

<b>Automated Solar Cell Production Project</b>		
<b>Sector:</b> Energy and Utilities	<b>Project Value:</b> JoD10M	<b>Location:</b> Amman, Zarqa, Mafraq
<p><b>Potential Opportunity</b></p> <p>Demand for solar cells is being stimulated by systems integrators and wholesalers who are targeting local industry, commercial and residential applications, and the Energy Ministry for larger on-grid projects and buy-back contracts from international players. Jordan's potential for solar projects is high given 1) average radiation per day is 3.8 kwh/m<sup>2</sup> in winter to more than 8 kwh/m<sup>2</sup> in summer. The total direct annual solar radiation ranges from 2400 kwh/m<sup>2</sup> to more than 2700 kwh/m<sup>2</sup> which is adequate for a commercial investment in solar energy projects, and 2) rising electricity costs and 3) difficulty in grid extension in remote areas.</p> <p>A burgeoning export market is also developing in nearby countries, such as Ethiopia where the international financial institution such as World Bank are active in promoting solar cells for electrification of communities that are distant from electricity networks.</p>		
<p><b>I. Description of the Business</b></p> <p>Attracting a major solar panel manufacturer to set up an advanced automated assembly and production unit in Jordan in the range of one 25-50MWp production line. Such a facility will offer a comprehensive range of PV modules for grid connected as well off-grid applications and allow for custom modules.</p>		

<b>Waste Water Consultancy</b>		
<b>Sector:</b> Energy and infrastructure	<b>Project Value:</b> JD0.5 -1.5M	<b>Location:</b> Amman
<p><b>Potential Opportunity</b></p> <p>A key issue for Jordan and the region is the efficient use and management of water. Wastewater treatment and recycling policy sits within Jordan's resource plan.</p> <p>The water utility sector is mature in many countries. They have supply chains offering packaged waste water recycling equipment, using various technologies and with varying performances. These suppliers anticipate doing business in the MENA region as access to water increasing becomes more of an issue.</p> <p>Because of the level of technology involved in the products on offer, Jordan's industry may find decision making and specifying equipment difficult, and be reliant on the equipment provider. Many of the industry processes will differ and so will the water discharge.</p> <p>Currently the Ministry of Water and Irrigation provides the necessary laboratory testing facilities, longer term this maybe a concession that the consultancy will undertake.</p> <p>This will provide an opportunity for a waste water treatment consultant for Jordan.</p>		
<p><b>I. Description of the Business</b></p> <p>Chemical engineering consultancy, with the capability and experience to provide advice on wastewater recycling, irrigation, monitoring, treatment and fluid dynamics. This will be a knowledge based business and require investment in office space, laboratory facilities, infrastructure, personnel and working capital.</p>		

<b>Thermo-Chemical Energy Storage Company</b>		
<b>Sector:</b> Energy	<b>Project Value:</b> JD10M	<b>Location:</b> Amman
<p><b>Potential Opportunity</b></p> <p>Thermal (chemical) energy storage can be used for heating in winter and cooling (air conditioning) in summer. The first commercial size system was installed in Munich in 1997/98 and uses large quantities of zeolites (a mineral with water absorption characteristics) as the energy storage media. Interest in the technology is growing as energy costs rise. For instance, Turkey has placed significant emphasis on energy storage, completing a number of successful projects with good ROI figures. However, energy storage projects are normally only viable where the storage device is continually utilized, both in the winter and summer.</p> <p>At the Dead Sea 5 large hotels are under construction in the same area all with large heating and cooling costs. This is they type of situation where the technology is useful. As Jordan has ample untapped reserves of naturally occurring zeolites the potential exists for production of energy stores that use local Zeolite as the heat transfer medium.</p>		
<p><b>I. Description of the Business</b></p> <p>Thermochemical Energy Storage Company to identify and produce cost effective energy storage projects and products, initially within Jordan, and in the longer term to exploit know how and expertise for exports to other MENA countries. ZAE Bayer (Germany) is not necessarily a competitor but one of a number of potential collaborators. They have known how and experience to look at a suitable joint venture or knowledge transfer partnership.</p>		

<b>T&amp;D Line Maintenance</b>		
<b>Sector:</b> Energy	<b>Project Value:</b> JD5M	<b>Location:</b> Amman
<p><b>Potential Opportunity</b></p> <p>The new 400KW electricity grid between Aqaba and Amman is scheduled for 2008 – 2010 at an estimated cost of US\$120M, together with refurbishment of an aging network system in Amman worth US\$40M. This combined with the prospect of interconnection of the Regional Electricity network with Egypt, Jordan, Syria, Lebanon, Iraq, Turkey and Libya means Jordan will have sizeable investments in transmission and distribution assets. The maintenance of the investments in transmission and distribution lines presents a significant opportunity for an outsource service provider to take care of line maintenance work. Currently there are a number of multi-nationals that specialize in this business.</p>		
<p><b>I. Description of the Business</b></p> <p>This is the development of a “lines maintenance” company that specialises in undertaking repairs and maintenance of electricity networks – the customers for the line maintenance company would be the national utilities in the first instance with extension to near neighbour countries over time. The business would comprise two distinct segments – transmission line and distribution line segments. The core skills will be technically based.</p>		

<b>Quality Solar Heating Systems</b>		
<b>Sector:</b> Energy	<b>Project Value:</b> J3-4DM	<b>Location:</b> Amman
<p><b>Potential Opportunity</b></p> <p>Given the cost of energy in Jordan solar water heating systems are a good investment. Both the commercial and domestic real estate markets are growing significantly but the solar heating supply chain is fragmented and nearly all the equipment is imported. Some 51 installers, retailers and importers of equipment and three small scale collector assemblers make up the sector. Currently the solar systems, by their very nature pollute the skylines, corrode and look ugly. The market and arguably the region requires a indigenous quality provider of solar heating systems.</p> <p>Currently, solar energy is not harnessed via solar water heating systems for space heating and is limited to a quarter of housing stock, i.e. 2.2x10<sup>5</sup> homes, saving US\$13M annually of total imports.</p>		
<p><b>I. Description of the Business</b></p> <p>Egypt, Turkey and especially Israel (The Solar Law, 1980) appear to have a more structured industry, but the rest of the MENA network doesn't appear to have any major players. Hanania Solar Energy appears to be the most advanced in Jordan. The major driver for the new entrant will be manufacturing quality and the ability to integrate systems into new housing and commercial development, perhaps even using pumped rather than storage systems. With a reasonable low level of investment, but a good quality system, the market should be receptive to this business opportunity. There are interests from the existing business community for joint venturing in manufacturing systems, so there is a perceived need for an indigenous manufacturer. It's likely that the existing installation network has little if any allegiance to any one specific manufacturer, providing an additional opportunity.</p>		

<b>Industrial Emissions Company</b>		
<b>Sector:</b> Energy and Utilities	<b>Project Value:</b> JD3M	<b>Location:</b> Irbid, Amman
<p><b>Potential Opportunity</b></p> <p>Jordan signed the Kyoto agreement in 2005. The Kingdom is making preparations to begin implementing the Clean Development Mechanism (CDM). The Mechanism under the Kyoto Protocol can provide credits to projects which contribute to global emission reductions. These credits can accumulate, and over time, provide financial awards offered to eligible projects. Longer term, reductions in carbon dioxide emissions will lead to restrictions on vehicle exhaust systems. Egypt, through its Cairo Air Improvement Project has installed its first, and one of the world's most advanced, heavy vehicle emissions testing center at a cost of US\$4M. This has led to more transit agency and public transport networks operating using CNG.</p>		
<p><b>I. Description of the Business</b></p> <p>Industrial Emissions Company, providing emissions solutions and testing facilities to Jordan's industry, with a thorough understanding of the carbon credit system. The business will be expected to identify projects and manage the successful outcome to the benefit of Jordan's industry and environment. Longer term, the business will be expected to move into vehicle testing and development projects.</p>		

<b>Ground Source Heat Pumps (GFHP)</b>		
<b>Sector:</b> Energy	<b>Project Value:</b> J5 – 10DM	<b>Location:</b> Amman
<p><b>Potential Opportunity</b></p> <p>High population growth and the increase in GDP causes a 4% annual increase in energy demand. This means Jordan is allocating 14% of its GDP for securing energy resources, which reached the sum of JD1billion in 2005.</p> <p>Some countries can use geothermal energy sources, heat taken from the ground, and although this isn't ruled out completely limited drilling suggests that larger geothermal energy maybe uneconomic. The water temperature so far recorded is relatively low and the source is deep.</p> <p>However, in Europe, Asia and the USA ground source heat pumps are becoming increasingly recognised as means of producing space and under floor heating, mostly for multi occupancy buildings – because of the economics. This is still a form of geothermal heating/cooling; the ground is either a heat source in winter or heat sink in summer.</p> <p>Pipes are laid in the ground with water and a refrigerant to assist heat transfer. The system also contains; 1) condenser, 2) expansion valve, 3) evaporator and 4) compressor. These GFHP devices are claimed to have significant energy savings.</p> <p>There are a number of manufacturers and developers worldwide and the objective will be to attract one of these companies to Jordan to access this regional generally untapped market.</p> <p><i>This could also be an organic start up company, as much of this technology is well publicized.</i></p>		
<b>I. Description of the Business</b>		
<p>Ground Source Pump Manufacturer, with the capability to assemble and manufacture core items. Investment will be needed in a suitable assembly workshop, requiring equipment, suitable infrastructure, recruitment and training.</p> <p>Where possible, items will be sourced through Jordan's supply chain</p>		

<b>Ground Handling Company</b>		
<b>Sector:</b> Energy and Utilities	<b>Project Value:</b> JD5M	<b>Location:</b> Queen Alia International Airport
<p><b>Potential Opportunity</b></p> <p>The Ministry of Transport supervised an agreement between the Civil Aviation Authority (CAA) and Royal Jordanian (RJ) under which CAA granted RJ the exclusive rights to operate ground and technical handling services for Queen Alia and Amman Civil Airport until 2006. It is understood that this concession is available to the private sector and an independent operator as part of the CAA restructuring and privatization process.</p>		
<p><b>I. Description of the Business</b></p> <p>The independent operator will provide and operate ground and technical handling services, including passenger, luggage, cargo, mail, and including line maintenance of aircraft for the QAIA.</p> <p>The operator will have an exemplary record in the industry and necessary certification for operational purposes.</p>		

<b>Gas Station Franchise</b>		
<b>Sector:</b> Energy	<b>Project Value:</b> JD 20M	<b>Location:</b> Amman, Irbid, Aqaba
<p><b>Potential Opportunity</b></p> <p>Jordan's Petroleum Refining Company (JPRC) has a monopoly and has controlled most of the down stream value chain. This control over the market will expire in 2008, as part of Jordan's Energy Master Plan, providing a tremendous opportunity for investment in downstream supply chain activities. As part of the sector reform a number of new entities will be formed, gas station operators, logistical and marketing companies.</p>		
<p><b>I. Description of the Business</b></p> <p>A business capable of maintaining and improving the existing gas station asset base and further develop the retail outlet opportunities to their maximum potential. Introducing a more competitive alternative to the existing market by procuring products and services from the most competitive source.</p> <p>The total downstream investment is anticipated at \$100M.</p>		