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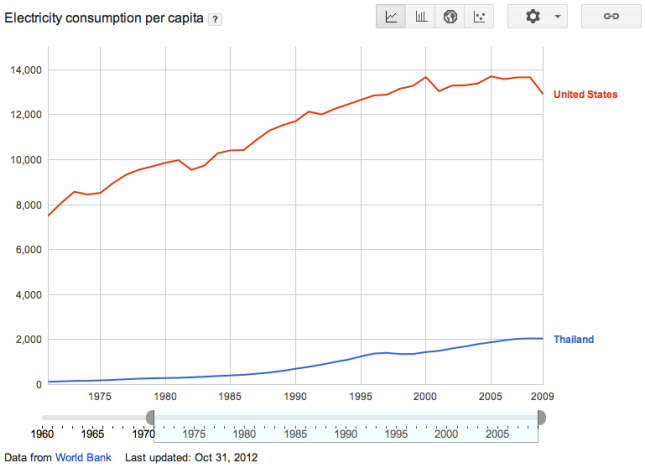
Thai Tap Water (TTW) vs. Warren Buffett's (WB) Solar Farm Investment

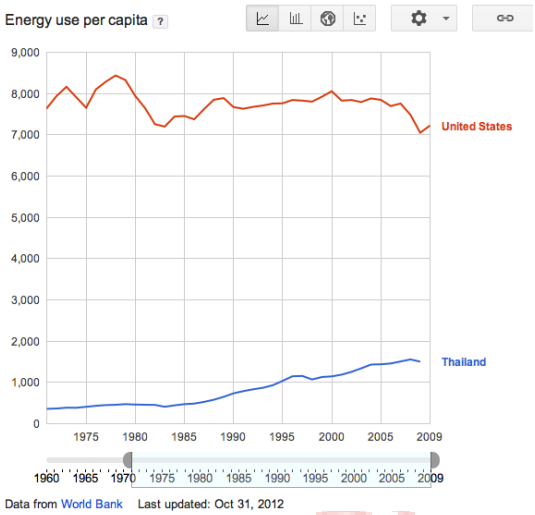
2012 wasn't a good year for solar companies. Total investment in this sector was down 9%, in line with other renewable energy investments. Two key factors contributed toward the unfavourable solar industry environment. On the supply side, China's doubling of its solar subsidies increased Chinese Solar companies export and stock share from their record low but gave an extra punch to the less endowed country manufacturer. While many investors avoided the sector altogether, some seem to be drawn to its low valuation and bright long term outlook. Warren Buffett's recently announced acquisition of First Solar was quoted by "The Economist" as the world's lowest cost maker of solar panels finally threw some positive light into the sector at the end of 2012. {1} Interestingly, 15.000 miles from the headquarter of Berkshire Hathaway, a water management company, Thai Tap Water (TTW) of Thailand, not only seems to share the same view as WB, and has in fact, announced similar plan 10 months before Buffett's announcement. This paper takes a look at the projects undertaken by Buffett and TTW.

1. Scale and profitability:

WB is no stranger to the energy sector. He owns 1.2 gigawatts of energy assets. Which are either in operation or under construction that can translate into electricity supply for 1 million households in America. This newly acquired solar project in particular, adds another 550 megawatt to his energy portfolio and is believed to be the largest photovoltaic power plant in the world. The investment cost US$2 billion , with target of US$3.5 million as the production cost per megawatt, well below the current average of US$4 million for similar projects. {2}

Although Buffett's 550mw trumps TTW's 10 megawatt in terms of scale, TTW's project shines through in profitability and market size. The chart below shows the electricity and energy use per capita for the two countries. Given Thailand's electricity consumption per capital is 5-6 times lower than an average American, TTW project serves no less than 50,000 Thai household, where Buffett's entire solar farm project is just enough for 160,000 household in California bearing in mind that the TTW solar farm is only 1/55 the size of Buffett's. The IRR for Buffett's plan was estimated to be 12.5%, accordingly to Dan Reicher, Executive Director of Stanford University's Center for Energy Policy and Finance in California, compares to TTW solar farm's IRR of close to 14%, assuming only five hours of power production per day and straight line depreciation. The cost of building the TTW solar farm is estimated to be Bt10bn, roughly US$300 million, translating into a production cost per megawatt of merely around 30million. TTW seems to have in place a superior project with lower production cost and higher return, compares to that of Buffett's, given its solar farm is smaller size which may lack economies of scale.





Compares to industry, the average IRR for solar farm falls within the 11-15% range, even a conservative estimate of these two solar farms' production capability and exclusion of tax credit from the government, suggests that our two both projects are likely to outperform the peer group. In fact, solar farm investments can be a wise investment in current environment from a risk/reward perspective, as summed up by Christopher Martin's comment in Bloomberg News, 'With the 30-year treasury yielding about 3.4%, solar project is a relative safe place where investor can park their money for more than two decade.' {3}

2. Diversification of Income Stream

Energy and utility related investment for about 10% of Buffett total portfolio. The most notable utility holding to date is MidAmerican, interesting, also the parent company of this solar project investment. Buffett has been actively expanding its renewable empire where it operates over 2900 megawatt of wind generation, being the largest amongst all regulated electric utilities in the US. At the moment, MidAmerican's energy mix is still dominated by coal, natural gas and oil, where alternative energy only accounts for 20% of the electricity output.

TTW on the other hand, has a very concentrated income stream as 95% of its revenue is generated from its tap water business. On the demand side, although demand grew at a respectable 8% in 2011, its growth was canabalized by Provincial Waterworks Authority's (PWA) new plant in the neighboring province, as reflected in TTW's flat sales volume. {4} Some analysts have argued that demand for tab water will be high in the foreseeable year, however if we look at the data below, the total population growth of these three main TTW operating area from 2010 to 2011 is only 1.6%, where number of factories only grow by 1.07%. Domestic household and industrial demand account for 50% of total TTW water supply. One justification of their estimate is perhaps that there is an approximate 10% increase in tap water demand from migration of those that have been using underground water, thanks to the factor of rising affluence level and awareness of health concerns. Given that Nakhon Pathom and the surrounding area that TTW serves are mainly agriculture and religious concentrated areas, unless there is unforeseen rise in demand for tap water, TTW

water sales is expected to grow at a slow and stable rate.

	2008	2009	2010	2011
Population				
Nakhon Pathom	844,187	852,575	860,246	866,064
Samut Sakhon	479.085	486,134	491,887	499,098
Pathum Thani	930,040	959,576	985,643	1,010,898
No. of factories				
Nakhon Pathom	2,781	2,774	2,890	2,916
Samut Sakhon	4,916	5,149	5,180	5,157
Pathum Thani	2,778	2,850	2,988	3,104

Source: Company

On the supply side, TTW has reached is full capacity since 2009 and it has only decided to invest to expand its existing capacity in 2012. Suggesting that TTW believes there is no anticipation of surge in water usage. Under this scenario, the solar project certainly can be a new growth engine for the company,as Mr Sompodh, the MD of TTW said, TTW would like to see the water business accounts for 64% of revenue by 2017, down from almost 100% currently, and 36% to come from renewable energy business.

In conclusion, Buffett just seems to just enlarging it existing energy business to bring in stable income and exploiting tax credit from the government while honouring its investment philosophy by investing in quality, but undervalued and unloved sector, like the solar manufacturing industry, as it is now. TTW, on the other hand, has taken a strategic move to diversify into an entirely new business, and if executed well, this can not only be a new growth engine, but also provides high quality and stable return, just like its utlility business. One could argue that its need to diversity its income is pressing due to the turnkey nature of its water businesses, leaving the company's future outlook somewhat at the mercy of the government if TTW does not start to look for new investments.

3. Government Subsidy:

Tax benefit seems to be an added bonus enjoyed equally by both WB and TTW. 'On the US side, tax credit for wind in the US expires at the end of 2013, where as for solar it is 2015. In addition, under the Treasury Department 1603 program, solar farm will qualify for a cash grant totalling 30% of its construction cost. Regional government also plays an important role in such deals, demonstrable by PG&E Corp.'s San Francisco-based utility firm's ultimate decision in 2008 to buy Topaz's power for 25 years because they need to procure a lot of renewable energy to meet the California state requirements.' {5} Furthermore, US regulators' have given approval in 2010 for utility companies to pay $161 to $232 a megawatt-hour for solar energy. That is at least four times the $40 average wholesale price in Southern California at the time. A guaranteed cash-flow for an extended period of time, at very favorable

terms, not only lowers the risk of the deal but also enhances its overall financial appeal {6}

California is not the only place which has a big appetite for renewable energy. The Thai government aims to generate 20% of its energy production from renewable energy by 2020. With its average of five hours of sunshine a day, it is an ideal place for solar energy generation. TTW is not the only company who has capitalized on the opportunity. For instance, Thai Solar Power Company is planning to have 18 solar farms by 2013, and Thailand as a whole is building 34 solar farms totaling the capacity of 204MW! Similar to California, the solar electric power is sold to the authority, namely Electricity Generating Authority of Thailand (EGAT) to redistribute the power, and so demand for its production is guaranteed by the government. Quantitatively, the company will receive a Bt 8/kWh incentive adder from the government, which is the highest amongst all renewable energy practices (please see table below). Given the government incentive is skewed in favour of solar, and demand is guaranteed, TTW seems to have chosen the alternative energy project to be in {7}

VSPP*	Adder Cost (Baht/kWh)	
Type of RE	general	Special*
Biomass	0.30	1.30
Biogas	0.30	1.30
Mini-Hydro (50-200 kW)	0.40	1.40
Micro-Hydro (< 50 kW)	0.80	1.80
MSW	2.50	3.50
Wind	3.50	5.00
Solar	8.0	9.50

*special cost in 3 provinces in Southern of Thailand

Province	Sites	Capacity (MW)	Operating	Under Constructio..
Nakhorn Rachasrima	9	54	1	8
Bureerum	3	18		
Surin	3	18		
Khon Kaen	10	60		1
Nakorn Phanom	3	18	1	2
Sakon Nakorn	2	12	1	1
Udorn Thani	2	12		
Nong Kai	1	6		
Loei	1	6		
Total (capacity)	34	204	3 (18 MW)	12 (72 MW)

4. Synergy

Synergy, defined as the working together of two things to produce a result greater than the sum of their individual effects. For WB, with its electricity transmission and distribution line spanning across 177000 miles, synergy with his other utility business is naturally high as most of the expensive fix cost elements are already in place and enhances its operating leverage ratios. For TTW, limited, if any, synergy, can be derived from its current business of supplying tab water and the new solar farm. Little known, solar farm is actually a thirsty giant which could use up to 200,000 gallons of water to cool down its operation. In this respect, TTW seems to be well placed to draw synergistic benefits from the two business lines to make them complementary by increasing its waster water treatment system with capacity 300,000 cu m/day, which translates into 79million gallon per day if we assume that some proportion of treated water could be utilized this way to satisfy the demand from solar operation. In addition, TTW does not need to worry about the cost of grids and marketing expenses, as the grids are provided by the government and all electricity will be sold to

Electricity Generating Authority of Thailand (EGAT). Therefore, while Warren Buffett gains instant synergy benefits, TTW can also draw some synergy from its two business lines, by using treated water for its solar power generation.

5. Project Financing

WB has a problem that everyone would like to have. As of August 30, 2012, Berkshire Hathaway has $49 billion in cash and cash equivalents, so it is not surprising that MidAmerican announced that they do not need to borrow money to close the solar farm deal. This seems to be in line with Buffet's preference of minimizing debt financing. Therefore, it seems like a win-win situation where First Solar get its project in cash while Buffett generates a stable return well above risk free rate. {8} TTW is a cash cow company but it is also committed to a 50% dividend payout ratio as stated by its investor relationship team. The company stated that it has earmarked 23.8 billion Thai baht for expansion and diversification into renewable energy and the money will come from bank loan of 12 billion baht, an internal cash flow of 3.3 billion, a bond issue worth 5 billion, and a bond rollover worth 3.5 billion. Net profit/year from 2013 onwards is forecasted to be around 2.5 billion so TTW should be able to manage the debt and new borrowing quite comfortably looking at its potential interest coverage, given its relatively stable income from its tap water business.

6. Know-how

As described in The Economist, First Solar not only produces the cheapest solar panel (it has broken the $1 per watt barrier in 2008 and current cost leader at less than $0.75 per watt), but also the most efficient one by setting the world record for CdTe PV cell (17.3%) and PV module (14.4%) efficiency certified by NREL. It has global installment projects across the 5 continents and market has little doubt that it can build the planned capacity for WB. A good plan requires a good execution in order to attain the best rate of return. With expected completion date of early 2015, the high level of visibility and know-how would be conducive for analysts to work out the cash flow and incorporate contribution from the project without much problem.

For TTW on the other hand, there are some concerns regarding its lack of experience in building and operating a solar farm. Details to date are lacking in terms of how the solar is going to be run, and when is the expected completion date, as it is still waiting for a license at the moment. Solar farm may be a profitable business, but without proper execution, TTW may not be able to reach the projected IRR. Market became excited about TTW solar plan ever since WB made headlines with a similar investment, and is giving it the benefit of doubt of a successful rollout. We like TTW's high cash flow business and are positive on TTW's existing core water business, but would caution that very conservative assumptions on expected contribution from solar business is warranted at this stage until more details are disclosed.

While there are distinct differences between WB and TTW's solar farm project, and

we remain wary at this stage of TTW's lack of experience, know-how and scale, we do find it impressive for TTW to pick solar as the renewable energy sector to move into, to capitalize on Thai government's incentive program, with a potential to yield a return that matches its existence cash cow water business and continue to uphold the franchise qualities of its business model.

We find an article from the Forbes Magazine, helpful in explaining the difference between solar manufacturing and solar project. The article commented that solar manufacturing faces fierce competition and has little pricing power for their mostly undifferentiated products (solar cells and modules). Worse, the prices of these products have been declining rapidly with squeezing margins. They also have little control over the prices of their raw materials, which means they find it difficult to pass price declines on to suppliers. To give a more transparent picture, there were 750 solar module and solar cell companies in the World. By 2012, this number had dropped to 150. Quite the contrary, Solar farms face a very different pricing landscape. The price of solar panels, their largest feedstock, has been falling rapidly, and the operators almost always sell power under long term contracts, providing a predictable income stream. Incentive regimes are also common, with projects' incentives often fixed when the project is built. {9}

We take comfort in drawing a similarity between Mr Buffett and TTW management, in that they both manage to spot this opportunity and decided to go into the solar farm business without overpaying to do so. With continual growth in demand in energy consumption especially in developing country and threat of global warming, and depletion fo fossil fuel, this is not only a good business case, but also great news from sustainability angle.

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