation
Benefits of Cross-border Interconnection

- Regional power Exchanges help to optimize generation capacity to meet peak load
- Optimal hydro-thermal maximizes efficiency of fuel sources
- Economy of scale thru large sized generating plants
- Interconnections increases the reliability of the whole system
- Provide flexibility to meet unforeseen energy demand
- Reducing investment in the interconnected countries thru reduced spinning reserve
- Demand in neighboring countries can be met economically
- Provide interconnected countries access to a larger market
- Help in reducing the adverse impact on environment by better utilization of renewable and “clean” energy resources
Benefits of Cross-border Interconnection

- Need of Meeting Growing Power Demand in interconnected countries
- Various types of energy in different countries can be shared to the benefit of the involved parties
- Economy of Scale of building large projects
- Improved Security and Reliability of connected systems
- Economic benefit due to availability of electricity
- Optimization of transmission network
- Increased economic efficiency in system operation
- Reduced environmental damage
Next Steps
Technical

• Conduct Feasibility Studies to assess technical options for interconnections
• Review of generation/load profiles, transmission system capacities
• Review power sector expansion plans of participating countries
• Review Tech. parameters for grid operation & information on existing cross border interconnections
• Identify interconnection points, physical configurations & develop cost estimates for interconnections
• Identify quantities of power that are available for trade
Commercial/Financial

- Review non-technical aspects for establishing and operation of the proposed regional grids
- Identify quantities of power that can be traded
- Reach a broad understanding on pricing of power
- Work out a formula for calculating wheeling charges
- Work out the payment settlement mechanisms
- Payment security option/mechanisms
- Dispute resolution mechanisms
- Identify sources of financing the interconnection projects
THANK YOU!
Benefits to Members within ECT Domain

ECT helps member countries to harness benefits of cooperation on equal footing

- Promotes energy market reforms, structuring, commercialization, energy price reforms and promotes higher energy efficiency
- It helps in securing trade and transit of energy, facilitates overcoming the barriers to trade, transit, tariffs and protection of investments in energy projects.
- The key elements of the treaty are:
  - Freedom of transit
  - Non-discrimination
  - Not less favourable than conditions for national import or export transportation.
Benefits to Members within ECT Domain

- Provides for negotiated Transit Protocols with basic principles in ECT
- Provides for energy sector-specific principle of non-discrimination and national treatment for established investments
- Treaty offers intermediary step towards WTO membership
- The “Best Endeavour Clause” for investments in the making confirms national sovereignty over natural resources and acts as a permanent discussion forum for energy-related investments
- Facilitates overcoming comprehendible barriers in energy transit/trade
- CARs-SA trade negotiations will get expedited, once SANs becomes ECT Members
- As ECT members they will get a fairer deal while entering in to PPAs, TSAs
- They will get equal and non-discriminatory treatment in trade negotiations
Background to the Treaty’s creation

• Need for Energy cooperation among CIS-Western world lead to creation of ECT
• ECT began with inter-governmental framework to provide legal stability for investments and to secure trade and transit of energy
• Objective - promote energy market reforms, structuring, commercialization, energy price reforms and promote higher energy efficiency.
• ECT’s Central Principles:
  • Openness,
  • Non-discrimination and market orientation
  • These principals allow producer-states to increase attractiveness to foreign investors
  • Facilitate transit and bind together interests of energy producers and consumers
• Structure of ECT:
  • Treaty is unique in covering investment, trade, transit and efficiency in energy sector.
  • It offers intermediary step towards WTO membership.
  • Facilitates establishment of inter-governmental forum to discuss energy cooperation issues.
• Geographical scope:
  • ECT covers Eurasia, Euro-Mediterranean regions and the rest of the world
  • China, Iran, South Korea, ASEAN and Nigeria have become the observers
  • India, Pakistan and several Latin America countries exhibited interest in ECT
• **Trade Provisions:**
  - Currently twelve of the ECT signatures are non-WTO members
  - ECT acts as a bridge to WTO membership
  - Seven ECT member countries have become WTO members since 2000
  - WTO rules are applied by reference for energy products and equipment
  - Most Favored Nation Clause (MFN) is one of the major benefits; and
  - Access to Dispute Settlement mechanisms under the WTO

• **Key Elements:**
  - The key elements of the treaty are:
  - Freedom of transit;
  - Non-discrimination,
  - Not less favourable than conditions for national import or export transportation.
  - It provides for the negotiated Transit Protocol with the basic principles as in the Treaty
• **Investment:**
  • The Treaty facilitated the first multilateral investment agreement.
  • It provides for energy sector specific principle of non-discrimination/national treatment for established investments;
  • Best endeavour clause for investments in the making;
  • Confirms national sovereignty over natural resources and
  • Acts as a permanent discussion forum for energy-related investment issues

• **Energy Efficiency activities:**
  • The treaty promotes development of energy efficiency strategies
  • Fiscal and taxation policies for improving energy efficiency
  • Development of energy efficiency institutions
  • Financing mechanisms and third party financing
  • It supports adoption of energy efficiency policies to market liberalization and development of cogeneration and district heating systems
Working of the ECT

- There are three permanent working groups on:
  - Trade & Transit
  - Investments and
  - Energy Efficiency

- Experience exchange between members in different stages of development with different policy strategies

- Regular country reviews of investment climate, restructuring and privatization policies and energy efficiency policies are carried out

- The Charter supports the carrying out of analysis on cooperation, trade, transit issues, transit tariffs and access conditions.

- Issues related to trade distortions, trade facilitation are dealt with and interaction with the private sector is encouraged.

- To look after the above issues an Industry Advisory Panel was created in 2004.
Objectives

Charter promotes:

- Investments and investment flows,
- Development of energy resources
- Development of infrastructure
- Opening up of trade and
- Easier transit and efficiency in end-use of energy