WilderShares, LLC

2005 Q4 Quarterly Report: WilderHill Index Clean Energy Index. Dec. 31, 2005

The Fourth Quarter of 2005 opened with the Index (ECO) at 188.9, and it ended at 172.97. Q4 thus had a negative return of -9.2%. As expected in tracking the volatile clean energy sector, the Index too reflected sizable volatility during the period.

Addition of MEMC Electronic Materials Inc. (symbol: WFR) to the Index

Before adding any company to the WilderHill Index (ECO), a core consideration is that the stock, as well as its price movements should be relevant to the clean energy sector. The new company should be significant for clean energy, technologically influential, and it ought to reflect marked volatility that characterizes this sector — downwards or up. As the first to track broadening clean energy, we've become the benchmark for this field.

At times the company being added is noteworthy say, for making the materials for blades in wind power, or for the materials necessary for making PV (PhotoVoltaic: solar) panels. Here, the latter is the case with the new addition of "MEMC Electronics Materials" as a global-supplier of the silicon and wafers essential in making crystalline solar cells. For Q1, we've added MEMC to the Index (their symbol is WFR). They're one of the world's biggest suppliers of PV silicon/wafers, and they're notable too in being listed on U.S. markets.

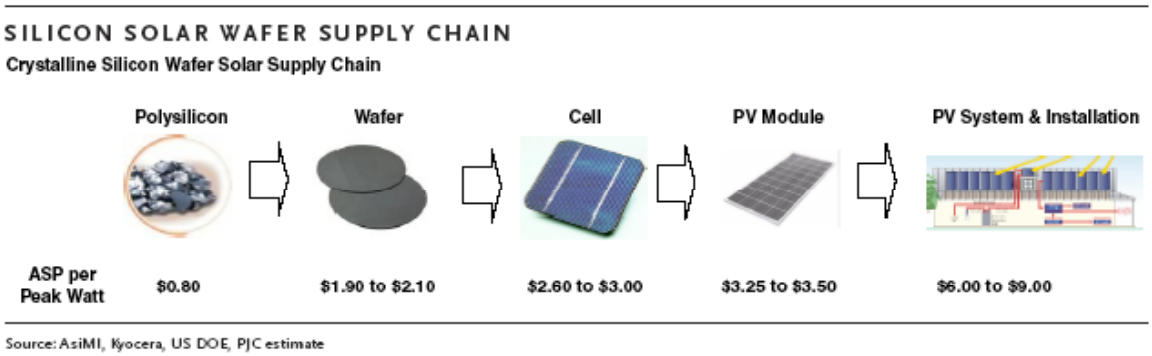
Just a few years ago it wouldn't have been pertinent to consider adding this, or any supplier of raw silicon used in solar cells. There was enough surplus lower-grade silicon left from making semiconductor chips, for there to be plenty of this essential commodity available; the stock of WFR thus wouldn't then have captured or tracked the fortunes down or up of emerging solar companies. Because there'd been an earlier glut of excess silicon-making capacity lingering from semiconductors' boom years, stock valuations for the silicon or wafer suppliers were not much related to activity in solar PV.

And yet as we observed in recent Quarterly Reports for the Index, this situation has lately changed dramatically. There's now a shortage of "poly" needed for PV, ironically due in part to fast-growing global demand for solar panels: that shortage now vexes much of the PV industry. It has become a constraint for this sector; crystalline PV makers are finding it difficult to meet present demand, which is a yolk on growth. Because MEMC is a major supplier of that silicon, their share price has become indeed relevant to the solar sector.

By "poly" we refer below to polycrystalline silicon, also known as polysilicon — or poly for short. (We include with permission several graphics from a recent report, which helps to visually display many aspects of production from mining silicon through finished panels).

The start of MEMC goes back to its founding in 1959 from the 'Monsanto Electronic Materials Company' in St. Louis, Missouri. Their present poly-producing site in the U.S., was originally built in 1987 by Ethyl Corporation; but following a boom and bust in that industry the poly site had been put up for sale in 1992: it was purchased by MEMC in 1995.

Since then, annual production capacity for silicon there has increased from 1,200 metric tons, to 2,700 metric tons. This MEMC production facility is located in Pasadena, Texas (10 miles Southeast of Houston) and it makes in quantity the (granular) silicon, and the wafers now used by many solar cell makers for manufacturing their PV panels. Consider that most solar PV companies don't manufacture their own silicon or wafers — but rather they purchase it; until recently, this wasn't an issue. (see charts below from Piper Jaffray).



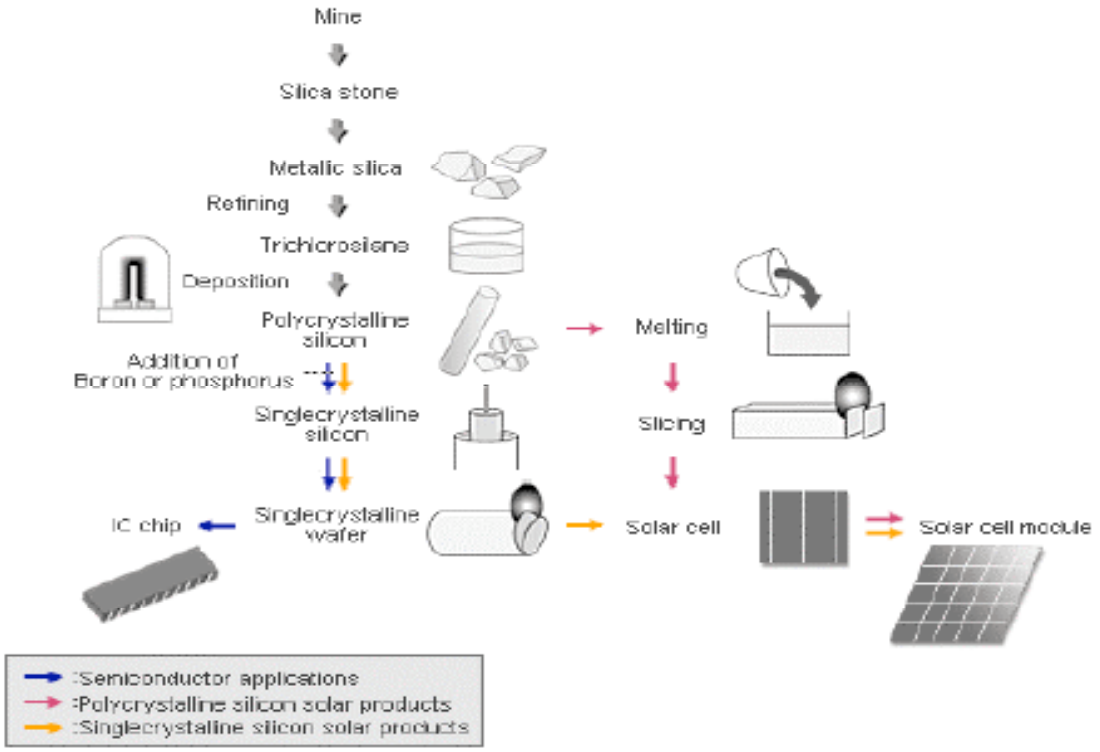
That new wafer-making facilities for the process can't be built overnight is part and parcel of the bottleneck. Modern techniques and in particular those for costly mono-crystalline wafers have come a long way, driven in good part by the IC 'chip' industry. Originally, wafers could only be made up to about the size of a nickel. Technical obstacles hindered making bigger platters and that was a problem, since those wafers were smaller than desirable for laying out chips in great numbers per 'platter'. By 1975, MEMC was the first company able to make larger and more useful 100 mm wafers; in 1984, they were producing larger 200 mm wafers; and at present, their 300 mm wafer platters are the norm; they're now a bit bigger than a pie. MEMC makes these larger high-grade wafers, and the (granular) silicon with greater efficiency and quantity than ever before.

By 2005, the shortage became a problem. And since sizable capital and long-lead time are needed to ramp capacity, some crystalline PV makers even had to buy higher-grade silicon (mono-crystalline and free from impurities) that's normally only used in tiny IC 'chips'. Lower-cost silicon, with some minor impurities is normally fine for those big solar panels.

Tight markets are now reflected in escalating prices fetched by silicon today: it has increased sharply from around $10 per kilogram in 2000 to $25 per kg in 2004, and then from $35 per kg at the beginning 2005 to more than $50 late in 2005. As we noted last Quarter, locking in long-term contracts to ensure supply has become important for many crystalline PV sellers (as it is in getting enough panels for integrators like PowerLight).

A recent upwards price movement of WFR likely reflects in significant part the growing sales of silicon/wafers into the solar market; it's a factor too of rising product volumes. With WFR Quarterly silicon sales for solar lately above a $100 million annual run rate, they expect sales for solar may even exceed the sales for semiconductors for the foreseeable future. Like adding carbon fiber-maker Zoltek (ZOLT) to the Index and in the 'Renewable Energy Harvesting' sector, because the demand for carbon fiber in wind power blades had influenced the price of ZOLT stock, we've added WFR for the First Quarter of 2006. The following chart helps illustrate the poly and mono-crystalline manufacturing chain.

POLYSILICON MANUFACTURING AND SUPPLY CHAIN



Source: Tokuyama

We note that WFR share valuations have grown in 2005, which *may* place some downward pressure on that stock in future. But we do not 'market-time' when adding a stock to the Index and additions anyway happen at the Quarterly rebalance. Nor can we expect that a stock once in the Index, can only appreciate ahead — instead what we aim for is that the basket of stocks making up the Index will 'capture and track' broadening clean energy. What could concern us is if the clean energy stocks ever broadly declined while the Index rose — or the Index ever went down while clean energy stocks moved up — but that has never happened, and our Index has led in tracking clean energy since inception. In sum we're pleased to add WFR to help robustly Index for renewable energy.

A broader point to be made, is that most PV now harnessing the sun relies on mono or polycrystalline technology and so it requires silicon: over 90% of solar cells today need silicon. We'd emphasize that intriguing alternatives are being explored and/or built now including concentrators or collectors to focus the sun, Stirling engines, PV using exotic non-silicon semiconductor materials like CIGS, tellurium, and nanotechnology: these are continuously reviewed by us and may be added to the Index as appropriate and available. But they're not yet widely commercial, and so Index firms such as Kyocera (KYO), Emcore (EMKR, with efficient triple-junction cells), now SunPower (SPWR, below) and SunTech Power (STP, discussed below) are presently coping with a 'silicon squeeze'.

The two current PV components Evergreen Solar (ESLR with more efficient use of silicon), and Energy Conversion Devices (ENER which makes thin-film PV), as noted in prior Reports are technologies needing less/no silicon. For them the poly shortage may, *possibly*,

provide some comparative advantage. ESLR is able to use less silicon because of a unique string-ribbon™ process — instead of wafer-based, they pull thin strings through molten silicon thereby eliminating the need to saw wafers as done elsewhere. That prevents waste from needing to cut hardened wafers and allows them to make PV with 30%+ less silicon; however the resulting cells are thin, delicate and they require granular silicon.

One side-note relevant to ESLR is that they not only need harder-to-find granular silicon (like from WFR), but they also suffer from common lack of long-term silicon supply. Both these issues were addressed by ESLR when they announced in November they'd signed a seven-year contract for granular silicon with REC (Renewable Energy Corp.) of Norway. REC is a leading supplier of solar grade silicon, and this deal could potentially benefit ESLR in the long term, albeit at short-term cost for a stake they've sold to REC.

Piper Jaffray Global Capacity of Polysilicon Forecast

Company	2004 Capacity	2005 Capacity	2006 Capacity	2007 Capacity	2008 Capacity
Hemlock	7,000	7,400	10,000	10,000	11,000
Tokuyama	4,800	5,200	5,400	5,400	8,400
Wacker	5,000	5,000	5,500	6,500	8,500
REC (ASiMI)	2,600	3,000	3,300	3,300	3,300
REC (SGS)	2,200	2,400	2,700	3,900	7,400
MEMC (Pasadena, TX)	2,700	2,700	2,700	2,700	2,700
MEMC (Italy)	1,000	1,000	1,000	1,000	1,000
Mitsubishi Materials	1,600	1,600	1,600	1,600	1,600
Mitsubishi Polysilicon	1,200	1,200	1,200	1,200	1,200
Sumitomo Titanium	700	700	700	700	700
Sichuan Xinguang	-	-	300	1,250	1,250
JSSI	-	-	100	500	1,000
New Industry Consortium (expected)		-	-	-	1,500
Total	28,800	30,200	34,500	38,050	49550

As we noted previously, a different approach is seen in thin-film PV from ENER. Their PV is made without needing silicon wafers and is constructed instead as an amorphous thin film. As the name implies their PV is thin and flexible; 'a-Si' doesn't need to be encased in bulky aluminum frames nor even put under flat glass. That's quite different for PV.

Thin-film is made using more readily available silane gas — instead of polysilicon wafers. However a resulting benefit of lower cost per watt due to the process — must be balanced against inferior cell performance: their thin-film efficiencies are currently less than 10%, or about half that of mono-crystalline cells. Also, there were some earlier problems with 'a-Si' performance fading over time, contrasting sharply with mono-crystalline PV where panel life may be over 40 years. Polycrystalline cells give good mid-range performance that's not quite as powerful or long-lived as mono-crystalline — but greater than 'a-Si'.

For those interested, we're using *mono-crystalline* cells atop our building: 21 Sharp panels @ 185-watts/each combined with a 3.5 kW inverter, and this report was written using grid-tied solar power. Excellent daily performance from that system is being posted live on our own website. We're adding 2.5 kW more solar soon from 24 Kyocera *polycrystalline* 120-watt panels with a 2.5 kW inverter. We'll monitor in real-time efficiency performance of that system with an upgraded irradiation data monitoring, and we will post results live: we expect it to be excellent. We find this practical experience valuable in our work.

In sum, we believe the silicon shortage now impacting solar PV may continue a few years — after which the production on line may be able to meet demand. Indeed, capacity is ramping fast lately and may meet goals for PV even sooner than expected. Complicating matters is the fact there's no problem meeting silicon needs for IC chip production, and silicon production is typically a boom and bust arena where the current boom may give way to bust. That said, the share price of WFR is now influenced by this shortage and by the allied growth prospects in solar. For instance WFR's shares rose around 5% in late afternoon trading on the day SunPower Corporation raised the expected price for its IPO. Put succinctly, the growth in solar is having a non-negligible influence on WFR shares.

Below are charts on PV:

Piper Jaffray Global Solar Industry Production Forecast

Year	Poly Capacity (Metric Ton)	Poly Demand IC / Semi	Residual Poly for Solar*	Poly Surplus from Past Productions	Total Poly Available for Solar	Solar Production (MW)	Wafer c-SI Production (MW)	Other Solar Production (MW)
2003	26,700	17,000	9,700	11,700	**20,700**	750	671	80
2004	28,800	19,350	9,450	7,118	**21,150**	1,256	1,142	114
2005E	30,200	20,085	10,115	-	**17,233**	1,656	1,480	176
2006E	34,500	21,166	13,334	-	**13,334**	1,738	1,475	263
2007E	38,050	23,071	14,979	-	**14,979**	2,088	1,689	399
2008E	49,550	26,301	23,249	-	**23,249**	3,265	2,692	573
2009E	53,800	26,827	26,973	-	**26,973**	4,105	3,387	718
2010E	58,800	27,632	31,168	-	**31,168**	4,729	3,831	898

SOLAR TECHNOLOGY AREA REQUIREMENT COMPARISON

Technology	High Efficiency Mono-Crystalline	Mono-Crystalline	Multi-Crystalline	String Ribbon	Amorphous Silicon	CdTe
Cell Efficiency	18.50%	16.50%	15.30%	13 to 13.5%	8%	9%
Module Efficiency	16.10%	14 – 15%	12 -14%	12%	8%	9%
Typical Module Output	200W	175W	160W	115W	136W roll laminate	65W
Typical Module Size (mm x mm)	1559 x 798	1600 x 800	1600 x 800	1600 x 650	5486 x 394	1200x600
Area required for 3kW system (M2)	18.7	21.9	24.0	27.0	47.7	33.2
Area vs. Multi-crystalline	78%	91%	100%	113%	199%	138%

Source: Piper Jaffray; Company documents; U.S. Dept of Energy.

Addition of SunPower Corporation (SPWR) to the Index

It's perhaps unsurprising to many, that the pure-play solar PV maker "SunPower" is being added to the WilderHill Index (ECO) for the First Quarter of 2006. As noted, we'd included Cypress Semiconductor (CY) in the Index in 2005 only because of their notable PV solar subsidiary, SunPower. The latter is a fast-growing mono-crystalline solar manufacturer with influential and significant technology; we watched with some interest as SunPower (SPWR) held their own IPO in November. Now with their stock independently trading, they've been included in the Clean Energy Index. Like with WFR and with the solar pure-plays, we've placed SPWR within the 'Renewable Energy Harvesting' Sector.

Yet adding SPWR wasn't without discussion, since retaining CY in the Index as well for now can raise an issue of redundancy; we discuss that point below. Also given the ample text above and recalling that SPWR is known for efficient mono-crystalline cells — as might be expected, a point relevant for them is the silicon shortage. SPWR makes among the most efficient retail PV panels today with efficiencies around 20%. But being mono-crystalline, they're built in a silicon-intensive approach. Mono-crystalline cells are made from single-silicon crystal, requiring costly added steps and equipment compared to the simpler polycrystalline PV wafers and that exacerbates cost-variability. However when PV panels are used in space-constrained applications, or aesthetics matter given their all-black look, then it's clear that SunPower is a significant 'new stock' for the sector. We're pasting next some text from a previous Report on inclusion of SunPower via Cypress:

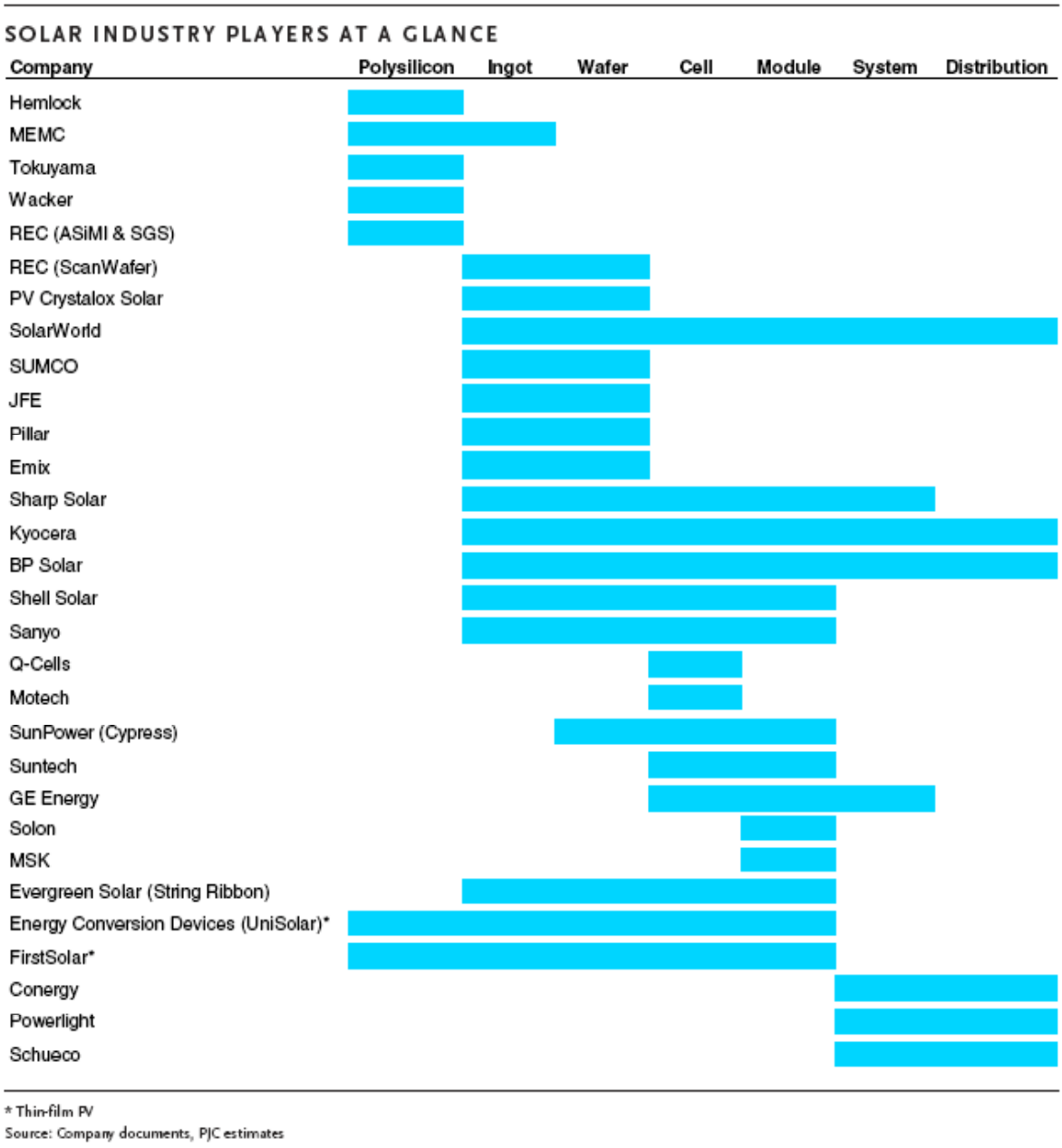
SunPower's has been a subsidiary of Cypress Semiconductors (CY) which earlier bought a foundering SunPower at the initiative of Cypress CEO and founder, T.J. Rodgers. CY then invested $110 million in this solar-maker; their PV products subsequently released in 2004 have since seen significant demand. SunPower had received $100 million in orders and another $200 million in orders are booked for 2006. Part of the interest stems from their unique panels: metal contacts for the chips (solar cells) are all embedded on the backside — rather than being on the front (both sides) as in most PV cells. This rear-only technique provides advantages: they're remarkably efficient today at around 18% for panels (and 21% for individual cells) since more sunlight reaches each cell rather than being blocked by thin grids at the front as on other chips. For instance mono-crystalline panels powering many present sites might have good measured panel efficiency of over 15%: yet these newer panels from SunPower should produce at even greater efficiencies.

While some competitors may achieve higher figures for special PV panels in laboratory conditions, their commercial panel efficiencies are less than 18%. And as noted a very particular SunPower panel advantage is their attractive all-black look, unlike the modular-appearance common to most PV panels showing a grid pattern. The all-black panels are aesthetically pleasing and being efficient to boot, there's probably little surprise CY has seen good growth in SunPower. They also make inverters carrying a 10-year warranty; that's better than the solar industry standard, and these sorts of things do matter.

Recently SunPower decided to expand its factory line in the Philippines. They'll double production capacity to 50 MW in the present building, and current capacity has sold out. Helpfully that 225,000 sq. foot facility has room to expand capacity to 100 MW. This can allow them to produce roughly 32 million wafers/year. As PV silicon suppliers move to ramp production globally, that helps too in addressing the silicon bottleneck.

As noted above one related issue raised with SunPower stock trading independently, is whether having the 'parent stock' Cypress (CY) in the Index as well, constitutes an undue redundancy. Is CY still sufficiently being moved by events in solar to remain in the Index? Because CY owns a very large block of the SPWR stock — around 52 million Class B shares representing some 87% of stock outstanding and holds around 98% of voting power — plus SPWR shares are conversely important to CY market cap, we've retained CY for the present. But we'll be re-evaluating CY and observing share movement in coming months, to determine if it remains relevant to solar PV. And as discussed below, we've determined Index procedures (silent on IPOs) warrant addition of stock at the rebalance.

We reprint below a useful chart from Piper Jaffray for visualizing roles of solar players:



Addition of SunTech Power (STP) to the Index

After some anticipation, we were rather pleased to see the IPO go forward too for the pure-play solar PV maker SunTech Power (STP) late in the Fourth Quarter of 2005. Like SPWR, this is another opportunity to add to the Index another unique PV equity and one that helps to capture daily movement of solar stocks. SunTech is based in China: they make relatively lower-cost polycrystalline and mono-crystalline PV products.

On the day of their IPO, shares in STP increased about 41%, which by coincidence was about the same that SunPower saw on its first day of trading. Much like a recent initial offering for SPWR, this indicates there may be some investor interest in solar. Being a foreign firm, their shares trade as American Depository Shares: hence adding this non-U.S. company to the WilderHill Index (ECO) might to some limited extent help also mitigate (U.S.) country-specific risk and further the non-correlation of ECO with major indexes. We're mindful too that modern portfolio theory holds that diversification beyond just one nation can reduce risk and assist long-term performance. But most importantly, we're interested in STP mainly for its Indexing value in the solar sector.

SunTech is based in the Jiangsu Province of China and although it's a young company, their growth to date is strong: in the first nine months of 2005, net revenues increased to $137 million (nearly tripling) from the year prior. They aim to use IPO proceeds to expand research, manufacturing and to lower costs. They expect to spend about $100 million from the IPO proceeds to prepay for raw materials such as silicon, $40 million to expand manufacturing, and $20 million on research and development.

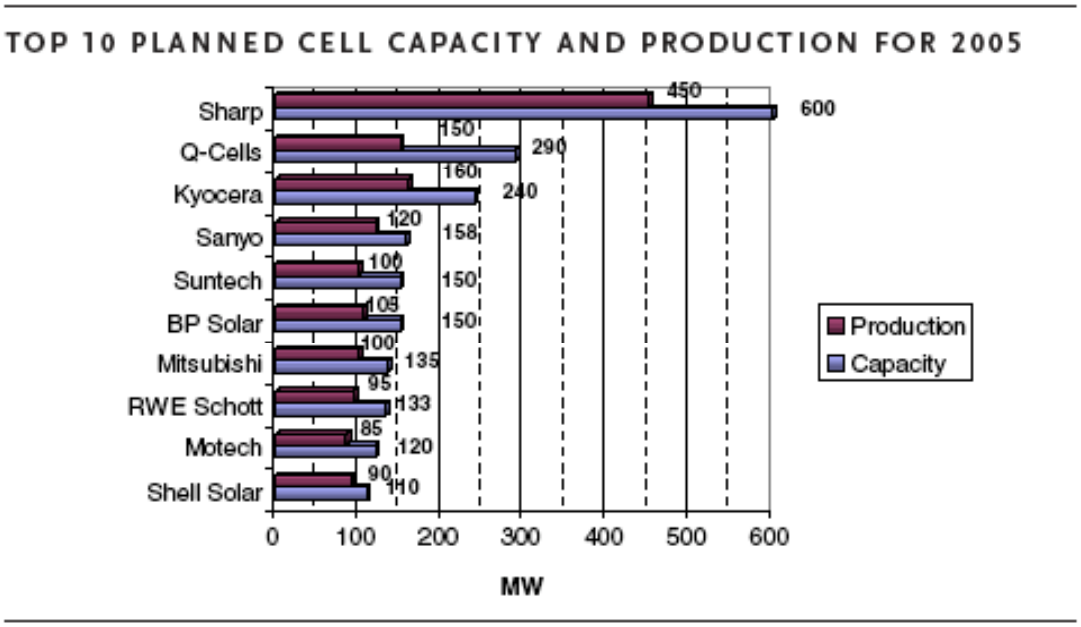
At present their cost per watt is fairly good at $2.30 and they're especially notable as a PV maker that has been profitable annually since 2003 (almost since start-up). They're able to make use of China's relatively inexpensive materials and labor, and hope to reduce cost per watt significantly further. They presently have sizable sales into Germany (and Japan where high retail costs being paid per watt to utilities have been a boon to PV sales, but government PV subsidies in Japan are going to end).

To some extent, a lack of history contributes to dearth of knowledge about particulars of this company and their technologies specifically. SunTech was founded in 2001, by Dr. Zhengrong Shi and he has a scientific background in solar research. The newer holding company "Suntech Power Holdings Co.,Ltd." was recently incorporated in the Cayman Islands and it has become the ultimate holding company of Suntech.

One drawback to be sure, is they're clearly a far less transparent business than say, a U.S.-based solar manufacturer; there's real differences stemming from China's nascent business regulatory environment, language difficulties, distance, etc. Perhaps to some extent that uncertainty and hence the greater risk is factored into their stock pricing, yet they have met particular thresholds to be listed here on U.S. exchanges.

A core question we ask ourselves as an Index provider, is whether STP shares help to capture and track clean energy. They should be in a business that stands to benefit substantially from any societal transition toward cleaner energy and conservation, they should be a significant company for clean energy, have some technological influence, and be relevant to preventing pollution in the first place. We're satisfied that SunTech meets these criteria, though we note issues of transparency, etc.

They're now a top-10 producer of solar cells — around the fifth largest by capacity — although growth seems almost the norm lately for many PV makers. (chart source: Photon International, and Piper Jaffray).



Source: Photon International

The company claims its average conversion efficiency rates are 16.5% for its mono-crystalline cells, and 15% for its polycrystalline cells. Those rates aren't as high as those at SunPower for example, but they are respectable and STP may hold growing promise as a low-cost and high volume pure-play producer, especially going into the important Japanese, German, and Chinese markets. The company claims it increased manufacturing capacity by 12-fold the past three years (from a base very near-zero, however) and that they're planning to double capacity again by the end of 2006.

A 'role' too for SunTech for the Index, is that being a fast-growing PV pure-play, its share price should (pessimistically) drop robustly — should government solar subsidies be pared back unexpectedly, oil prices drop dramatically, or other big negative news hit PV. We seek to capture sharp decline, just as fully as upwards movements.

On the other hand, we note that fast-growing China is increasing its silicon capacity. In Q4 for example, a 100-unit order was placed to purchase DSS multi-crystal silicon ingot wafer growth furnaces from GT Equipment Technologies. That will allow 'LDK Solar Hi-Tech' based in Jiangxi, China to swiftly ramp their annual wafer fabrication capacity from 75 MW at present, to 200 MW. LDK aims to expand up to 400 MW by 2008. This follows on the prior furnace orders from Chinese companies, such as from Baoding.

Finally we note SunTech purports to be a major supplier of PV for China's government — a domestic market which may one day conceivably grow much larger than Japan or Germany. SunTech is involved in China's 'Light the West" Program and is PV provider for their foreign aid program. China has made ambitious claims about their desire to build smart energy-savings, to grow renewables, and about clean energy in general.

Addition of Pacific Ethanol (PEIX) to the Index

Ethanol is a part of the WilderHill Index for several reasons: ethanol is a renewable resource rather like solar or wind and is cleaner than fossil fuels. It's domestic-sourced and importantly helps America's farmers; it adds resiliency to the U.S. energy portrait, and increases energy security. Ethanol may serve as a gasoline additive that displaces fossil fuels — or, can serve as a fuel in its own right. We've barely begun to tap this potential: in Brazil for instance widespread use of ethanol made from sugar crops serves as a key fuel there, and a large percentage of vehicles are flex-fueled. That has replaced about one-fourth of Brazil's gasoline, while using only about 5% of land in production.

But there are concerns with ethanol too. While ethanol and the biofuels are renewable and useful liquid fuels which can be integrated into existing energy infrastructure, they're combusted and not as clean as solar or wind that elegantly prevents pollution in the first place (without CO2 emissions, although purposefully-grown biofuels feedstock may even 'reverse' CO2 by removing carbon from air and sequestering it in topsoil). Depending on crops used in production, ethanol may create some competition with food crops and it may be polluting (although biofuels can be almost free of sulfur and aromatics and so they should be relatively very low-polluting), and questions persist of net energy production.

"Ethanol" is also known as ethyl alcohol, or as grain alcohol. It can be used as noted in part or whole of an alternative fuel for flex-fuel vehicles, or an additive in gasoline to boost octane and reduce pollutants. U.S. ethanol production has grown from around 2.1 billion gallons in 2002, to 2.8 billion in 2003, to 3.4 billion in 2004, and now the demand for 2005 is projected at 3.8 billion gallons. Indeed even today ethanol in very small percentages is blended into over 30% of the gasoline sold in the U.S. And yet, compared to a vast 137 billion gallons of gasoline produced in 2003, or to its scope for growth as a fuel, this quantity of renewable ethanol today is still quite small.

Traditionally in the U.S., ethanol is derived from corn, with much of that crop grown in our nation's fertile mid-West; the ethanol oxygenate is now displacing an equivalent to about 2% of the gasoline used in America. While that isn't the only possible octane boost for gas, some relevant news is that the alternative MTBE (Methyl Tertiary Butyl Ether) has been banned from many States and so demand for ethanol has increased.

We've added Pacific Ethanol (PEIX) as one of the four inclusions this new Quarter to the WilderHill Index, and placed them in the 'Cleaner Fuels' Sector. PEIX is notable as being a pure-play and ethanol represents another approach to clean energy that's useful in its own right. One special point to make about this company, Pacific Ethanol, is they operate specifically in California and are expanding there; to a significant extent the company's business relies on emphasizing their West Coast locale.

That's because in California where air quality is especially troublesome, Federal and State requirements for gas additives are creating heightened demand for ethanol. The ethanol producers sited there, may find some comparative advantage. According to Pacific Ethanol, about one-third of U.S. ethanol demand is represented by just this one State. Roughly 900 million gallons were consumed, worth over $1.3 billion in 2004, and yet PEIX claims only 8 million gallons of that were produced within State. The rest has been imported by ship or rail, with much from producers in America's mid-West.

Pacific Ethanol believes they might win some geographic advantage: they may benefit too by co-producing & selling in California's Central Valley related high-value agricultural by-products; although starch is consumed in making ethanol in this case from corn, there's remains protein products, minerals, fat and fiber left that can be sold too as valuable cattle feed. Known as Distillers Dry Grains, those can be used locally and there's a wet product too, with all of that going to dairy and beef cattle.

In theory integration makes sense, and mimics industrial ecology to boot: a closed-loop site in an agricultural area might combine 1) an ethanol plant with 2) cattle feed mill, 3) digester and 4) cogen plant — and sell the main product ethanol, as well as distiller's grain products, liquid fertilizer, compost, and cattle, even using captured CO2 in beverage/food industries. (Or CO2 might be sequestered underground if that can be done smartly). In theory at least, such Design for the Environment is intriguing.

Some practical specifics to Pacific Ethanol are they were formerly known as Accessity Corporation (brokering auto repairs) and subsequently moved into alternative fuels. Nowadays, they sell ethanol through their subsidiary Kinergy Marketing. Their Founder and Board Chairman was a member of the State's Legislature and a prior Secretary of State of California; he's a second-generation farmer and cattle rancher.

Kinergy's annual revenues have grown several-fold the past few years, especially as legislation for cleaner-burning gas pushes demand for ethanol as an MTBE substitute in California. Large amounts of ethanol must be moved by rail from distant places like Illinois, Minnesota and Nebraska. Kinergy could potentially sell locally-grown product from its parent, Pacific Ethanol, if their production can be ramped successfully.

Pacific Ethanol has run into some issues such as the termination of its agreement to buy Phoenix Bio-Industries, which built a 25-million gallons/year ethanol production facility in Tulare County, California. That termination reportedly occurred because of delays in due diligence and their agreement period passed, without being waived by either party. (The plant was one of three planned for Tulare County, and presents some nice symmetries since the 1 million head of cattle in just Tulare and Kings Counties, means desirable distillers grains feed might readily be sold there).

Fundamentally, Pacific Ethanol is intent on building out its West Coast capacity — they're currently aiming for 200 million gallons annually — and have announced they have rights to construct five new plants on three sites. Those plus developing plants in Madera, and Visalia, California could potentially be valuable for serving the West Coast. Recent Federal legislation is part of this impetus: it calls on domestic U.S. ethanol consumption to grow from 4 billion gallons in 2006 to 7.5 billion gallons in 2012. To help finance build-out at Pacific Ethanol, the company announced in the latter part of this Quarter that they'd received an $84 million investment from Bill Gates' Cascade Investments. That gives Gates a 27% stake in Pacific Ethanol.

We note that one other Index component of ECO, in biofuels, is MGP Ingredients (MGPI). And that as a pure-play, PEIX adds exposure to ethanol made from corn. In today's low-concentrated blends like E10 (10% ethanol and 90% gasoline), that ethanol slightly reduces emissions and displaces a 'smallish' amount of petroleum.

But looking farther out, besides common feedstocks such as corn, barley, and wheat, ethanol could also be produced from "cellulosic biomass" such as trees and grasses. Notably, Pacific Ethanol is investigating robust new means of producing ethanol.

By using very recent genetic advances in enzymes and bacteria, cellulosic biomass might potentially produce a significant 4 Mbbl/day of crude oil equivalent (ethanol has just 67% of heat content of gasoline, accounting for some of the need to calculate 'equivalent'). Newer feedstocks like switchgrass and woody crops with short rotation can be much more useful in making biofuels, and could be beneficial for America's farmers to boot. We'd underscore there's much room for growth in biofuels: in 2003, Europe produced 17 times more biodiesel than the U.S. Total flex-fuel vehicles like those sold in Brazil can already run on blends like E85 (just 15% gasoline), or even on E100 — or on any blend in between in the other direction down to 100% gasoline.

That said, there's formidable challenges to ramping even corn-based ethanol in the U.S., and adopting cellulosic biomass strategies must overcome huge hurdles. Like unforeseen problems of MTBE, ethanol may see thorny issues ahead. We expect that PEIX will be a typically volatile Index component in ECO, and entail risk.

Recent News from Solar and Wind, Relevant to 2006

Two pieces of recent news may bring special interest to both solar and wind in 2006. One is after unexpected last-minute defeat of Governor Schwarzenegger's ambitious "Million Solar Roofs" bill in California (for unassociated political reasons), the State's Public Utilities Commission (PUC) voted unanimously in late-December to start implementing some of that bill directly as an 11-year program. They started by approving $300 million in subsidies, and the PUC will importantly consider most of the supposedly $3.2 Billion program this January (that's right — it is serious funding, as in Billions with a "B").

Of course solar still isn't even nearly cost-competitive without subsidies. But because solar must only compete with the *retail* prices paid for electricity at homes & businesses, it needn't become very much cheaper, than it is now, to be a sensible choice in its own right. At wholesale utility levels electricity is far cheaper than retail, and may only cost say 5 cents per kilowatt/hour. But a consumer in California may be paying nearer to 18 cents per kilowatt/hour at their home's or business meter. Because solar PV on a rooftop only competes with higher *retail* costs, subsidies may indeed literally bring a 'million solar roofs'. Like the PV growth seen in Japan and Germany, California might be next.

A second piece of interesting news concerns wind power. The U.S. lags behind European and other nations (rather like in biofuels), and wind power has grown strongly overseas contributing to job creation, economic growth, and energy security abroad. In the United States, two factors have had an inordinate role in slower growth of wind companies: grid transmission constraints, and lack of ease finding wind farm sites. In places like Denmark, Spain, and Germany there's much stronger community support even though they're space-constrained, and even wind expansion going offshore is becoming popular there.

Interesting news seen in late-December here, are plans by the U.S. Interior Dept. to open about 20 million acres to nine Western States to new wind farms. Where only 22 wind farms now operate on BLM land, they hope to see maybe 2,000-3,000 wind farms.

Additions of IPOs to the Index

Because Index Rules are silent on when a company IPO could be added, we looked at this question afresh with the intra-Quarter IPOs from SunPower and SunTech Power. Basically we had three options: the quickest is to add a stock on the very morning of its IPO; the middle option is to wait until the next rebalance to add it, which would also provide some trading history; and the longest option is to wait for a full three-month history first — which requires waiting until a second rebalance. (That three-month period is from criteria for adding existing stocks to ECO, which as a guideline should have a three-month average market cap above $50 million and a three-month share price above $1.00).

We chose the middle option. Thus we 'sat on our hands' the day of the IPO for both, and waited until the rebalance to add them. A downside is we don't capture any first-day volatility, which may be pertinent in very short-term and in this case both stocks were up for that day. On the other hand, as an Index we place some weight on initial trading history in a stock, plus we embody a more passive, tax-efficient approach. At any rate within a few months for SPWR — and weeks for STP — they're added to ECO.

Ongoing Website Development

Our own website at wildershares.com is in continuous refinement and we monitor for the glitches that doubtless arise on occasion as a site develops and grows in size. We do report here on one brief issue this Fourth Quarter, when dynamic homepage Index value and change displays were temporarily down due to server upgrades being made on the internet service provider's computers. After that change on their servers, our own read-outs posted only sporadically and we waited two days to see if the problem would resolve itself as the servers reset: because it did not, we fixed the software script which took care of that whole problem. Plus, we used that opportunity of maintenance to update our software scripting so these displays are now refreshed more swiftly.

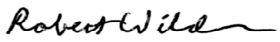
Years of experience posting dynamic data on our websites have taught us that glitches happen given unexpected software issues that inevitably arise. It's thus worth repeating that the Clean Energy Index (ECO) is always calculated independently and totally apart from our own website by the American Stock Exchange. And of course the exchange traded fund (PBW) actively tracking the Index, is also calculated in robust fashion totally independent of our own website. Data on the Index (ECO), and on PBW can always be found at the website of the American Stock Exchange: http://www.amex.com

Summary

In sum, four new stocks were added to the Index at the Quarterly rebalancing: MEMC Electronics (WFR), SunPower (SPWR), SunTech Power (STP) and Pacific Ethanol (PEIX). That three of these are solar stocks reflects recent growth here as well as the IPOs of two technologically influential solar companies in Q4. There were no deletions to the Index at this rebalance, and the sector weights were changed incrementally. Unlike the last Quarter, no single stock had outsized impacts on the WilderHill Clean Energy Index during Q4. There was arguably, and as has been expected, some 'regression to the mean' in this Quarter, following the significant upside volatility last Quarter.

Lastly we continue to upgrade our website at wildershares.com with the aim of robust uptime and to provide ample data and information: we welcome your suggestions.

Sincerely,



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Disclaimer: The following is a reminder from the friendly folks at the WH Index who worry about liability. Performance figures quoted represent past performance only, and are no guarantee of future results. The views expressed here are those of just one of the managers of the WH Index. Views are not meant as investment advice, and should not be considered as predictive in nature. Any favorable or unfavorable descriptions of a holding, applies only as of December 31, 2005. Positions within the Index can and do change thereafter. Discussions of historical performance do not guarantee, and are not indicative of future performance. The Index covers a volatile sector, and thus is volatile too, subject to well above-average changes in valuation.

Appendix

Following are Index weightings, roughly 2 weeks before Rebalance to start 2006 Q1: after rebalance, every stock floats according to its share price over a Quarter.

Index Components as of: 012/14/05

Company Name	Symbol	% Weighting
Evergreen Solar	ESLR	4.42%
Ormat Technologies Inc	ORA	3.86%
Maxwell Technologies	MXWL	3.65%
Emcore Corp	EMKR	3.61%
Intermagnetics Genl	IMGC	3.54%
Power Integrations	POWI	3.40%
Cree Inc	CREE	3.36%
Ultralife Batteries	ULBI	3.23%
Cypress Semiconductor	CY	3.21%
Distributed Energy Sys	DESC	3.18%
Kyocera Corp Adr	KYO	3.13%
Itron Inc	ITRI	2.93%
Active Power	ACPW	2.91%
Zoltek Co	ZOLT	2.74%
Mgp Ingredients	MGPI	2.71%
Amer Power Conversion	APCC	2.70%
Energy Conv Devices	ENER	2.66%
Echelon Corp	ELON	2.66%
Praxair Inc	PX	2.66%
Capstone Turbine	CPST	2.63%
Air Products & Chem	APD	2.59%
Impco Technologies	IMCO	2.50%
Ballard Power Systems	BLDP	2.47%
Magnetek Inc	MAG	2.46%
Plug Power	PLUG	2.42%
Amer Superconductor	AMSC	2.36%
Boc Group Ads	BOX	2.34%
International Rectifier	IRF	2.34%
Uqm Technologies	UQM	2.33%
Medis Technologies	MDTL	2.32%
Fuelcell Energy	FCEL	2.26%
Hydrogenics Corp	HYGS	2.13%
Mechanical Technology	MKTY	2.13%
Quantum Fuel Sys Tech	QTWW	2.13%
Idacorp Inc	IDA	2.04%
Scottish Power Ads	SPI	1.98%