

HAMILTONCLARK QUARTERLY

HamiltonClark EnergyTech Index™

Page 1

The HamiltonClark EnergyTech Index™ continues to perform exceedingly well compared to both the NASDAQ and S&P500. Year-to-date ending August 30, 2005, the Index was up 30%. The Index continues to track oil prices but for how long?

The Money Chase

Page 5

Our annual survey of energy technology financing and interviews with CEOs and CFOs reveals that almost 80% of companies are seeking capital. Yet the supply side is still tight. Darwinian principles dictate that most of these plans will not get financed, leaving entrepreneurs to seek out friends and family or boot strap operations until positive cash flow.

AiM Update

Page 9

The London Stock Exchange Alternative Investment Market (AiM) has attracted a significant number of energy technology companies in the last 24 months. How long will the AiM rally continue? Can US exchanges attract these companies? The American Stock Exchange (AMX) seems to be warming up to micro and small cap energy tech companies.

Islamic Finance

Page 11

With rising oil prices, petro-dollars may be looking for socially conscious, shar'ia compliant investment opportunities. Could private equity investments in energy technology offer an avenue for this large pool of money? A primer on Islamic finance.

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July 2005

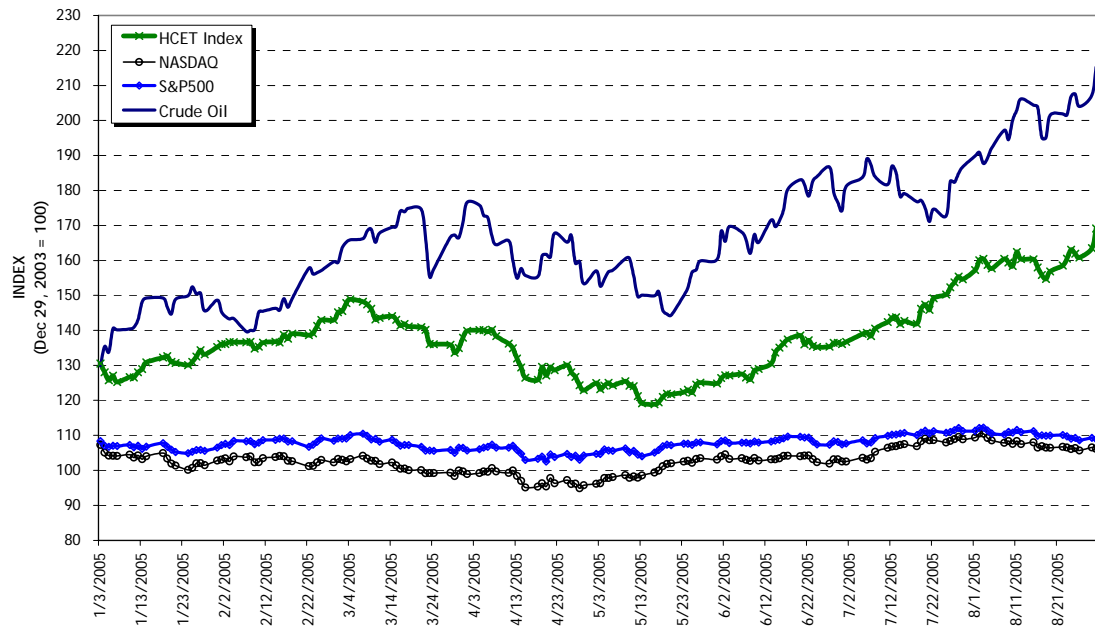
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HamiltonClark EnergyTech Index™

Himesh Dhungel with research assistance from Yuk Man Liang

The HamiltonClark EnergyTech Index™ continues to outperform the NASDAQ and S&P500 indices. Based on year-to-date performance ending August 30, 2005, the Index is up 30% compared to NASDAQ and S&P500, which were essentially flat. E&P technology and Renewable and Sustainable Energy segments have performed particularly well.

HAMILTONCLARK ENERGYTECH INDEX™
(As of Aug 30, 2005)



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E&P Technologies

The E&P segment has had a very successful year so far with a 46% composite gain. Fourteen out of 15 companies in the index recorded positive gains since the beginning of the year and all gainers had double digit percentage increases. Similar to the price movement in the Renewable Energy segment, all the winning stocks exhibited a major rally coinciding with the rally in oil prices. Higher oil prices have significantly increased US oil and gas exploration activities, directly benefiting the companies in this segment.

Renewable and Sustainable Energy

This segment continued its impressive run in the first eight months of 2005 with a 49% composite gain. There were seven winners and one loser. Of the top four performing companies, three were solar-related and one was in the wind business. The best performer

doubled in price during this period. The price increases have coincided with positive business news from individual companies as well as the surge in oil prices. The performance of this sector reflects investors' increasing desire to find alternative solutions to traditional fossil fuels combined with a boost from government policies and international treaties.

Energy Intelligence and Optimization

This segment recorded a 25% overall rise since January 2005. Three out of five companies in this category had double digit gains, with one doubling in price. The growing optimism for time of use pricing has propelled the demand for automated meter reading technology and associated services. Companies in this segment are fundamentally different from companies in other emerging segments in that four out of five companies have consistently provided positive earnings, whereas over 80% of the companies in the emerging segments are still not profitable.

Clean Technologies

The Clean Technologies segment has gained 25% since the beginning of the year, not as dramatic as the companies in the previous three segments. Three out of 11 companies lost value and one posted marginal improvement. The remaining seven companies had double digit growths, with one company posting more than 100% gain on the news of a significant strategic partnership and investment.

Power Generation and Power Quality

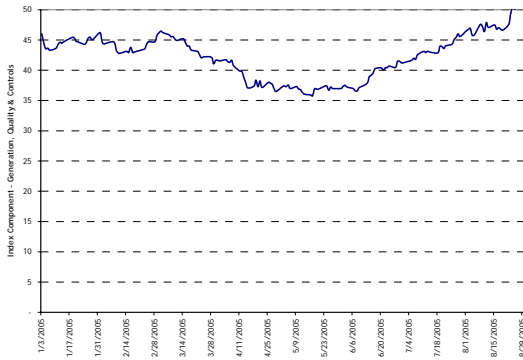
This segment has had a relatively modest run in the first eight months of 2005 due to the weakness of companies in the power conversion market—most of the decliners were manufacturers of power conversion equipment. Weak demand from the telecommunication and high end computing industries was the major reason for the decline. The upward momentum of renewable energy remains a very strong factor in the future growth of the power conversion segment.

The overall performance of the HamiltonClark EnergyTech Index™ has been nothing short of extraordinary since its beginning on December 29, 2003. If one had invested \$100,000 in the Index at its inception, it would be worth approximately \$169,000 by August 30, 2005—an impressive 69% total return. However, the performance data featured represents past performance, which is no guarantee of future results. Investment return and principal value of an investment will fluctuate. Current performance may be higher or lower than the performance data quoted.

The list of companies in the Index and individual performances of each segment follows.

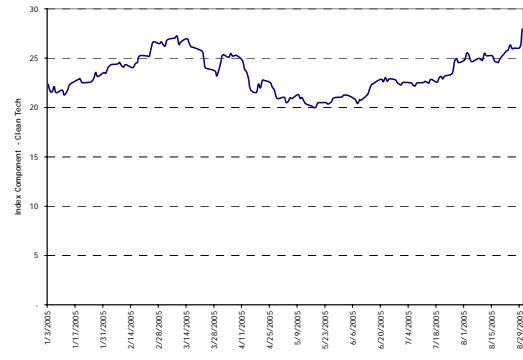
COMPANY AND TECHNOLOGY SEGMENT	Ticker	Share Price (\$/Sh.)		Percent Change	Mkt Cap (\$ Million)
		3-Jan-05	30-Aug-05		
POWER GENERATION, POWER QUALITY, CONTROLS AND STORAGE					
1 Active Power	ACPW	\$ 4.49	\$ 3.39	-24.5%	\$ 164.7
2 American Superconductor	AMSC	14.30	9.91	-30.7%	322.9
3 Arotech Corporation	ARTX	1.61	0.87	-46.0%	69.7
4 Artesyn Technologies	ATSN	11.13	9.11	-18.1%	360.3
5 Ballard Power	BLDP	6.58	4.50	-31.6%	554.6
6 Beacon Power	BCON	0.87	4.06	366.7%	177.3
7 C&D Technologies	CHP	16.85	10.07	-40.2%	255.3
8 Capstone Turbine	CPST	1.76	4.60	161.4%	392.7
9 Cherokee International	CHRK	8.90	4.03	-54.7%	77.4
10 Distributed Energy Systems	DESC	2.48	6.37	156.9%	229.0
11 Electro Energy Inc.	EEEI	10.40	4.05	-61.1%	52.2
12 Energy Conversion Devices	ENER	18.68	32.49	73.9%	1,080.0
13 FuelCell Energy	FCEL	9.90	9.54	-3.6%	460.7
14 Hydrogenics	HYGS	4.69	3.63	-22.6%	234.6
15 Intermagnetics General	IMGC	24.83	27.36	10.2%	767.7
16 ITM Power	ITM	1.26	1.65	31.4%	152.6
17 Magnetek	MAG	6.75	2.94	-56.4%	84.0
18 Maxwell Technologies Inc.	MXWL	9.62	13.32	38.5%	210.1
19 Mechanical Technology Incorporated	MKTY	5.92	3.05	-48.5%	93.6
20 Medis Technologies	MDTL	17.78	15.08	-15.2%	411.7
21 PECO II	PIII	1.17	1.21	3.4%	26.1
22 Plug Power	PLUG	5.95	6.25	5.0%	459.1
23 Power-One	PWER	8.65	4.73	-45.3%	400.4
24 Powerwave Technologies	PWAV	8.27	10.56	27.7%	1,052.6
25 SatCon Technology	SATC	1.96	1.66	-15.3%	55.4
26 Turbo Genset	TGN	0.22	0.20	-8.3%	34.7
27 Ultralife Batteries	ULBI	19.05	12.99	-31.8%	187.2
28 Valence Technology	VLNC	3.29	2.95	-10.3%	263.0
29 Vicor Corp	VICR	13.46	15.15	12.6%	634.3
30 Xantrex	XTX	7.93	5.05	-36.3%	139.8
CLEAN TECHNOLOGIES					
31 Azure Dynamics	AZD	\$ 0.83	\$ 0.83	0.0%	\$ 117.9
32 Catalytica Energy Systems	CESI	2.29	1.68	-26.6%	30.2
33 Fuel Tech N.V.	FTEK	4.66	6.95	49.1%	138.6
34 Headwaters	HW	27.35	35.72	30.6%	1,477.4
35 IMPCO Technologies	IMCO	7.35	5.62	-23.5%	160.7
36 KFX, Inc.	KFX	13.63	15.37	12.8%	1,009.8
37 Millennium Cell	MCEL	1.25	2.31	84.8%	98.1
38 Quantum Fuel Systems Tech	QTWW	6.04	4.02	-33.4%	212.1
39 Rentech Inc.	RTK	2.07	2.45	18.4%	229.1
40 Syntroleum Corp.	SYNM	8.75	13.26	51.5%	733.5
41 UQM Technologies	UQM	2.60	3.70	42.4%	85.8
ENERGY EFFICIENCY, INFORMATION, OPTIMIZATION					
42 Allied Motion Technologies	AMOT	\$ 6.95	\$ 4.02	-42.2%	\$ 24.5
43 Badger Meter	BMI	30.10	42.82	42.3%	289.5
44 Echelon Corporation	ELON	8.15	8.36	2.6%	341.0
45 Intergraph Corp	INGR	27.49	40.42	47.0%	1,140.7
46 Itron	ITRI	23.63	47.76	102.1%	1,039.3
RENEWABLE ENERGY					
47 Biofuels Corporation plc	BFC	\$ 2.53	\$ 2.98	17.7%	\$ 134.2
48 Environmental Power Corporation	EPG	6.94	6.20	-10.7%	46.0
49 Evergreen Solar	ESLR	4.17	6.55	57.1%	399.3
50 Gamesa Corp Tecnologica SA	GAM	12.88	14.97	16.2%	3,641.8
51 Ocean Power Technologies	OPT	1.44	1.62	13.0%	83.6
52 Solar Integrated Technologies	SIT	2.30	2.69	17.2%	90.1
53 Spire Corporation	SPIR	4.63	9.75	110.6%	66.9
54 Vestas Wind Systems A/S	VWS	11.40	19.27	69.1%	3,370.5
EXPLORATION & PRODUCTION TECHNOLOGIES					
55 Atwood Oceanics	ATW	\$ 50.00	\$ 69.70	39.4%	\$ 1,062.2
56 Bolt Technology Corp	BTJ	4.90	7.95	62.2%	43.1
57 Compagnie General de Geophysique	GGY	13.60	20.47	50.5%	1,195.7
58 Core Labs Nv	CLB	22.83	29.97	31.3%	781.3
59 Dawson Geophysical	DWSN	19.82	28.91	45.9%	215.1
60 Dril Quip Inc	DRQ	23.38	39.34	68.3%	686.5
61 Englobal Corp	ENG	2.87	6.95	142.2%	163.5
62 Hydrii	HYDL	42.80	61.90	44.6%	1,450.9
63 Input Output Inc	IO	8.40	7.60	-9.5%	597.9
64 Oceanering Intl	OII	35.89	44.00	22.6%	1,142.2
65 Oil States Intl	OIS	18.60	31.50	69.4%	1,572.2
66 Petro Geo Adr New	PGS	20.67	29.19	41.2%	1,751.4
67 R P C Inc	RES	15.75	20.11	27.7%	871.4
68 Tetra Technologies	TTI	18.24	26.25	43.9%	895.0
69 Veritas Dgc Inc	VTS	21.86	31.56	44.4%	1,063.3
	Nasdaq	2152	2130	-1.0%	
	S&P500	1202	1208	0.5%	
	Crude Oil (\$/bbl)	42.1	69.8	65.7%	
	HamiltonClark EnergyTech Index™	130.5	169.1	29.6%	

Generation, Controls and Power Quality



No. of companies 30
 Market cap \$9.4 billion
 YTD total return 15.1%

Clean Technologies



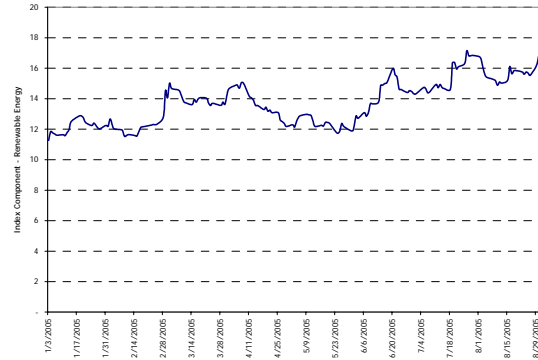
No. of companies 11
 Market cap \$4.3 billion
 YTD total return 25.0%

Energy Intelligence and Optimization



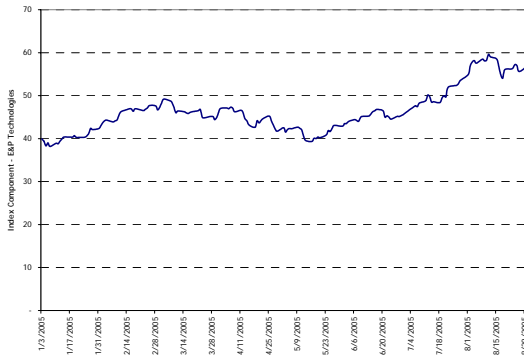
No. of companies 5
 Market cap \$2.8 billion
 YTD total return 21.4%

Renewable Energy



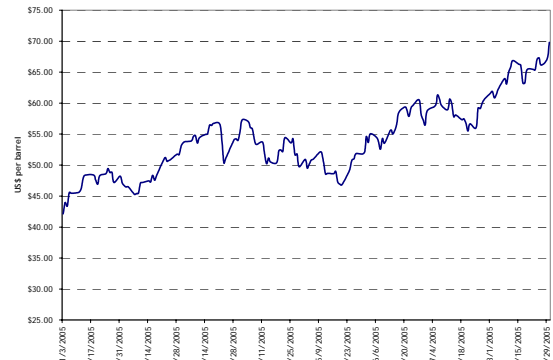
No. of companies 8
 Market cap \$8.2 billion
 YTD total return 48.8%

Exploration and Production Technologies



No. of Companies 15
 Market cap \$13.5 billion
 YTD total return 45.5%

Oil Price



YTD price increase 65.7%

The Money Chase

John J. McKenna with research assistance from J. Andreas Papageorge and Yuk Man Liang

With the help of two summer Associates we have updated our database of energy technology companies in North America and Europe. There should be no surprise about the conclusions. At \$60 per barrel, there are many more firms seeking capital in this sector. But we do not see a corresponding increase in new investment funds for energy technology, other than the Alternative Investment Market (AIM) in London. Funding will be up, but not by the same magnitude as new deal flow will demand. We found some interesting statistics about supply, demand and successful fundraising strategies.

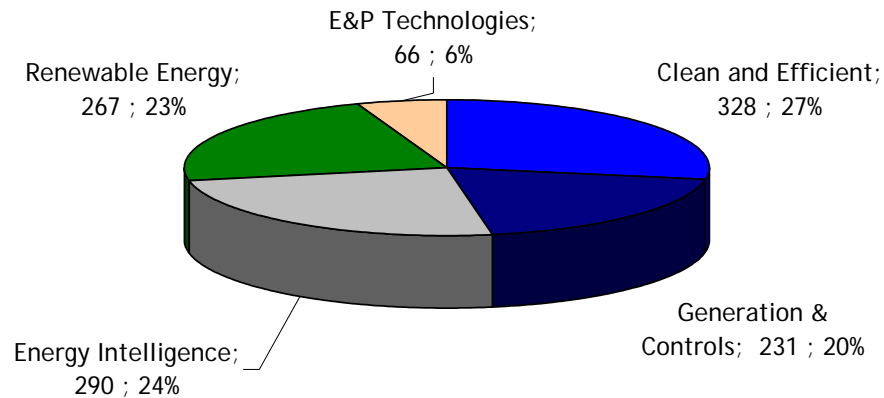
Thank you to the CEOs and CFOs who responded to our phone calls and interviews.

How we organize the HamiltonClark EnergyTech Database™

Renewable & Sustainable Energy (RE)	
Biomass/Biogas	Pyrolysis, thermal, landfill gas, coal bed methane, digesters
Geothermal	Geomagmatic, geothermal
Renewable Energy Project Developer	Project developers
Renewable Energy Services	Systems integrators, service providers
Solar	Photovoltaics, concentrated PV, solar thermal, solar lighting
Hydro	Generating equipment, wave energy, tidal energy
Wind	Wind turbine and ancillary technologies
Clean Energy Technologies (CT)	
Clean Fuels	Methanol, ethanol, clean coal, biodiesel
Pollution Control/Clean Tech	Emissions reduction, low/zero emission combustion
Clean Water, Environmental Services	Environmental services
Energy Efficiency	Efficient lights, motors, chips, HVAC, variable speed drive
Fuel Cells and Related	SOFC, PEM, air mgmt system, stacks
Hydrogen	H2 generation, storage, transportation
Clean Vehicles	Hybrids, clean engines
Recycling	Waste-to-energy
Other CT	Clean technologies not included elsewhere
Power Generation & Power Quality (DQ)	
DG Enabling Technologies	Power electronics, controls, embedded software
Distributed Generation Equipment	Turbines, Stirling, Brayton, IC engines, CHP technologies
DG Services and Developers	Inside-the-fence, energy service companies
Uninterruptible Power Systems	Batteries, flywheels, back-up, power conditioning/quality
Energy Intelligence & Optimization (EI)	
Market-related Software	Energy B2B, marketplaces, trading software, risk mgmt
Customer Relations/Information	Utility CIS, billing, applications service providers
Enterprise Energy Management	Building energy mgmt., DSM, reporting/analysis
Metering, Sub-metering	Meter, sub-meter technologies
Networks/Telecom	Gateway, wireless device, powerline technology
Utility Asset Management	Superconductor, T&D tech, asset optimization
Other EI	Energy intelligence, not included elsewhere
E&P Technologies (EP)	
Exploration Technologies	Seismic/reservoir data, software, geophysical equipment
Asset Management	Sensors, monitors, remote access, data acquisition
E&P Service	Specialty material, motors, generators, pumps, compressors
Alternative Fuel E&P Developer	Unconventional fossil fuel development

Energy Technologies: A Snapshot

Among the approximately 1,200 energy tech companies that we track, about half are focused on intelligent systems, optimization, generation, quality and controls. The other half is focused on clean efficient and renewable energy. A segment breakdown follows:



HamiltonClark EnergyTech Database™

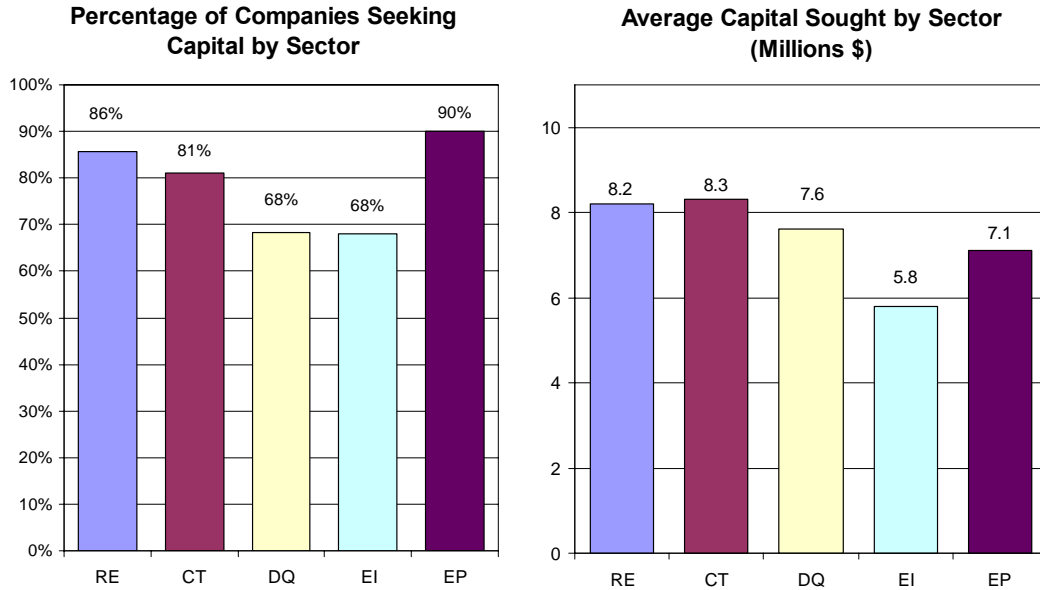
Source: HamiltonClark

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Companies Seeking Capital

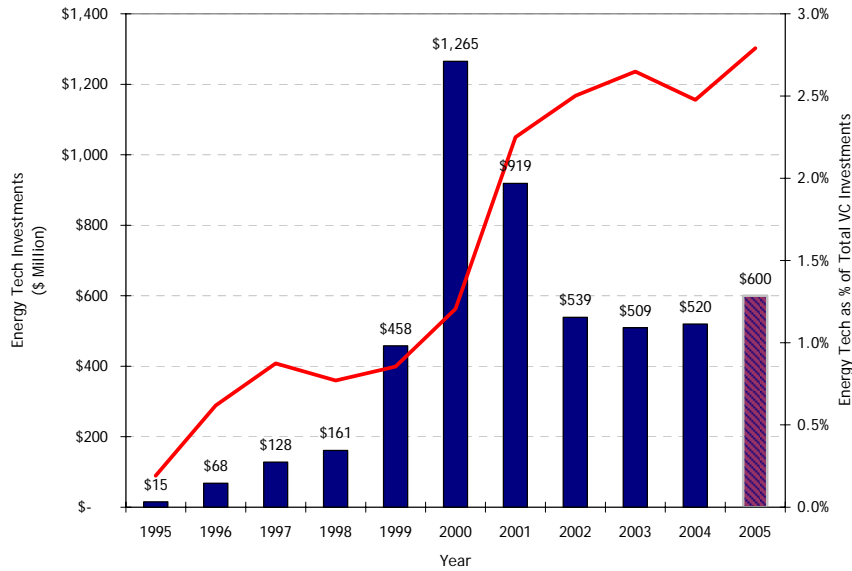
There currently is a large demand for private equity in the energy technology sector. In fact, we estimate that approximately 78% of private energy tech companies are seeking capital. Most of them are either pre-revenue or early revenue companies that are trying to develop their technology and market it effectively to the early adopter customers. These companies were seeking about \$7.4 million on average, with a median of \$5 million. For analysis, we have grouped the companies into our five industry groupings: Renewable & Sustainable Energy (RE), Clean Energy Technologies (CT), Power Generation & Power Quality (DQ), Energy Intelligence & Optimization (EI), and Exploration & Production Technologies (EP).

The companies in the CT sector were attempting to raise the most capital with an average of \$8.3 million per company while the companies in the EI sector were seeking the least amount of capital, with an average of \$5.8 million per company. The developmental stage of a company did not directly affect the amount of capital being sought.



Available Capital

We are forecasting an increase in funding in 2005, due principally from increased oil and gas prices and additional deal flow. AiM will also continue as a source of capital for the business. In total, we project about \$600 of institutional capital plus about \$150 million of AiM funding. Historical and projected capital sourcing are aggregated below.



Source: PwC Money Tree, Nth Power, and HamiltonClark estimates for 2005

Results of Our Annual Interviews

The reaction to certain questions in our interviews often yielded more information than the statistics that accompanied the answer. For example, the question, “Does your company currently have any venture capital investors?” was rarely answered with only a “yes” or a “no”, but also included CEO and CFO opinions about the process of raising capital. With almost

every start-up company, entrepreneurs need capital. But they do not want to lose either their decision making power or a large percentage of their personal ownership in the company. During a number of conversations, CEOs expressed the fear that because many of the new venture capitalists in the industry are just beginning to learn about energy technologies, they often hinder progress or the even the eventual success of the business.

The second dilemma facing CEOs and CFOs is the difficulty in attracting equity investors to first round investments because so much capital is being raised for second and third round investments in existing businesses. Unless the company already has investors or large government grants it is close to impossible to attract high level institutional investors.

The third underlying theme is the frustration felt by most the entrepreneurs in having to simultaneously develop their technology, run their company, and actively search for capital.

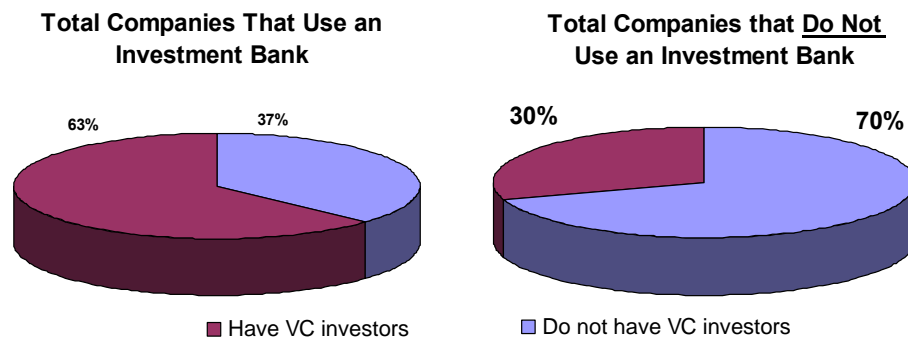
Lastly, CEOs and CFOs indicated that, in their opinion, investors do not always make great decisions about which companies they finance. The company with the best technology was often not the company that received funding, but maybe the company with the best promoter, the right connections, or an investment banker to offer the securities.

Success Strategies

The apprehensions of these entrepreneurs appear to be a function of their personal experiences. However, according to our research, two interesting aspects appear to be prevalent.

First, at the present time 81% of companies who have institutional venture capital investors are currently seeking to raise additional private equity. Therefore, agreeing to terms from a first round investor, in order to position the company for subsequent rounds, is practically a necessity. If you have a reasonable proposal in hand, close it.

Second, 63% of the companies surveyed who had used or are currently using an investment bank, also had venture capital investors. 70% of companies that do not have institutional investors are not using investment bankers. Although it sounds self serving, having an investment banker appears to increase the probability of success.



Conclusion

As we predicted in January, the tide has turned. Now is the time to be aggressive in searching for capital. CEOs and CFOs should not be picky on terms and valuations. Good institutional partners beget additional capital in subsequent rounds. Hiring an investment banker appears to help.

AiM Update

Himesh Dhungel, PhD

Several energy technology companies have successfully raised capital or listed their shares on the Alternative Investment Market (AiM) of the London Stock Exchange in spite of a challenging market for public offerings. We estimate that approximately \$500 million has been raised in the last 24 months and the list of new companies seeking to list on AiM continues to grow. We attribute this growing interest to a number of factors including environment-friendly regulations, excess liquidity, market-friendly financial regulations, and a shortage of higher quality energy tech investment opportunities.

Will this AiM trend continue? Can North American exchanges attract early stage energy tech companies given economic, geopolitical and environmental factors appear to be aligned to support their businesses?

HamiltonClark advises US companies on AiM listings and IPOs.

Energy Technology Companies on AiM

In our previous quarterly report we outlined the reasons behind the success of AiM in attracting small energy technology companies, particularly from the US.

1. European investors are more receptive to renewable and sustainable energy issues than are US investors.
2. Sarbanes-Oxley has increased the cost of small capitalization offerings in the US.
3. There are fewer energy technology companies domiciled in Europe than in the US. In our opinion, less European deal flow has resulted in higher pre-new money valuations on AiM than we have seen in the US private equity market.

These continue to be the major factors influencing US companies to seek financing on AiM. In fact, in the last 12 months 13 energy tech companies have raised approximately \$315 million at a valuation of approximately \$820 million. We know of three new financings (of which two are US-based) that plan to raise in excess of \$350 million. Currently there are seven North American energy tech companies on AiM with total market capitalization of approximately \$470 million.

A listing of energy technology companies on AiM and selected energy tech companies trading on the main board (the London Stock Exchange) are shown in the next page.

Company Name	Domicile	At IPO or Listing		Mkt Cap @	Equity Give-up	Δ in Mkt Cap Since Listing	Sector Comment
		Amount (£MM)	Valuation (£MM)	8/29/05 (£MM)			
Alkane Energy plc	UK	-	£11.0	£36.4	-	231%	Biogas/methane to electricity
Augean	UK	£86.1	£117.9	£111.7	42%	-5%	Environmental controls
Azure Dynamics Corporation ⁽¹⁾	Canada	-	£25.0	£66.5	-	166%	Hybrid electric drive systems
Biofuels Corporation	UK	£15.0	£22.0	£75.9	41%	245%	Biodiesel
Ceres Power Holdings	UK	£22.0	£66.1	£69.1	25%	5%	Solid oxide fuel cells
Clean Diesel Technologies	USA	£3.6	£17.7	£12.6	17%	-29%	Clean diesel catalyst technology
Clipper Windpower ⁽²⁾	USA	£75.0	£180.8	£185.6	29%	3%	Wind turbine and projects
Compact Power Holdings	UK	£10.2	£26.1	£6.1	28%	-77%	Pyrolysis gasification technology
Conder Environmental plc	UK	£3.5	£7.5	£3.3	32%	-56%	Pollution control
Corac Group	UK	£14.4	£77.7	£24.5	16%	-68%	Engineering services
D1 Oils	UK	£13.0	£34.4	£87.0	27%	153%	Bio diesel
Enova Systems Inc.	USA	£11.5	£33.7	£35.7	25%	6%	Hybrid electric and electric vehicles
Gooch & Housego	UK	£5.9	£17.8	£44.4	25%	149%	Acousto-optic for precision instruments
GTL Resources plc	UK	-	£7.2	£5.1	-	-30%	Stranded gas to liquids
Hydro International plc	UK	-	£13.5	£12.8	-	-5%	Storm and waste water management
ITM Power	UK	£10.0	£45.7	£84.5	18%	85%	Polymer PEM fuel cells
Kp Renewables	UK	£3.0	£57.4	£33.8	5%	-41%	Renewable project development
Novera Energy Limited	Australia	£5.3	£31.8	£34.8	14%	9%	Renewable energy
Ocean Power Technologies	USA	£25.0	£62.8	£46.1	28%	-27%	Wave technology
Offshore Hydrocarbon Mapping plc	UK	£15.5	£49.3	£30.0	24%	-39%	Electromagnetics tech for E&P
PM Group	UK	£4.5	£12.5	£27.1	26%	116%	Technologies for commercial vehicles
Polyfuel	USA	£8.0	£23.0	£21.9	26%	-5%	Direct methanol fuel cell
Pursuit Dynamics plc	UK	£4.2	£17.7	£98.2	19%	455%	Engineering services
Questair Technologies	Canada	£6.5	£27.8	£24.8	19%	-11%	Hydrogen and gas purification
Renewable Energy Holdings	UK	£10.0	£14.5	£18.1	41%	25%	Investments in RE tech and projects
Renova Energy plc	UK	£9.1	£18.2	£32.0	33%	76%	Ethanol production and distribution
Rurelec plc	UK	£0.8	£4.8	£6.0	14%	24%	Electricification in remote areas
Solar Integrated Technologies	USA	£12.3	£57.2	£54.4	18%	-5%	PV technology and services
Surface Transforms plc	UK	£1.3	£8.4	£3.8	13%	-54%	Cabron fiber tech for vehicle systems
TEG Environmental plc	UK	£1.9	£8.2	£13.6	19%	66%	Waste reduction technology and service
Titan Europe plc	UK	£33.5	£47.8	£89.8	41%	88%	Vehicle components manufacturer
Torotrak plc (LSE)	UK	-	£294.3	£63.8	-	-78%	CVT/IVT manufacturer
Tricorn Group plc	UK	£1.6	£7.7	£3.3	17%	-57%	Environmental engineering tech service
Turbo Genset (LSE)	UK	£31.3	£555.3	£19.3	5%	-97%	Power conversion and supply equipment
Zytronic	UK	£6.6	£15.5	£28.4	30%	83%	Optical filters technology
Total		£450.7	£2,018.4	£1,510.2	18%	-25%	
Average		£12.2	£61.5	£43.1	24%	-30%	
Median		£8.5	£26.9	£32.0	25%	3%	

Notes:

(1) Azure Dynamics from TSX, converted at £1.00=CDN 2.14

(2) Clipper Windpower was listed on AiM on 12 September 2005. Offering price £1.90 per share. Total shares outstanding 95,178,793. Current market capitalization based on £1.95 per share at 9/16/2005.

Changing Environment

Several new developments have occurred since we wrote our last quarterly report including the passage of a new Energy Bill in the U.S. with \$14 billion worth of programs and the increase in oil price close to \$70 per barrel. We believe that investors will seek to leverage government programs to finance their energy tech investments, although they are generally skeptical of business plans that rely on subsidies and handouts. Notwithstanding the skepticism, we have witnessed renewed activities in the areas of biodiesel, ethanol, hybrid electric technologies and clean coal technologies.

The perennial problem of capital intensity and the requirement for project financing means traditional venture capital sources will continue to look at large project-oriented opportunities with trepidation. Public markets could provide the equity for large projects such as those raised on AiM for biofuel projects. In the last nine months, three energy tech companies have been listed on the American Stock Exchange. Can this be taken as a sign of US investors' willingness to finance early stage energy technology companies? Only time will tell.

Islamic Finance and Private Equity – Oddly Similar

John J. McKenna and John J. McKenna, III

As oil prices have skyrocketed to \$60 a barrel, the magnitude of petrodollars is again back in our psyche. In discussing this recently with my son, a Public Policy and Middle Eastern studies major at Duke University, he let me read an Islamic finance paper he had just written. Likewise, I let him read some of our research regarding the private equity market. We concluded that private equity and shar'ia compliant Islamic finance share similar principles.

Given the close correlation of energy matters to the Middle East, might Islamic finance be a source of equity investment for energy technology entrepreneurs?

What is Islamic Finance and shar'ia Compliance?

While there is no uniform definition of Islamic finance, the State Bank of Pakistan defines it as:

"...consonance with the ethos and value system of Islam and governed, in addition to the conventional good governance and risk management rules, by the principles laid down by Islamic Shar'ia..."

The essential characteristics of Islamic banking are the prohibition of riba (interest) and the minimization of unnecessary gharar (risk). Secondary features, such as distribution of wealth, ethical considerations, and social development, are derived from the rejection of interest as a source of income.

Values pertaining to proper banking principles and procedures are found in the sunnah (description of Quar'anic law) and the shar'ia (recognized law). According to the well known Islamic finance scholars, Tarek S. Zaher and M. Kabir Hassan, the aim of Islamic finance is to "fulfill the teaching of the holy [texts], as opposed to reaping maximum returns on financial assets." However, it is important to recognize that while many Muslims are concerned with socially responsible investing, Islamic legal texts contain no prohibitions on ventures or practices that yield legitimate profits. They establish obligatory provisions to ensure that all parties in a financial transaction share risk and profit or loss of an investment so that neither party receives a predetermined return.

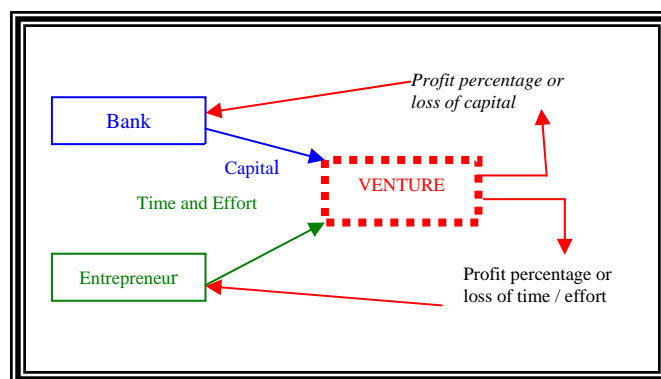
Pivotal to the prohibition of predetermination are the ideals that God is the sole proprietor of possessions and that the individual is not an autonomous entity under the legal system. According to Islamic finance scholars Paul S. Mills and John R. Presley, since all "land and wealth is given in trust by God, the law can uniformly govern how property is to be used". Minimizing or eliminating interest, reducing unnecessary investor risk, and no predetermination of profits, comprise the unique qualities of Islamic finance.

Instead of setting a fixed return on loans, Islamic banks offer depositors a portion of the predetermined percentage of the profits earned by banks from their clients. In this sense, Islamic banks serve as partners with depositors and entrepreneurs instead of borrowers and lenders under the traditional capitalist framework. Essentially, depositors' monies are placed

into a funds pool distributed by the bank, in concert with its shar'ia board, into shar'ia compliant companies and other investments. When investments are made, a predetermined percentage of the profits is contracted with the depositors, with the bank retaining its share of the profits. This is not a reframing of traditional interest because the act of investment requires both parties (the bank and the entrepreneur) to engage in risk. In order to remain competitive with conventional institutions, Islamic banks set profit sharing percentages that reflect current market yields. This system, called Profit-Loss Sharing (PLS) is the cornerstone of nearly all Islamic financial products and practices. There is general consensus among Islamic financial institutions that the two most common types of PLS contracts, *mudarabah* and *musharaka*, represent the most favorable ways of financing.

mudarabah

This is a contract in which one party supplies financial capital and the other party supplies expertise or human capital. The money supplier retains ownership of the business, relinquishing rights to infringe on the business techniques or operations, with the provider of expertise (the agent) managing the venture. However, the money supplier can set stringent guidelines of how capital is to be utilized prior to engaging in the contract. A prearranged percentage profit distribution is agreed and in the event of a loss or a failed venture, the money supplier bears the full financial burden and the agent loses only the effort expended. As a corollary, if the venture fails due to poor management, the agent may be liable for sharing the financial burden with the money supplier.



shar'ia scholars agree that there are no set percentages for profit allocation; the signatories can consent to allocate equally or as they see fit, as long as there is no lump-sum distribution or fixed yield. For example, if the supplier gives 1,000 units to the agent, the parties cannot agree that the money supplier will receive 50 units out of the profit. However, they can agree that the money supplier will receive 60% of the profits and the agent will receive 40%. These proportions can also entail conditionality. For example, the money supplier can dictate that if the business is going to be in location X, it will receive 50% of the profits, and if in location Y, it will receive 70% of the profits.

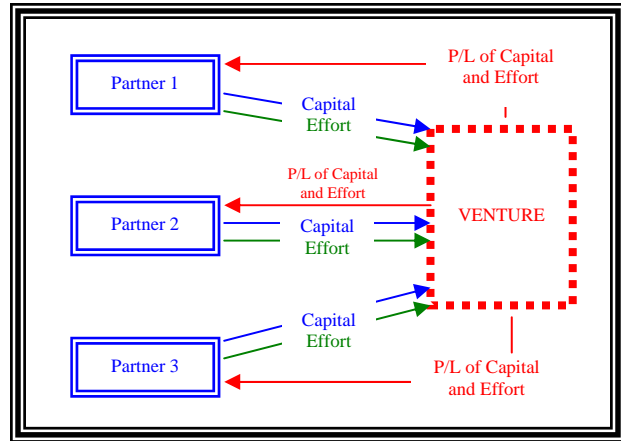
musharaka

In this compact, two or more suppliers of capital work in a partnership contingent upon a pre-negotiated ratio of profits and losses, jointly shouldering financial problems in the event of a project failure. All parties must be capable of making a contract, have free consent to engage, and cannot misrepresent their position. While all parties have a stake in the management of the project, any party can waive the right to participation in favor of any specified person. There are two types of *musharaka* contracts:

- i.) In permanent *musharaka* the pro-rata profit percentage is set and the project continues indefinitely until all parties wish to terminate.
- ii.) In diminishing *musharaka* all parties contribute to the project similar to the permanent model. As the project develops, one party may sell a portion of its equity to another party thereby

decreasing its profit/loss rates. Eventually the diminishing party may sell all their equity, and the investment may fall to zero, ceasing the partnership.

A rate of return must be determined in proportion to profit accrued from the outcome of the venture and not in proportion to capital invested. However, fatwas (interpretations) dictating the proper profit ratios vary. In some instances, shar'ia boards have stated that a partner can only see returns equal to the percentage of capital it has invested; if one party contributes 40% of the startup money, that party must have a 40% share of the profits. Other shar'ia boards explain that as long as the ratio of distribution is mutually agreed, either party can have any share above or below the investment percentage. Conversely, most jurists are in accord that each party in a musharaka contract should suffer losses equal to their investment percentage.



Change in Form, But What about Substance?

Because of their ability to tie risk sharing and reward sharing between transacting parties, *mudarabah* and *musharaka*, are regarded as the most responsible ways to finance. While the principles behind venture capital are by no means operationally identical to these Islamic investment products, connections between the two methodologies can be made.

Private equity relates to the conscious investment of capital in an entrepreneurial enterprise rewarded by a percentage of the profits and capital gains at sale. Private equity generally is not driven by current income, dividends and interest. Principally concerned with the intrinsic value of the business, private equity is used in various forms to develop new products, augment existing capital, and assist in acquisitions or to strengthen a company's balance sheet. Private equity seeks to leverage expertise, solid business management, and an entrepreneurial spirit to seek long term capital gains by investing in illiquid enterprises. Long-term viability assumes primacy over short-term remuneration.

While structure and practice vary to meet specific demand, the venture capital model is one of the more widely used forms of private equity investment. From a pure corporate finance perspective, it carries an inherent belief that management is the primary quality of success. Generally in early-stage venture capital financing, the investor owns the business and the entrepreneur earns a promoted interest in the idea plus stock options for performance. Capital provided by the investor takes the form of convertible preferred stock and includes the option for the holder to convert to common stock after a pre-arranged date, event or valuation has been achieved.

Characteristics shared by *mudarabah* contracts, *musharaka* contracts and venture capital investments include the ingredient that each:

- Embodies a belief in management and long-term success of business
- Requires that investors take an active role to direct the business and help management be successful
- Places the financial responsibility and risk on the investor, who receives a return on investment according to a prearranged percentage of profits negotiated at the time of the investment, or a loss if the business fails

- Allows the financial supplier to establish guidelines on how the capital is to be allocated.

Certainly it is naïve to assume that a typical convertible preferred stock (“CPS”) purchase agreement can be converted into a shar’ia compliant Islamic finance document. But then again let’s look at what might be necessary to make a CPS agreement shar’ia compliant.

- **Valuation.** Not a problem. Company and money supplier agree the percentage of profits and ownership that the money supplier requires based on the perceived risk of the venture. This agreement is documented by the money supplier receiving an agreed percentage of the stock of the business. Initially the money supplier receives this in the form of CPS but really it is in the form of common stock into which the CPS converts.
 - **Use of Proceeds.** Needs to be shar’ia compliant. Energy technology appears to be compliant on its face but would need to pass approval by the shar’ia Board.
 - **Price per Share.** Again not a problem as the price per share is arbitrary and driven by the valuation.
 - **Dividends.** Could be a problem but if dividends are a percentage of profits and not a percentage of the original investment, and the percentage is agreed up front, this may not to be an issue.
 - **Liquidation Preference:** A problem. If the business does not do well then the liquidation preferences would have to be re-written to allow the money supplier to own the business outright and the Company’s other owners to have some percentage in the business if a “liquidation event” were to occur. But isn’t this what usually happens in a broken deal?
 - **Conversion.** Again not a problem because conversion to common stock is merely the scorecard of the profit percentage.
 - **Anti-dilution Adjustments.** A problem but manageable since the original money supplier might agree to put up any additional money required of the business. If it does not then the situation would revert to a potential liquidation and the money supplier owns the business. Therefore, if the money supplier does not want to finance additional capital requirements, a new financing must happen and the terms of the original financing are eclipsed by the terms of the new financing.
 - **Pre-emptive Rights.** Seems very shar’ia compliant to allow the original money supplier the first right to be the new money supplier.
 - **Board of Directors.** Corporate governance by western standards might be overkill for shar’ia compliance but in mudarabah, the money supplier can set stringent guidelines on how the capital can be utilized. This may not be significantly different than most private equity financed board meetings?
 - **Voting Rights.** May not be a problem as the profit percentage needs to be protected through voting rights
 - **Protective provisions.** Not a problem if all the applicable provisions are agreed up front.
-

A Dynamic and Innovative Marketplace

Many of the leading Islamic Banks are domiciled in nations that receive substantial revenues from energy production. It is therefore safe to infer that monies from oil exporting are working their way into Islamic financial institutions. The table below illustrates the magnitude of capital flowing into Muslim dominated OPEC countries as the price of oil has risen from a benchmark of \$30/Bbl to its current price of about \$60/Bbl.

	Barrels per Day (MM) 1Q05	Annual Revenue @\$30/bbl (\$billion)	Annual Revenue @\$60/bbl (\$billion)	Population	Percent Muslim
Algeria	1.76	19.3	38.6	32,531,853	99%
Indonesia	1.08	11.9	23.7	241,973,879	88%
Iran	4.07	44.6	89.2	68,017,860	99%
Iraq	1.90	20.8	41.7	26,074,906	97%
Kuwait	2.48	27.1	54.4	2,335,648	85%
Libya	1.61	17.6	35.2	5,765,563	97%
Nigeria	2.50	27.3	54.6	128,771,988	50%
Qatar	0.84	9.1	18.3	863,051	95%
Saudi Arabia	9.50	104.0	208.1	26,417,599	95%
UAE	2.52	27.6	55.2	2,563,212	76%

It is difficult to determine the aggregate size of Islamic finance due to its global presence in commercial and corporate banking, capital markets, insurance, real estate, and international development. Current size projections estimate the market at between \$300 billion and \$500 billion, growing by 10% to 15% per annum. However, these estimates are only representative of documented commercial banking assets and do not include shar'ia compliant branches of commercial banks, Islamic bond and equity funds, debt offerings, Islamic mortgage finance, and Islamic insurance. Further, government consideration of financial institutions following shar'ia principles reflects a burgeoning demand for religiously motivated banking. It is important to note that the demand is not concentrated solely in Middle East and North Africa ("MENA") countries. 240 recognized Islamic financial institutions can be found in 29 Muslim countries that belong to the Islamic Development Bank and also in 24 non-Muslim countries.

Growth is not expected to diminish due to a number of factors, including:

- Government support to allow Islamic banks should increase product offerings and penetrate new markets
- Higher oil prices should bring more revenue into MENA countries, increasing GDP and personal wealth, which is being channeled through the legitimate financial services sector. As illustrated above, at \$60 per Bbl., the top ten petroleum exporting countries (whose population is predominately Muslim) represent approximately \$600 billion of annual petrodollar inflow.
- Diaspora of Muslims to Western Europe and North America is increasing the demand for banking products in non-Muslim countries
- Increased regulation, supervision, and transparency have bolstered investor confidence and have resulted in Islamic financial institutions becoming more attractive to companies and investors.

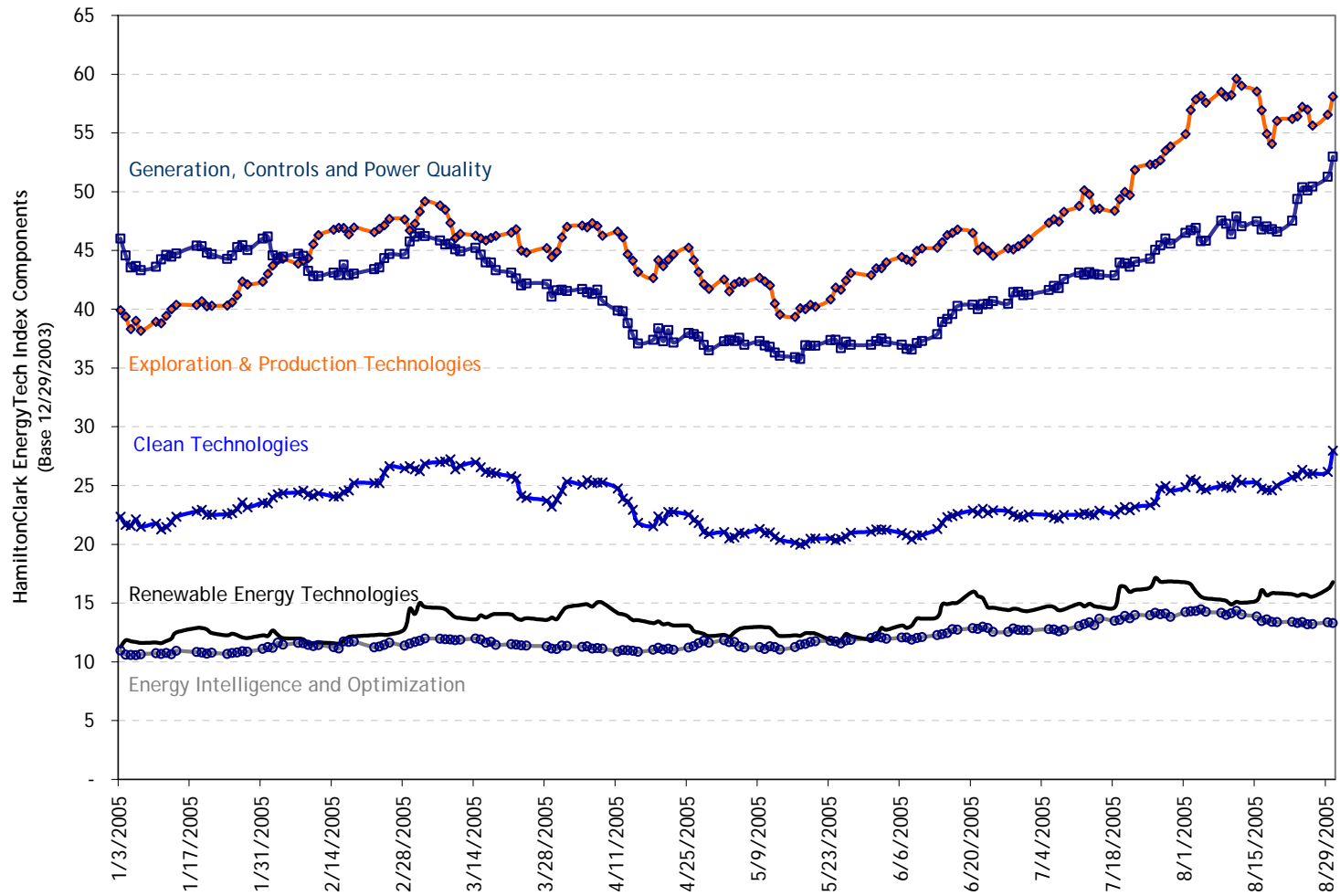
**HamiltonClark Islamic Finance Database
– A Great Place to Look for Energy Technology Financing**

Islamic financial institutions clearly understand the energy business. HamiltonClark has developed a database of 205 Islamic financial institutions that have been cleared through the U.S. Treasury, Office of Foreign Assets Control, Specially Designated Nationals and Blocked Persons List. We believe that many of these institutions would be willing to look at private equity and PIPE financings for energy technology companies.

Sources consulted for this report:

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HamiltonClark EnergyTech Index™ (January to August 2005)



Authors' Certification

We, John J. McKenna and Himesh Dhungel, PhD certify that the views expressed in this report to the best of our knowledge, accurately reflect our personal views about the subject companies and their securities, and that we have not been, are not, and will not be receiving direct or indirect compensation in exchange for expressing the specific recommendations or views in this report.

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