JICA’s Assistance for Electricity Sector

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Middle East and Europe Department
Japan International Cooperation Agency
Contents

Recent Situation of Egypt

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Assistance to Egypt for Electricity Sector
Recent Situation of Egypt
Recent Events in Egypt

- July 2013  Political Change
- Jan 2014  Revision of the Constitution by the Referendum
- May 2014  Presidential Election
- Jun 2014  Inauguration of President El-SiSi
- Jan 2015  Prime Minister Abe’s visit to Egypt (Japan-Egypt Joint Statement)
- Mar 2015  Egyptian Economic Development Conference
- 2015  Parliamentary Election

⇒Realization of Stability will be expected. Stability of Egypt is the Key for the Regional Stability.
Quote from the Statement

- Both sides reiterated that further development of economic relations was a main driving force towards strengthening the longstanding partnership between Egypt and Japan.

- President El-Sisi welcomed Japan's willingness to study the possibility of cooperation in the field of renewable energy mainly the construction of Hurghada photovoltaic power plant, and in the field of electricity generation including the construction of a clean coal-fired power plant utilizing the pioneering Japanese technology.
Egyptian Economic Development Conference (EEDC)

- **Energy Sector Strategy**
  - Increasing Electricity Production Capacity by 4.3GW in 2-3 years and by 45GW by 2022 (12.5GW of coal, 4GW of nuclear)
  - Increasing Electricity Availability by 15% by Energy Efficiency Promotion
  - Increasing Renewable Energy to 20% of Total Production by 2022
  - Improving Financial Situation of EEHC
JICA’s Assistance for Electricity Sector
JICA’s Main Policy of Assistance (1)

- **“3L” Policy**
  - **Low-Cost**
    ⇒ Reduction of the total cost, not just limited to the initial investment but also the life cycle cost and external diseconomies. The policy also contributes to utilizing commercial investments under an appropriate development plan.
  - **Low-Carbon**
    ⇒ Realization of low carbon emissions by utilizing Japan’s excellent technologies, introducing such low-carbon power sources as highly efficient thermal, hydro, geothermal, and other sources of renewable energy, reducing loss from power grids, and promoting energy conservation.
  - **Low Risk**
    ⇒ Stable securing of the primary energy, realizing the best mix of energy and ensuring power system stabilization

- **Cooperation featuring Japan’s strength and JICA’s characteristics**
  - JICA is the rare bilateral donor that can support large-scale development with high technology and high risks in the energy sector
  - JICA functions as part of Japan’s foreign policy by fully utilizing Japan’s experience and technology to address global issues.
JICA’s Main Policy of Assistance (2)

- International Decade of Sustainable Energy for All (SE4ALL, 2014-2024)
  ⇒ designated the following initiatives to be achieved by 2030 based on the partnerships among public sector, private sector and civil society
    1. Improve access to modern energy for all people
    2. Double the ratio of introducing renewable energy
    3. Double the energy efficiency.

The World Bank, EU, and other bilateral donors are making moves to comply with the initiatives.

JICA sets the national grids in developing countries as major targets in principle and intensively distribute management resources to the field that will contribute to enhance, expand and stabilize those national grids.
Energy Supply with Low-Cost, Low-Carbon, and Low-Risk

- Improve upper level energy policies
  - Formulate energy policies
  - Formulate a power development plan
  - Reform the sectorial framework
  - Formulate electric power technology standards

- Improve energy access
  - Extend the power grid
  - Electrify off-grids by utilizing renewable energy

- Develop power source to realize a low-carbon society
  - Introduce highly efficient fire power
  - Develop hydropower
  - Develop geothermal power
  - Develop new forms of energy/renewable energy

- Efficient power system
  - Improve the electric power system (including enhancement and stabilization)
  - Develop distribution network (including smart grid)

- Energy conservation
  - Energy conservation on the demand side
  - Energy conservation on the supply side
Needs for cooperation in Coal Power Sector

- Coal will continuously play major role in generation
  - Largest share from 2009 to 2035 (According to IEA forecast)

- Huge needs of generation in developing countries
  - Securing base load generation with low cost
  - Abundant resource, evenly distributed resource, low generation cost

- “Environmental conscious”
  - Technology for Reduction of SOx, Nox, GHG etc.
  - Introduction of CCT and environmental equipment
  - Improvement of generation efficiency: SC, USC (towards 43%)
JICA’s Assistance Strategy for Coal Power Sector

- JICA will promote the technology for highly efficient coal-fired power generation in developing countries. (Especially support for introduction of CCT)
  - Development Study/Technical Cooperation for policy planning ・・・ e.g. Case of Indonesia
  - Financial assistance for construction of highly efficient coal-fired power plant ・・・ SC, USC, IGCC or Rehabilitation
  - Financial assistance for installation for environmental measures
  - Technical Cooperation of O&M capacity development for coal-fired PP
JICA’s Projects for Coal Power Sector (2000～)

【Study / Survey / Technical Cooperation】
- Pakistan: Lakhra Coal Fired Thermal Power Plant Construction Project (Preparatory Survey, 2013 Oct.～)
- Bangladesh: Master Plan Study on Development of Coal Fired power Plant (Development Study, ～2010)
- Indonesia: Project for Promotion of Clean Coal Technology (Development Study ～2012)
- Turkey: The Project for Energy Efficiency Improvement of Power Plant

【Loan Project】
- Bosnia and Herzegovina: Flue Gas Desulphurization Construction Project for Uglevik Thermal Power Plant (2009)
Assistance to Egypt for Electricity Sector
Priority Areas in Assistance to Egypt

- Sustainable Economic Growth and Realization of Job Creation
  - Electricity
  - Transport
  - Industry
  - Tourism

- Poverty Reduction and Improvement of Life Quality
  - Agriculture
  - Health
  - Education
  - Water

- Promotion of Regional Cooperation
  - Regional Cooperation to the Middle Eastern Countries
  - Regional Cooperation to the Sub-Sahra African Countries
## JICA’s Past Loan Projects for Electricity Sector

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Date of Approval (L/A)</th>
<th>Amount of Loan (Million JPY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Rural Electrification Project In El Beheira Governorate</td>
<td>1981/2/4</td>
<td>3,160</td>
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<tr>
<td>Shoubrah El Kheima Thermal Power Station Project</td>
<td>1981/6/30</td>
<td>4,862</td>
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<tr>
<td>Aswan II Hydroelectric Power Station Project</td>
<td>1982/4/22</td>
<td>2,900</td>
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<tr>
<td>Damanhour Gas Turbine Project</td>
<td>1983/11/24</td>
<td>6,200</td>
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<tr>
<td>Upper Egypt Regional Control Center Project</td>
<td>1983/11/24</td>
<td>5,900</td>
</tr>
<tr>
<td>Assiout Substation Project</td>
<td>1984/5/28</td>
<td>7,940</td>
</tr>
<tr>
<td>Marsa Matruh Barge Mounted Steam Power Plant Project</td>
<td>1985/8/29</td>
<td>12,700</td>
</tr>
<tr>
<td>Abou-Zaabal Substation Project</td>
<td>1988/10/20</td>
<td>8,200</td>
</tr>
<tr>
<td>Assiut Thermal Power Station Project</td>
<td>1988/10/20</td>
<td>10,321</td>
</tr>
<tr>
<td>Cairo-Alexandria Transmission System Project</td>
<td>2003/7/9</td>
<td>5,001</td>
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<tr>
<td>Zafarana Wind Power Plant Project</td>
<td>2003/12/11</td>
<td>13,497</td>
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<tr>
<td>Kuraymat Integrated Solar Combined Cycle Power Plant Project</td>
<td>2006/1/19</td>
<td>10,665</td>
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<tr>
<td>Energy Control System Upgrading Project in Upper Egypt</td>
<td>2008/12/24</td>
<td>10,768</td>
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<tr>
<td>Kuraymat Integrated Solar Combined Cycle Power Plant Project (II)</td>
<td>2008/12/24</td>
<td>9,440</td>
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<tr>
<td>Gulf of El Zayt Wind Power Plant Project</td>
<td>2010/03/30</td>
<td>38,864</td>
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<tr>
<td><strong>SUM</strong></td>
<td></td>
<td><strong>152,018</strong></td>
</tr>
</tbody>
</table>

More than 1,200 Million USD even with the current exchange rate
Future Projects in Electricity Sector

- Electricity Distribution System Improvement Project
  - Pledged on Jan 2015 for 24.762 billion Yen

- Hurghada Photovoltaic Power Plant Construction Project
  - Conducting Additional Survey for Appraisal
Recent Activities for Clean Coal Technology

- **Clean Coal Usage Seminar**
  - Held in Cairo on Nov 2014 upon the request from Egypt who intends to introduce clean coal-fired power plant newly
  - to share Japanese experience and lessons

- **Invitation Program**
  From Apr 19 to 29, 2015 in Japan and Indonesia for 6 high officials (this seminar is a part of the program) to learn Japanese institutional and technical experiences on clean coal-fired power plant and other related technologies in energy sector, and to match interest of Japanese private companies and demand of Egyptian side
Thank you!
Shukuran!