ENVIRONMENTAL BUSINESS JOURNAL®

Strategic Information for a Changing Industry

Volume XXV, Number 10, 2012 | *Consulting & Engineering 2013* | Environmental Business International Inc.

"PRODUCTIVE PARANOIA" FOR C&E SECTOR, OR STEADY AS SHE GOES?

When EBJ last produced our comprehensive review of the U.S. environmental consulting and engineering (C&E) sector a year ago, we wondered whether 2012 would shape up as a "year of living dangerously." The global economy was bruised and cut, but still standing and even with some punch, mostly from the surge in resource development activity in several regions, such as Canada, Australia, Asia, Africa, and Latin America. The C&E industry made all appropriate moves, including acquisition, to follow, as EBJ reported extensively in its Global Markets issue this past summer (Vol. XXV, No. 6/7, 2012).

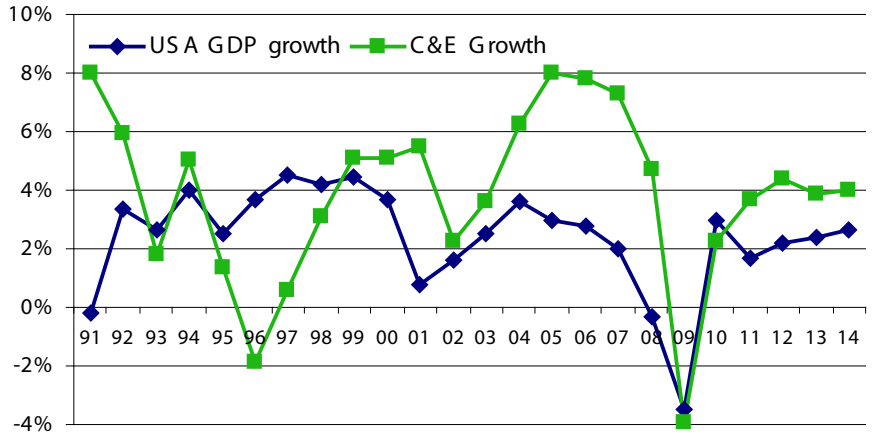
The Eurozone problems were looming, and government budgets on many continents were anything but robust. Yet the energy and power markets in North America were offering substantial opportunity, particularly in the exploration and production (E&P) of unconventional gas, and C&E executives were reporting that their clients across several industry were once again moving to take care of their environmental issues, their property portfolios, and their sustainability strategies.

As 2012 has unfolded, it's been hard to justify either a sense of relief or of greater optimism. The Eurozone problems continued to linger. The European Union (EU) has occasionally lurched ahead with possible accord on solutions, only to fall back again in acrimony among key EU nations, notably deficit-hawk Germany and countries like Greece and Spain, where austerity budgets generate protests. Europe remains one of the more challenging markets for C&E firms as a result.

The resource boom has some cracks in it as well. Although Africa has transitioned from what was once dubbed by *The Economist* as "the hopeless continent" to a region of considerable hope owing to its vast resources, the continent's biggest economy, South Africa, is now going backwards economically and politically, despite its vast mineral wealth. Striking miners have paralyzed the mining industry there, putting a damper on foreign investment. In many other parts of Africa, however, foreign direct investment (FDI) is increasing, leading to large-scale projects and increasingly environmental consulting and engineering work of a legitimate scale too.

China's economic growth is cooling too, and the slowdown is causing reverberations around the world. Anglo-Australian mining giant **BHP Billiton** put millions of dollars in prospective projects on hold, a direct response to lower Chinese demand for commodities. A number of projects by other resource companies have been canceled over the last few months for the same reason, industry executives say. In the big picture, China is moving from a construction economy consuming vast amounts of steel to a consumer economy consuming vast amounts of everything. Common to both, of course, is the need for energy and power, and China's is serving a laboratory of sorts for a number of energy technologies, policies and incentives, even as GDP growth is slowing somewhat from 13-14% in 2006 and 2007 to 9-10% each year from 2008 to 2011.

Growth of U.S. Environmental Consulting & Engineering vs. GDP



Source: Environmental Business International, Inc. annual analysis of C&E markets

Inside EBJ

Gross Revenue Performance of Environmental C&E Firms

	2009	2010	2011
Flat	3%	6%	6%
Growth	43%	67%	75%
Decline	54%	28%	18%
Overall	**-3.9%**	**+2.2%**	**3.6%**

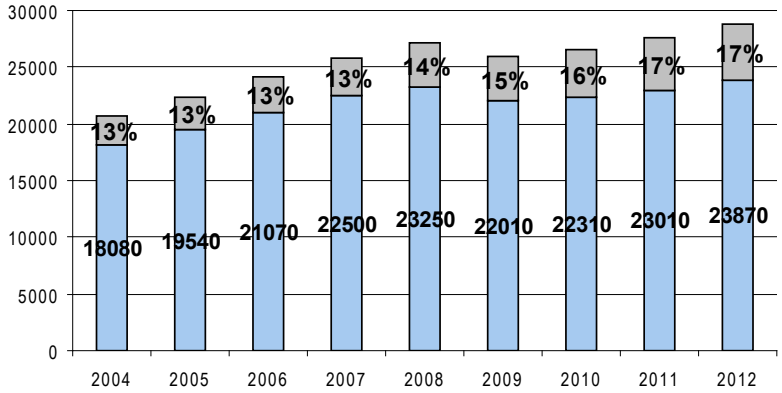
Source: EBJ's database of C&E firms; 634 with revenues reported in 2009 and 2010.

Interestingly, these recent disruptions in what, overall, has been the best market opportunity for global engineering firms has not slowed the pace of acquisitions by those firms in an effort to better serve their global resource clients. In October 2012 alone, there were three major international deals by leading engineering firms seeking to expand their presence in key resource development markets.

Making its second acquisition in Brazil and moving to strengthen its services to the offshore oil & gas industry there, $2.6-billion **Tetra Tech Inc.** (Pasadena, CA) acquired Sao Paolo-based **Applied Science Consoltoria Ltda.** (ASA Brazil), a 50-employee coastal and oceanographic consulting and engineering firm. **SLR Management** (650 employees, based in Oxford, UK) continued its expansion in Australia, acquiring **GSS Environmental,** a 50-employee consulting and project management services firm focused on the mining, land development, and natural resources sectors. And $5.7-billion **WorleyParsons** (North Sydney, Australia) reached an agreement with South Africa-based **Basil Read Holdings** Ltd. under which WorleyParsons will acquire the projects business of Basil Read's wholly owned subsidiary **TWP Holdings Ltd.**, a 1,100-employee provider of design, engineering, procurement, and construction and asset management services primarily to the mining industry, chiefly in South Africa but also in Latin America and Australia.

International acquisition and growth have led to the proportion of U.S. environmental C&E firm revenues coming from international markets growing from 6% in 1994 to 17% in 2011. The growth in non-US revenues has chiefly coming in two eras: The share grew from 6% in 1994 to 13% in 1999 as U.S. C&E market growth stagnated; and then more recently has jumped from 13% in 2007 to 17% today, as again U.S. growth was slower, but more was the appeal of developing and resource-economy markets. Conversely in the periods when the share of domestic revenues of U.S. C&E firms remained relatively the same from 1999-2007, U.S. market growth was much higher, and local markets are understandably less risky and less costly for business development.

Share of International Revenues Derived by U.S. C&E Firms



Source: EBI, Inc. EBJ's annual C&E market model derived from compiled geographic revenue breakdowns

At the same time, foreign ownership and acquisition of U.S. C&E firms continue to grow as firms like **Cardno** and Worley-Parsons from Australia, **Atkins** and **AMEC** from the UK, **Golder**, **Genivar** and **SNC-Lavalin** from Canada, **ARCADIS** and **Antea** from Holland and **Skanska** from Sweden rank in the top 50 U.S. environmental revenue-generating C&E entities (see EBJ annual list with 2011 revenues on p.7). It is increasingly clear that the C&E business is global at the top, but still perhaps refreshingly and reassuringly local at the bottom, where small firms continue to spin off or pop up to meet local or niche needs.

Consolidation continues. Firms generating more than $100 million in environmental C&E revenues have grown from 34% of the U.S. market in EBJ's first comprehensive analysis in 1990 to 64% in 2011 (see table on p. 5). However the share of small firms below $20 million has only fallen from 23% in 1997 to 21% in 2000 and 19% in 2010. Even just the firms below $10 million, of which EBI estimates there are some 3,000, still account for 14% of the market or almost $4 billion in revenues in 2011. This begs the question of what is happening to mid-sized firms, and indeed some are being squeezed, but many have been acquired as well.

Environmental Business Journal ® (ISSN 0145-8611) is published by Environmental Business International, Inc., 4452 Park Blvd., #306, San Diego, CA 92116.

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DATA SUMMARY

The U.S. environmental C&E industry grew 3.6% to $27.57 billion in 2011, according to EBJ analysis. The current estimate for 2012 is 4.4% growth or a steady progression from the nadir of 2009 (see chart on p.1), and two points faster than GDP growth. The current forecast is for 4% growth also in 2013 and 2014, although several firms are a bit more optimistic, as evidenced by EBJ interviews and the annual EFCG survey (see chart on p.4). The C&E market breaks out by media and client as depicted on the accompanying tables, with notable gains in share from the private sector, paced by oil & gas, mining and renewable energy. Slowing government growth is a factor in the share of EBJ's Big 5 C&E firms not increasing in 2011 (see table on p.5).

Other exhibits in this review include the EFCG 'Happiness Quotient' (or the sum of internal growth and profitability) which illustrates the growth cycles, but more importantly the consistently increasing profitability in the C&E industry, as generally firms continue to be better managed and more emphasize profitability above growth.

Market growth is never far from the minds of C&E CEOs, however. Returning to the domestic "uncertainty" theme: In the United States, the tight presidential election was the source of a lot of worry throughout most of 2012—which way will the economy go if President Barack Obama is re-elected or if Mitt Romney succeeds him? Even more unsettling to the C&E community now, however, is the potential impact on federal budgets of the "fiscal cliff"—the "sequestration" legislation that will result in dramatic across-the-board spending cuts, including in Department of Defense (DOD) and Department of Energy (DOE) budgets, at the beginning of 2013 if Congress doesn't come up with a more targeted solution to the deficit problem before then. The bitter partisanship in the current Congress continued to make prospects for such a solution dim even after some post-election conciliatory gestures from both sides.

As 2012 comes to a close, then, there is still plenty to worry about. At the **Environmental Financial Consulting Group**'s (EFCG) CEO conference in New York City in October, one panelist conveyed that the mood among her more than 260 peers at the conference—top executives of environmental and infrastructure C&E firms—was one of "productive paranoia." Concern, if not paranoia entirely, was evident among the seven CEOs serving on the "Large Firm Roundtable" panel at the EFCG conference. John Jumper, CEO of **Science Applications International**

The U.S. Environmental Consulting & Engineering Industry by Media

	2009	2010	2011	2012	2009	2010	2011	2012
Hazardous Waste	3,520	3,560	3,640	3,730	-10%	1%	2%	2%
Remediation	5,140	5,200	5,330	5,480	-4%	1%	2%	3%
Solid Waste	1,470	1,490	1,530	1,580	-7%	1%	3%	3%
Wastewater Treatment	4,800	4,900	5,100	5,350	0%	2%	4%	5%
Water Purif/Delivery	4,430	4,530	4,720	4,950	-1%	2%	4%	5%
Energy Mgmt/Efficiency	580	610	650	700	5%	5%	7%	8%
Air Quality	1,960	2,010	2,100	2,230	-3%	3%	4%	6%
Natural Resources	2,100	2,180	2,270	2,390	-6%	4%	4%	5%
Renewable Energy	800	860	920	990	-12%	8%	7%	8%
Multi-Media	1,220	1,260	1,310	1,380	-4%	3%	4%	5%
Totals	**26,020**	**26,600**	**27,570**	**28,780**	**-4%**	**2%**	**4%**	**4%**

Source: EBI Inc., EBJ's annual C&E market model derived from compiled revenue breakdowns of C&E firms. $mil and % growth.

The U.S. Environmental Consulting & Engineering Industry by Client

	2009	2010	2011	2012	2009	2010	2011	2012
Chemical	1,480	1,550	1,640	1,750	-5%	5%	6%	7%
Petroleum	1,430	1,530	1,660	1,900	-5%	7%	8%	14%
Primary metals	280	290	310	330	-7%	4%	7%	6%
Metals	360	370	390	410	-3%	3%	5%	5%
Mining	530	560	600	660	-5%	6%	7%	10%
Electronics	270	280	300	320	-7%	4%	7%	7%
Transpo (auto/aero)	570	590	620	660	-14%	4%	5%	6%
Pulp & paper	360	360	370	380	-12%	0%	3%	3%
Other Mfgr	590	590	600	620	-5%	2%	4%	4%
Water utilities	890	920	960	1,010	-1%	3%	4%	5%
Power utilities	970	1,010	1,070	1,140	0%	4%	6%	7%
Solid waste util/cos	520	540	570	620	-5%	4%	6%	9%
Gas stations	1,010	1,040	1,080	1,120	-6%	3%	4%	4%
Banks, law, real est	1,050	1,060	1,130	1,210	-17%	1%	7%	7%
Renewable energy	360	380	410	460	-8%	6%	8%	12%
Other	300	320	340	370	-9%	7%	6%	9%
Private Total	**10,970**	**11,390**	**12,050**	**12,960**	**-7%**	**4%**	**6%**	**8%**
Federal	8,470	8,750	9,010	9,250	2%	3%	3%	3%
State	1,620	1,600	1,610	1,630	-8%	-1%	1%	1%
Local	4,960	4,860	4,900	4,940	-6%	-2%	1%	1%
Government Total	**15,050**	**15,210**	**15,520**	**15,820**	**-2%**	**1%**	**2%**	**2%**
C&E Total	**26,020**	**26,600**	**27,570**	**28,780**	**-4%**	**2%**	**4%**	**4%**

Source: Environmental Business International, Inc. EBJ's annual C&E market model derived from compiled revenue breakdowns of C&E firms. Revenue in Smillion and annual growth

Corp. (SAIC; McLean, VA), a major federal contractor, reflected that government sequestration will affect the industry in ways that are hard to anticipate, rippling beyond the impacts on DOD and DOE. "It's the worst form of government imaginable when triggers substitute for debate," he commented, adding that it creates "contract rubble" by making it difficult to execute on projects.

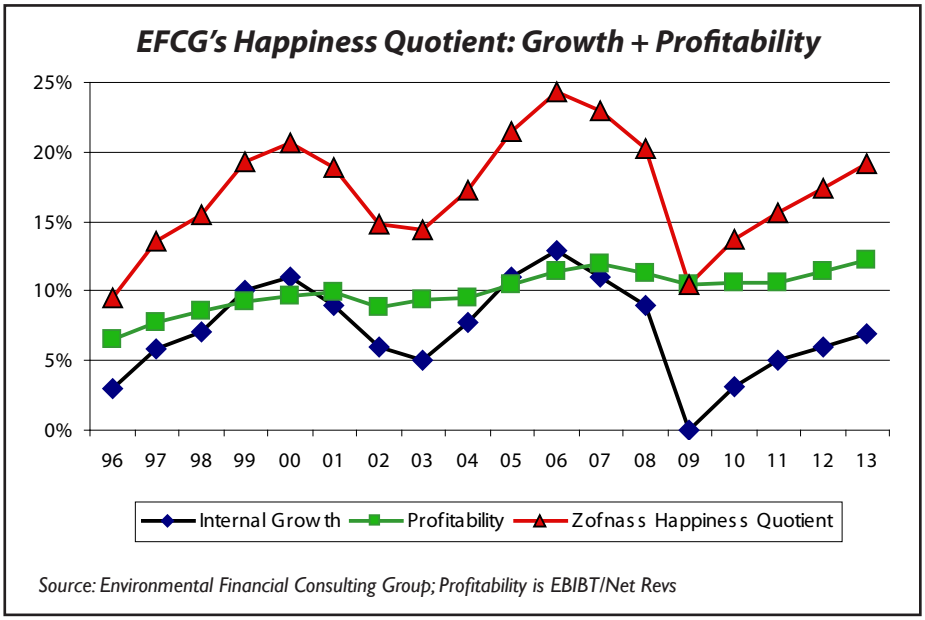
Dan Batrack, Tetra Tech's chairman and CEO, agreed that the fiscal cliff presents a major X factor. "What will happen? We don't know," he said, emphasizing the need for firms to hone their ability to adapt.

Craig Martin, CEO of **Jacobs Engineering Group** (Pasadena, CA), observed that his firm had not initially seen "the scale of cutbacks I now think we will see." Reflecting the "productive" in "productive paranoia," however, he declared that Jacobs will continue to focus on taking market share and on "how much better we can be, not how much tougher it will be."

Observing that controlling the federal deficit is the new norm in Washington, D.C. George Pierson, CEO of **Parsons Brinckerhoff** (New York, N.Y.) noted that companies have to sharpen their pencils, "but you're always doing that. You have to look beyond delivering a project to delivering a solution."

Other key issues identified by the panelists included talent management and retention. "One of our challenges is not only retention, but having the right talent in the right place at the right time," said Pierson. "We advertise global expertise, and our clients say, `great; bring that here.'"

Safety on the job has also risen to the top as a CEO challenge, several panelists remarked. "If it's not your first priority, it's not a priority at all," said Jacobs' Martin, who added that safety is no less of a concern to more consulting-oriented firms than to more construction-oriented companies. Lee McIntire, CEO of **CH2M HILL** (Denver, CO), agreed, emphasizing not only worker safety but also project quality. "I worry about not spending enough time on quality," he said, echoing the sentiments of other leaders whose business objectives almost certainly push them to squeeze as much out of their project managers as they can with an almost inevitable impact on quality.



Source: Environmental Financial Consulting Group; Profitability is EBIBT/Net Revs

EFCG RESULTS

Despite these worries, the financial data indicates that, for the C&E industry, 2012 wasn't such a bad year—or indeed, not a bad year at all. For the 210 CEOs responding to EFCG's 2012 Engineering/Consulting CEO Survey—the firm's 23rd annual such survey—median internal revenue growth for their firms is projected to be about 6% for 2012, exactly what the respondents to the 2011 survey had projected one year earlier. Profitability—earnings before interest, benefits and taxes (EBIBT) divided by net revenue—is expected to be at a median of 11.4%, only slightly less than the 11.5% that the 2011 survey respondents had projected for 2012. Even more impressive than the medians may be the distribution of fortunes. Only 33 of the responding firms are projecting revenue declines for 2012, while 20 expect to grow by 20% or better. In terms of profitability, one firm is expecting to report a loss, three to break even, and 32 to enjoy profitability better than 20%.

For 2013, this year's survey respondents were characteristically upbeat about their own firms' prospects. They are projecting a median of 6.9% internal growth in revenue and profitability of 12.2%. Of the respondents, 24 firms were "mega-majors" with annual revenue of greater than $1 billion, 24 were "mini-majors" with revenue in the range of $250 million to $1 billion, 28 were "micro-majors" with revenue in the range of $100 million to $250 million, 79 were mid-size firms with revenue from $25 million to $100 million, and 55 were small firms with annual revenue of less than $25 million.

The 2012 revenue of all EFCG respondent firms totaled about $90 billion. Only 24 of the firms are publicly traded or owned by publicly traded firms, 11 are owned by private-equity firms, and the remainder are privately held in one form or another, with 46 having employee stock ownership plans (ESOPs).

Of the total 2012 revenue projected by the surveyed firms, 16% was derived from "traditional environmental" work, 17% from transportation work, 15% from energy-related work, 11% from water and wastewater, and the remainder from 10 other categories. Within the traditional environmental category, the largest share still comes from hazardous waste (21%), followed by site assessment (13%), natural resources (13%), permitting (9%), studies (8%), nuclear (8%), and the rest distributed among nine other categories.

Reflecting a large contingent of non-U.S. firms represented in the survey—and at the conference—revenue by client was distributed as follows: U.S. state and municipal government, 23%; U.S. federal government, 17%; U.S. private sector, 17%; non-U.S. private sector, 28%; and non-U.S. government, 15%. The high attendance by non-U.S. firms confirms the general observation that there is a significant number of companies from outside the United States, such as Australia's **Cardno** and WorleyParsons, the U.K.'s SLR Management, and Canada's **SNC-Lavalin** and **Genivar**, that see the U.S. market as important to their global ambitions. In this vein, it's worth noting that one of the largest deals of the year was Genivar's purchase of the larger, U.K.-based **WSP Group**.

The revenue and profitability figures and the large volume of the other data generated by the EFCG survey paints a very positive picture of the industry, according to EFCG President Paul Zofnass. Profitability north of 12% for 2013 would be an all-time high, he pointed out during the conference. One reason is likely the broad availability of benchmarking metrics to an industry that is now mature and much more sophisticated in its business management, he suggested.

The environmental and infrastructure C&E business is also an industry "that doesn't contract," he noted. "What other industry does that?" Looking back, EFCG data show that the industry has outperformed U.S. and global growth in gross domestic product (GDP) in all but four of the last 21 years—a finding consistent with EBJ's own plot of growth in the environmental C&E sector (see chart on p.1).

It's a great industry, and a vital one if the world is going to develop in a sustainable manner, Zofnass believes, but success for individual firms is by no means guaranteed. A look at the top firms today compared with 15 or even 10 years shows a lot of changes, with many names missing.

There are common attributes to the firms that survive and thrive, he noted. One is consistent profitability, which creates value, and another is strong organic growth, even at a time when mergers and acquisitions (M&A) activity is at or near historic levels (see feature starting on p.8 of this issue).

Large firms will, of course, have to engage in M&A, because their competitors are, and full-service capability and geographic presence "makes customers more comfortable," he said. "If you take the specialty route, you had better be *very* good at it, and make sure that the specialty will be around in the future."

U.S. Environmental Consulting & Engineering Firms in 2011

Size	Firms	Gross Env'l C&E Revs	Average	Net Env'l C&E Revs	% of Mkt	% of Gross
L>$100 mil	45	20,307	451	17,261	62.6%	64.4%
Mid 20-100	126	5,370	43	4,780	17.3%	17.0%
S 10-20	128	1,883	14.7	1,751	6.4%	6.0%
S 5-10	185	1,393	7.5	1,310	4.7%	4.4%
S 1-5	503	1,504	3.0	1,429	5.2%	4.8%
S <1 mil	2,361	1,072	0.5	1,039	3.8%	3.4%
Total	**3,348**	**31,529**	**9.4**	**27,570**	**100%**	**100%**

Consolidation of U.S. C&E Industry 1990-2011

	Firms $100m+	Gross Revs $mil	C&E ind $bil	% of Mkt	Avg Rev of 100m+
1990	23	4,190	12.5	34%	182
1995	32	7,694	15.5	50%	240
2000	27	9,626	17.4	55%	357
2005	38	13,896	22.4	62%	366
2009	44	18,157	26.0	65%	413
2010	45	19,438	26.6	64%	432
2011	45	20,307	27.6	64%	451

Source: Environmental Business Journal's annual model of the U.S. environmental consulting & engineering industry. Revenues listed are gross revenues for environmental consulting & engineering only (note total gross revenues exceed market size expressed in net revenues). Based on annual surveys of C&E firms by EBJ, compiled revenue data derived from various sources including ENR, ZweigWhite, EFCG, public company data and others.

Top 5 U.S. Environmental C&E Firms

	1995	2000	2005	2010	2011
CH2M Hill	704	1,383	1,880	2,200	2,399
AECOM	30	355	778	1,768	1,807
URS Corp	85	768	1,024	1,461	1,494
Tetra Tech	109	466	930	1,414	1,406
ARCADIS USA	129	154	450	1,143	1,136
Total C&E	15,490	17,420	22,350	26,600	27,570
Big 5	1,057	3,126	5,062	7,987	8,241
Big 5 Share	7%	18%	23%	30%	30%
Big 10	2,256	4,645	7,590	11,765	12,083
Big 10 Share	15%	27%	34%	44%	44%

Source: EBJ database of C&E firms: Second 5 are MWH, SAIC, ERM, Golder, Battelle

Other attributes include access to capital, appropriate capital flows, and sound balance sheet management. More important, however, is efficiency—"in a Darwinian world, efficiency is the ultimate differentiator," said Zofnass—and leadership. "Dysfunctional decision-making syndrome, or 'DDS,' is deadly," he noted. "Some CEOs need a crisis to make a decision; that's not good. A CEO needs to be a consensus maker, not a consensus taker."

MARKET A MIXED BAG

C&E CEOs contacted by EBJ report a flat overall U.S. market and, for those operating internationally, more opportunity globally. In addition to the concerns about federal budgets, the executives find a mixed bag in other U.S. market segments. Energy and power are solid, for renewable energy as well as for oil & gas and electric utilities, but the state and municipal marketplace suffers from budget issues. "That market will come back," says Hisham Mahmoud, president of **AMEC Environment & Infrastructure** (E&I; Alpharetta, GA). "The demand is there."

Chris Vincze, chairman and CEO of **TRC Companies Inc.** (Lowell, MA), is seeing considerable strength in the energy and power marketplace. "Our power delivery and transmission distribution services segment has been without a doubt a high-growth market, and continues to be," he tells EBJ. "We're continuing our expansions with utilities across the U.S. In transmission/distribution, utilities are continuing their capital spend over the next few years and looking at a solid decade of growth." By comparison, the remediation and brownfields redevelopment markets have not yet returned to pre-recession levels of activity, Vincze observes. Sites are being assessed and teed up for conversion, but the partnerships just aren't there in any great numbers to push through the redevelopment process.

George Bevan, president of **Shaw Environmental & Infrastructure** (Baton Rouge, LA and in the process of being acquired by Chicago Bridge & Iron), is actually upbeat about the outlook for federal contracting opportunities. He's expecting $1 billion in Air Force spending on remediation projects next year, and he's also looking forward to another round of base closures. What does concern him is the federal government's growing preference for small businesses participation and even lead roles on contracting opportunities. A number of small firms working for DOD also report positives about federal budget issues as it leads to more outsourcing.

Median Growth & Profitability in Engineering/Consulting Firms

	Internal Revenue Growth				Margin*
	2011	**2012**	**2013**	**3-Year Average**	**3-Year Average**
By Size					
>1 Billion	4.0	6.0	5.0	5.0	11.2
250 - 1 Billion	2.3	6.3	7.1	5.2	11.0
100-250 Mill	5.0	4.0	5.0	4.7	10.9
25 - 100 Million	5.1	7.5	6.8	6.5	11.7
<25 Million	7.0	9.5	10.0	8.8	11.3
By Market					
Environmental	5.7	6.3	8.4	6.8	12.5
Transportation	-1.4	5.0	5.0	2.9	9.1
Water/Wastewater	2.5	2.0	5.0	3.2	11.2
Geo-Environmental	6.0	5.2	6.0	5.7	10.5
Buildings	12.5	7.5	5.0	8.3	15.4
Power	9.4	8.9	7.0	8.4	17.4
Survey/Plan/Devl	9.5	14.8	10.7	11.7	13.6
By Major Client					
Private	7.8	9.5	8.7	8.7	13.6
Federal	6.7	6.0	4.4	5.7	10.0
State/Municipal	2.0	4.9	5.0	4.0	8.9
By Ownership					
Employee	5.7	6.3	7.3	6.4	11.6
ESOP	4.6	5.2	6.1	5.3	9.7
Non-ESOP	6.9	7.6	7.9	7.5	12.8
Private Equity	1.6	5.6	5.0	4.1	10.7
Public	5.0	5.5	8.0	6.2	17.1
All E/C Firms	**5.0**	**6.0**	**6.9**	**6.0**	**11.5**

*Source: Environmental Financial Consulting Group, Results of the 2012 EFCG Engineering/Consulting Confidential Survey, * Operating margin is EBIBT/Net Revenues*

TALENT STILL TOP CONCERN

For industry CEOs, finding and keeping the best talent remains a top-tier challenge. "The need did not go away with the recession," says Robert Graziano of **Graziano & Partners** (Kingwood, TX), a professional recruitment firm focused on the environmental, engineering, and energy industries.

Indeed, the resource boom has exacerbated the problem to some extent, as service providers are finding that their clients are seeking the same engineering expertise—especially electrical, mechanical, and process engineers, which are still part of any full-service environmental and infrastructure C&E team—and are often able to pay a premium for them.

That delta matters as the resource companies pursue development opportunities in increasingly out-of-the-way, extreme, and hazardous environments, like offshore beyond the continental shelf, or in the Arctic. "Some of the engineers in Alaska are obtaining high-end premium rates," says Graziano. "Companies are making it sweet to go there. The oil & gas companies

are giving people living allowances and bonuses to move them up there."

This demand level might give the impression that it's a merry-go-round of engineer movement out there. There are some factors, however, that are mitigating that movement. For one, "there is more pressure on managers today to do more work with fewer people," says Graziano. C&E firms "are flattening their processes so they don't have as many management layers—first, to focus on serving clients, and second, to focus on improving margins. That's how they are going to get that 10 or 11%" benchmark or beyond.

For another, the recession has left professionals a bit more cautious about picking up stakes and moving, despite some attractive offers. "There is concern on the part of candidates about changing jobs, or going from one company to another," notes Graziano. "They're saying, 'I've got a job, I know what I can do, and I'm comfortable with it. I don't know that I'm ready to jump at something that may look attractive, but that may end up not being as much of an opportunity as it appeared.' People are still a bit nervous about the economy."

Everybody is a bit nervous about the economy and the shape of any U.S. industrial recovery. Yet perhaps CEOs are just a little more confident in their own abilities to manage their way through. If some of the factors that are beyond their control fall into place, 2013 may hold a lot of promise. □

Source: Environmental Business International Inc. (San Diego, CA), Environmental Business Journal & EBI Report 725. Figures in EBJ's list of top ranked C&E firms are revenues in $ million generated for calendar year 2011 in gross environmental consulting & engineering (C&E) not including construction and remediation construction, but including project management/construction management. Environmental construction (air, waste, water), remediation construction and federal waste management or contracting services are counted in the middle column labeled Env'l Cont/HW.This list is a result of independent research and EBI surveys. In some cases, revenues are approximations derived from executives, analysts and reputable business information sources and published materials. Although EBI has made every reasonable effort to be accurate, figures are not the result of internal or external audits and are not guaranteed to be accurate. Errors and omissions are unintentional. EBJ's database of C&E firms includes revenues on more than 800 firms.

Top Environmental Consulting & Engineering Firms in 2011

Company	Gross Revenues	Env'l Cont/HW	Env'l C&E
CH2M Hill Inc.	6,855	1,714	2,399
AECOM Technology Corp	8,212	-	1,807
URS Corporation	9,631	2,359	1,494
Tetra Tech Inc.	2,570	907	1,406
ARCADIS USA Inc.	1,495	70	1,136
Battelle Memorial Institute	5,527	-	995
Golder Associates Corp.	1,267	55	925
MWH Global	1,481	558	864
ERM	771	-	771
SAIC	10,357	-	621
CDM Smith	1,201	431	530
HDR Inc.	1,706	304	429
Cardno Ltd.	870	40	392
ICF International	836	-	359
Black & Veatch Corp.	2,583	492	335
WorleyParsons	5,746	120	287
ENVIRON Holdings Inc.	283	-	283
The Louis Berger Group Inc	1,130	190	273
Conestoga-Rovers & Associates	410	68	272
Brown and Caldwell	270	-	270
Parsons	2,488	479	262
Jacobs Engineering Group	10,382	320	261
Bechtel Group Inc.	32,448	2,337	259
AMEC Environment & Infrastructure	5,249	635	257
Stantec Consulting Inc.	1,700	425	255
Los Alamos Technical Assoc.	238	-	221
Shaw Group	5,883	1,314	216
Bowen Engineering	224	-	213
Fluor Corp.	23,290	963	201
Kleinfelder Inc.	288	-	185
Ecology & Environment Inc.	169	-	169
TRC Companies Inc.	380	50	167
Weston Solutions Inc.	512	215	164
Hazen and Sawyer	164	-	164
GeoSyntec Consultants, Inc.	182	-	164
SM Stoller	161	-	161
WSP Envt & Energy (GENIVAR in '12)	146	-	146
Carollo Engineers	146	-	146
Michael Baker Corp.	610	-	140
SCS Engineers	153	12	136
Groundwater & Environmental Svcs	131	-	131
Hatch Mott MacDonald	440	-	119
Gannett Fleming, Inc.	292	-	114
Antea Group USA (former Delta)	2,400	-	106
Woodard & Curran	120	-	104
Terracon Consultants, Inc.	367	-	99
Skanska Inc.	4,811	385	96
Versar Inc	138	-	90
North Wind Inc	99	-	87
O'Brien & Gere Engineers, Inc.	185	-	87
Parsons Brinkerhoff Inc	3,088	239	84
ATC Associates (acq'd by Cardno)	-	-	82
Burns & McDonnell	1,420	74	82
EA Engineering Science and Tech.	96	-	82
Safety & Ecology Corp	81	-	78
Greeley & Hansen	75	-	75
HNTB Corp.	934	-	75
Haley & Aldrich Inc	106	-	74
Bureau Veritas	307	-	74
Roux Associates Inc.	72	-	72

M&A ACTIVITY AT PEAK LEVELS, WITH ACTION BY LARGE AND SMALL FIRMS

After a dip in merger and acquisition (M&A) activity in the environmental and infrastructure consulting and engineering (C&E) industry in 2009, deal counts rebounded in 2010 and 2011 back towards the peak years of 2007 and 2008, if somewhat short of that level. In 2012, the impulse to grow through combination with other firms has not abated, with deal flow projected to be in line with the 2010 and 2011 numbers, given the pace that the industry was on as the fourth quarter began. If executives in the industry are to be believed, the M&A activity in 2013 could surpass that of 2008.

"Deal flow is as high as ever," says Andrej Avelini, managing director of the **Environmental Financial Consulting Group** (EFCG, New York, NY), a financial consulting and M&A advisory firm serving the C&E industry. "There doesn't seem to be an end to the activity, and if anything, I see it accelerating over the last three to four months as people look to get their transactions completed before tax uncertainty following year end."

In EFCG's 2012 survey of 210 CEOs of environmental and infrastructure C&E firms, released in October, 67 of the responding executives said that their firms had completed or would complete a total of 160 deals by the end of 2012. (See chart on following page: The 210 firms represented in the survey included companies ranging from less than $25 million to more than $1 billion in annual revenue—55 firms in the former category and 24 in the latter—and accounted for a total of about $90 billion in gross revenue).

Within that group, 82 executives said that they expect their firms to undertake 186 deals in 2013—right up there with the 67 firms that completed 185 transactions in 2007 and the 58 firms that completed 180 transactions in 2008. Moreover, in the 2012, 95 executives expressed a need to undertake acquisitions, and 12 said they were considering a merger or a sale.

M&A ACTIVITY GROWS OVERSEAS, AND VICE VERSA

Steve Gido in the Washington, DC, office of financial advisory services firm **Rusk O'Brien Gido + Partners** (Maynard, MA), also sees deal flow increasing in the environmental consulting industry. Looking at his records of the architectural, engineering (A/E), and environmental consulting sector, he sees M&A activity up about 14% through the first 10 months of 2012 (see chart on p.9). There haven't been many deals on the architecture side, he points out, so the 14% is roughly representative of what's going on among environmental consulting firms.

Gido affirms what EBJ has seen—considerable two-way flow in deals among U.S. and non-U.S. firms at the larger end of the industry. "You have a lot of the publicly traded environmental engineering firms—Tetra Tech, AECOM, Jacobs Engineering Group—continuing to explore more acquisitions overseas.

"It's a tale of two M&A markets," he adds, "The U.S. market is flat and consistent with slow growth and a cautious environment for expansion. The overseas markets are still high on the lists of where firms want to grow, and it's hard to do that through organic means."

As EBJ reported in its edition focused on global environmental markets earlier this year (Vol. XXV, No. 6/7), much of this acquisition activity is centered on the need to add geographic coverage and service capacity to better serve the resource extraction industries, such as mining and oil & gas, which have been booming in places like Canada, Australia, Africa, and Latin America in recent years. That resource development activity has stumbled of late—for example, mining firm **BHP Billiton** recently announced the suspension of major projects in Australia, tied directly to the slump in China's economy—but the pressure on the C&E industry to expand through acquisition has shown no signs of letting up.

In the other direction, non-U.S. firms like Australia's **Cardno Ltd.** and Britain's **AMEC plc** have significantly increased their presence in the United States through acquisition. AMEC acquired **MACTEC** in June 2011 to significantly expand its **AMEC Environment & Infrastructure** (E&I; Alpharetta, GA) operation, while Cardno has made a series of acquisitions over the past few years—**EM-Assist**, **Marshall Miller & Associates** and **ATC Associates** in 2012, **Tec, Inc.** in 2011, and **ENTRIX**, **Environmental Resolutions**, and **JFNew** in 2010—to establish a major U.S. presence and taking its U.S. environmental C&E revenues from about $100 million in 2009 to almost $400 million in 2011 and likely a run rate of over $500 million in 2012.

Canadian firm **Genivar Inc.** (Montreal, Quebec) has been very active in expanding its U.S. and global presence through acquisition—also driven to no small extent by the need to better serve the resource sector—and completed one of the largest deals of the year, combining its 5,500-person operation with the much larger, 9,000-employee **WSP Group plc** (London, U.K.). Other pickups in 2012 by Genivar included **Consultores Regionales Asociados S.A.S.** (Colombia), **GRB Engineering Ltd.** (Alberta), and **Smith Carter Architects and Engineers** (Manitoba).

Edmonton-based **Stantec**, one of the most aggressive acquirers over the last two decades in the architecture, environmental, and infrastructure C&E sectors, continues to acquire at much the same pace to strengthen its North American presence. It's most recent environmental purchase of significant size was the 2011 pickup of **Bonestroo Inc.** (St. Paul, MN), a 275-employee engineering, planning, and environmental science firm with 11 offices in Minnesota, Wisconsin, Illinois, Michigan, and North Dakota. More recently, in June 2012, Stantec signed a letter of intent to acquire Calgary-based **Cimarron Engineering Ltd.**, a 290-person engineering consulting company specializing in the development, design, installation, and integrity maintenance of oil & gas pipeline systems and station facilities—once again reflecting the trend towards better serving the extractive industries.

Along the same lines, but on a somewhat larger scale: **URS Corp.**'s (San Francisco, CA) acquisition in early 2012 of Calgary-based oil field services firm **Flint Energy Services Ltd.**, and the sale of **The Shaw Group Inc.** (Baton Rouge, LA) to **Chicago Bridge & Iron Co.** (CB&I; Chicago, IL)—reportedly at a 70% premium over Shaw's market value—in a deal that was still pending as of December 2012.

According to Gido, the deals of these sizes indicate that "there's greater business confidence in the economy and willingness to take more risk... It feels like the market is more global in nature," he continues. "It's a small world after all, and as the world becomes smaller, more and more companies feel comfortable doing deals across time zones." He adds there's little activity in the more traditional environmental areas, such as land development, transportation, and water. "Those firms are somewhat picked over; now it's more in energy production and infrastructure, and I don't see that slowing down."

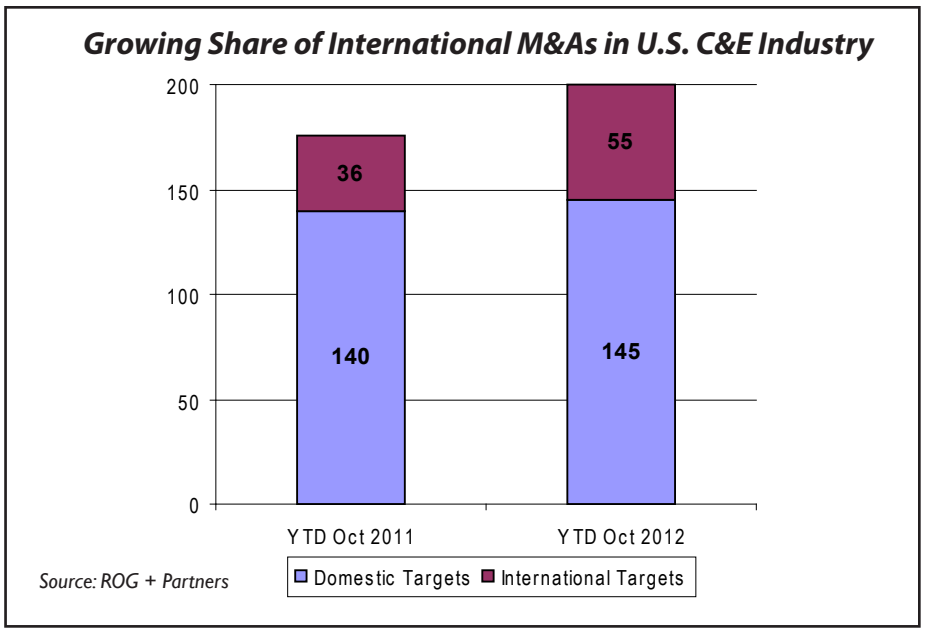
For buyers in today's market, acquisition can also be a quicker way to grow in an economic environment of 1 to 2% growth in gross domestic product (GDP). "Some buyers are looking at M&A as a pronounced way to extend their growth in a much slower economy, because internal means are not as viable as they were a few years ago," says Gido.

WHY SELL?

So why are sellers selling? For a variety of reasons. "Some of these firms in some of the hotter sectors, whether it's energy, water, or power and utilities, ride the ups and downs in the cycle, and some of them see that it's a good time in the cycle to evaluate an exit strategy," Gido observes. Some, of course, are selling for the same reason the buyers are buying—to better serve clients in these hot-growth extractive industries.

Other firms, perhaps at the smaller end of the range, are facing ownership transition issues, and selling may be the best exit strategy available. Or it may not be available at all.

"The last three years have not been top-notch financial performing years for some of these companies, and it's hard to go out to market with a low-growth or low-profit story," says Gido. "The recovery is a ways off, and they can't sell the company; the valuation isn't there, or the market appetite isn't there. So some people may be saying, maybe I should be hanging in there for a few more years." Other analysts and advisors report the major stumbling block to small companies getting more involved is an over-inflated view of their own value based on either hearsay, one signature deal or multiples on companies sold that were ten or a hundred times their size. It is also clear that the buyers have continued to grow increasingly sophisticated in both approach and valuation.



Many of the firms that have been doing deals are large publicly traded companies, and one factor that has changed in the M&A landscape in recent years is a decrease in the stock values of these companies. One question is, will this decrease narrow the arbitrage between those valuations and the valuations of selling companies, to the point that deal flow might slow? It's hard to know the answer right now, but probably not, according to executives whose firms are active in M&A. The ultimate value of a combination is strategic, they suggest, and the valuation reflected on the dotted line in the transaction papers, while certainly not incidental, is subordinate to that strategic purpose.

Public market valuations in the environmental and infrastructure C&E industry had been at the levels of 19X after-tax earnings, or 12X earnings before interest and taxes (EBIT), but for the past four years, the level has been closer to 8 to 9X EBIT, according to EFCG's Avelini. That change potentially sets a new standard for what a publicly traded firm can pay for another firm, but the lower public valuations have not yet impacted M&A valuations, he suggests.

Avelini also feels that M&A valuations are unlikely to decline, because transaction rationale should be driven by long-term strategic synergies derived from carefully orchestrated and integrated acquisitions, rather than short-term "financial engineering" dependent on the valuation arbitrage. Furthermore, he notes, the vast majority of significant C&E firms do not need to sell, as most have more cash than debt, due to lower growth and high profitability in recent years. There is thus no financial impetus to sell and thus most will hold out for the right "value proposition."

In addition, from the buyers' perspective, Avelini points to the current track record of acquisitions being perceived as very good (88% of about 700 transactions over the last five years have been rated "successful" by CEO's in EFCG's most recent survey). With that kind of track record, most buyer CEOs find that acquisitions are the most effective vehicle for maintaining and improving their firms' relative size, so if they need to pay a premium for the right firm, they will do so.

Finally, Avelini sees more buyers than sellers in the market, making it somewhat of a "seller's market" at the moment, further suggesting that high valuations are here to stay.

CEOs serving on an M&A panel at EFCG's CEO conference in New York City this past October similarly indicated that lower buyer valuations may be the new way of things, but it's just changing the calculations rather than standing in the way of deal making. "We'd all like to see higher valuations, but we can't control that," said Stantec CEO Robert Gomes. He later added, "I don't think we worry about arbitrage. Multiples are gut checks, but valuations are way more complex. You're truly making one plus one equal three." In the end, "our trading multiple isn't relevant. What's relevant is what we're going to do together."

Dickerson Wright, CEO of 450-person **NV5** (Hollywood, FL) pointed out that trillions of dollars are sitting on the sidelines in today's marketplace, money will find the highest returns, "and we're in a stable business." Hisham Mahmoud, president of AMEC E&I, noted that stock prices constantly fluctuate, making it hard to gauge valuations and deal multiples. "Markets will do what they do," he said. "The key is recognition by investors that we are stable, well-managed, and have a compelling story."

Another trend noted by Avelini is the tendency for the larger sellers to obtain bigger multiples of earnings in their deal valuations than the smaller sellers. "It's not unusual to see a 15 to 30% premium for the larger firm," he tells EBJ.

Why is this the case? Part of the reasoning may be that, since you go through the same process in getting to "yes" with a smaller firm as with a larger firm, why not pay the premium for a firm that might provide more of what you need strategically? "The bigger acquisitions move the needle more," says Avelini.

In still another trend, Avelini sees "a lot of mid-size buyers that were not traditional buyers in the past becoming more and more acquisitive." In addition, they are tending to be "more competitive for the $5 million, $10 million, and $15 million firms." Those firms may not be seen by the bigger, $1 billion-plus firms as adding the market clout they're seeking, so the mid-size firms that value themselves more conservatively, for ownership transition purposes or for whatever reason, can step in and make the case for a combination on strategic fit and culture. Of course, many other factors are behind this trend, Avelini advises.

One trend to look for is the "merger of equals," he adds. These are deals that might be stock-for-stock mergers between employee-owned companies of roughly equal size—perhaps in the $200 million to $300 million revenue range—that believe they can compete more effectively if they combine, he explains. The founders and principals are not interested in cashing out—it's not an exit strategy for aging baby boomers, even if some principals may elect to retire—but rather "want to position themselves for success—by diversifying, adding alternative delivery capability, or new geography, and so forth," says Avelini. "They see the trends in the marketplace, and they believe that, to be more successful, they need to be part of an organization with greater reach."

"It's not unusual to see a 15-30% premium on multiple of earnings for the larger firm."

There aren't many deals that have been done to date on that basis in the environmental and infrastructure C&E industry, Avelini is quick to point out. "The biggest drawback is that such deals are complicated. It's a lot easier to write a big check, and clearer in that case who's making the decisions. Lots of that goes on, and it will continue." Yet the conditions for more merger-of-equals-type deals may be taking shape.

STANTEC: PROCESSES IN PLACE

In the meantime, the aggressive acquirers like Stantec, AECOM Technology, and Tetra Tech continue their arms race for competitive advantage. Noting that his company has been in the M&A game for a couple of decades—making more than 80 acquisitions over that time—Bjorn Morisbak, Stantec's vice president of acquisitions and strategic planning, explains the rationale behind the strategy.

"Our goal is to build a better firm, and with better comes bigger," he tells EBJ, quickly adding, "I want to stress that it is in that order. We want to offer more services in more geographic locations to meet our clients' needs. Clients really want sole-source services and multi-disciplinary services as well. That's something we really strive to do.... We've got a clear and deliberate strategy in terms of meeting those client demands. So we're very much part of that consolidation trend, and we want to achieve more geographic coverage, strengthen the service portfolio we offer, and gain more technical depth."

Diversifying its service portfolio is partly a risk management strategy, he adds. "Markets are up and down in terms of industries and geographies. Diversification has allowed us to achieve consistent performance. Over the past few years, the environmental side of our business has really grown, adding a lot of capacity up to the last few years. We've also been strong in the urban land market, which has taken a hit, but it's something we've brought to a stable level, and we're well-positioned for when it does come back."

Morisbak puts the 2012 acquisition of Cimarron Engineering in this framework. "We've always had a strong presence in Alberta, but we haven't been strong in oil & gas there," he says. "Now we have the engineering capabilities on the oil & gas and pipeline side, whereas we've always had strength in environmental."

With two decades of experience in M&A, Stantec has established firm procedures for executing transactions, but "we're also sensitive and flexible to building the right kind of structure to meet everybody's needs," says Morisbak. Whereas some buyers will use earnouts to provide the right type of incentive structure in some cases, Stantec is not a fan. "We're a company that fully integrates operations—one brand, one business systems platform," said Morisbak.

"We also have a very focused, one-team collaborative approach, focusing on cross-selling. Once you toss an earnout into that mix, it can really serve as an impediment to achieving your objectives. We prefer to come to fair, agreeable, commercial terms, and then work together going forward."

NV5: THE INTEGRATOR ADDS PARTNERS NOT EMPLOYEES

On a less aggressive pace of acquisition than Stantec but no less deliberate in its aims, NV5, a provider of professional and technical, engineering, consulting, and certification services to the infrastructure, construction, real estate, and environmental markets, is using acquisition to help build up the five vertically integrated segments of its business. "Growing through M&A is a significant part of our strategy," says CEO Wright. "I call us an integrator, because we try to do strategic acquisitions, and we try to put our template and structure to support the target company, and the target has to be something we can grow organically."

NV5's most recent acquisition, completed in August 2012, was **Kaderabek Co.** (KACO; Miami, FL), a 30-person consulting and engineering firm specializing in geotechnical engineering, foundation engineering, engineering geology and hydrogeology, drilling, construction observation, and materials testing. KACO has worked on a number of high-profile public and private projects, such as the Miami Art Museum, the Florida Marlins' baseball stadium, and the Brickell Citi Center, and it has long-term contracts with Miami-Dade County, the city of Miami, and the Florida Department of Transportation. Wright describes the firm as strengthening its presence in southern Florida, making it a geographic pickup as well as a boost to the NV5 construction service vertical.

"KACO is a well-known company," Wright says. "We've been watching it for some time," he adds, noting that NV5 was not KACO's only suitor.

Emphasizing that his firm is looking for partners, and not just employees, Wright points out that NV5's deals generally involve a combination of cash and stock. "Usually, closely held companies have a

M&A Activity Means Architecture, Engineering and Construction Industry Headed Towards "Consilience"

The elevated level of merger and acquisition (M&A) activity in the architecture, engineering, and construction (AEC) industry may be a sign of deeper changes in underlying economic forces. Client needs always drive competitive moves like an acquisition, but clients' compelling need for greater collaboration among service providers in today's world may be pushing the AEC industry towards a level of convergence that won't be reversed. So suggest Steve Isaacs and Philip Warner of **FMI**, a provider of management consulting, investment banking, and research services to the engineering and construction industry. In the third quarter 2012 issue of FMI's Engineering and Technical Professional Services Industry Update, Isaacs and Warner borrow an idea from biologist E.O. Wilson, who argued in a 1998 book that science may be headed towards "consilience"—a period of growing unification of knowledge across traditional disciplines. The same type of consilience may be happening in the AEC industry. Architecture, engineering, and construction companies are moving across their traditional boundaries to combine and thereby better serve their clients. "Indications of consilience in the construction industry can be seen in the rising variety of construction delivery methods from design-bid-build to design-build, construction management coming together as an increasing move to program management, and the most recent entrant, integrated project delivery or IPD," Isaacs and Warner write.

The fundamental driver for this movement, they argue, is the fact that clients, more than ever, are demanding that their AEC vendors collaborate on projects, and such collaboration is what alternative delivery affords. "FMI has surveyed owners for many years, and one of the standout requirements mentioned by owners has been the increasing need for greater collaboration between all those involved on the project."

Collaboration, the authors continue, is the avenue to reaching several specific objectives for clients' projects in today's marketplace: single-source accountability; sustainability and long-term operational efficiency; reduced conflicts, which result in lawsuits and delays; greater depth of expertise; improved productivity through reduced duplication and wasted time; high quality and safety; and an optimal combination of low price with best value. A trend towards more and more "mega-projects" exceeding $100 million, $500 million, or even $1 billion in value is another factor driving consolidation. Yet projects don't have to be "mega" level to be complex, or to have requirements that demand a high level of collaboration by the service providers. "Owner requirements combined with regulatory requirements often necessitate that providers of design and construction services have a wide range of expertise, either on staff or through partnerships," Isaacs and Warner write. "There is something of a consilience needed in AEC firms where design and engineering are informed by social and environmental concerns, and building designs are affected by climates, not only today's climate, but the projected possible climate 30 years from now."

These drivers compel consilience, but AEC firms need enablers to allow them to deliver. The big enabler, Isaacs and Warner suggest, is technology. Specifically, building information modeling (BIM), smart building technologies, project tracking software, digital communication systems like smartphones and tablet computers, and globally integrated project management systems top the list of technologies that are allowing AEC firms to seamlessly combine their capabilities, across geographies as well as across disciplines.

One outcome of this industry consolidation, the authors conclude, may be a growing divergence of firms by size. While they don't claim their analysis to be definitive, "there does appear to be some greater division between larger firms and smaller firms at this time, and there is a good case that market forces could widen the gap between larger and smaller firms in the near future."

natural maturity," he explains. "They are founded by an entrepreneur, and he reaches a transition period with good young managers coming up who want to have a piece of the equity in the firm, so the struggle is for the founder to drive equity to these people. Establishing an employee stock ownership plan (ESOP) is one way, but usually there's a disconnect on the valuation.

"What we like to do is something that satisfies both parties and strengthens the company that is being integrated into our company," Wright continues. "The owner would get a significant amount of cash and stock, and those people who were really good but maybe didn't have a lot of equity, we give them restricted stock. We have a significant amount of restricted stock to use as part of the transaction. That's how we make sure we're aligned not only with the founding seller but with the key people in the organization."

NV5's plan is to undertake an initial public offering (IPO), perhaps as early as the first half of 2013. Ensuring that it can keep the people it brings on board means having a reliable way of valuing the company, and "we think that a public valuation is better for the purpose of commonality of valuation," says Wright. "We don't have to get into outside valuation, because every day the public values the stock, and that's easily understood by the people in the organization and in the companies we plan to acquire."

Recognizing that stock markets go up and down—and that the Facebook IPO "didn't help anyone"—Wright sees a market that is coming back, "but there's still not a lot of overall liquidity" right now. In terms of timing, "it would be better to hit our operating objectives this year and then be in a situation to look at an IPO opportunity in the first quarter of next year."

CHA: TESTING FOREIGN WATERS

CHA Consulting Inc. (Albany, NY), a 1,250-employee C&E firm serving the transportation, environmental, power and energy, manufacturing, campus and institutional, and select "emerging markets" such as sports and rail, is another company incorporating M&A as a core element of its growth strategy. "Right now, our focus is two-fold: supplement our skill sets so we can offer more services to existing clients, and acquire firms that increase the client list," says CEO Raymond Rudolph. In short, "we're looking to go wider and deeper."

Typically, "when we're looking at companies that help us increase the client base, generally that's by looking at new geographies," Rudolph tells EBJ. A deal completed in June 2012 reflected that pattern.

The acquisition of **RW Armstrong** (Indianapolis, IN), a 450-person firm multidisciplinary engineering firm, "brought a nice geographic spread for us," says Rudolph. Domestically, RW Armstrong moved CHA westward into a triangle roughly encompassing Indianapolis to Tampa to Texas. It also has a presence in the Middle East/North Africa (MENA) region and in Guam.

"We're looking at companies that help us increase the client base... generally that's by looking at new geographies."

The international expansion is new, and interestingly, some of the appetite for such expansion came from the company's prior pickup of the power design firm **Gryphon International Engineering Services** (St. Catherines, Ontario). While crossing the border into Canada wasn't a big international move, in Rudolph's view, it did introduce new human resources, logistical, and other issues that are different from what the company experiences in the United States. "It allowed us to start thinking about the issues we'd face when we start to expand globally," he notes.

GZA: PATIENCE AND PERSISTENCE

For every Stantec that's acquiring at a breakneck pace or NV5 or CHA that's made M&A an essential element of the growth strategy, there are many firms that will take a more conservative approach to acquiring, doing perhaps a deal a year and patiently integrating the selling company to build a stronger presence in a market or a geography before venturing out to the M&A arena again. It's not that these firms are opportunistic—in the sense that a target came along that was too good to pass up, although that happens. It is often a matter of needing to enter a hot market or geography and recognizing that organic expansion won't fit the bill.

Seeing the boom in unconventional gas exploration and production in the Marcellus Shale region of the Northeast and recognizing that it has a suite of environmental services that could be applied there with some help, **GZA GeoEnvironmental Inc.** (Norwood, MA) in June 2012 acquired the **Palmerton Group** (East Syracuse, NY), an environmental consulting company serving the oil & gas industry from offices in New York and Pennsylvania.

"For the last two to three years, we've been trying to find a way to get into the Marcellus and other shale plays," says William Beloff, GZA's president and CEO. "We looked at strategic hires to do that, and lo and behold, we found Palmerton, which had a significant contract with a major oil company. They were looking for a bigger partner to serve them and then to expand into the larger industry. So it's an excellent strategic fit, in both directions."

Palmerton brought on board upwards of 25 people that substantially augmented GZA's capabilities in supporting the development of pipelines and electric transmission lines, Beloff says. And while he insists that GZA is very safety conscious, Palmerton "gave us a safety program that was up to the standards of that industry, which are very stringent. It would have taken us a long time to build that capability on our own, and that maybe why we had trouble cracking that market."

Beloff says that GZA is constantly looking for M&A opportunities, evaluating about 20 per year. "There are lots of firms that would like to become part of a broader-based, successful firm like GZA, but the market is tough on these smaller firms. If you have fewer than 50 people, you're too busy or too slow, serving a very hot market or a very slow market. You don't have

the diversification. A firm of our size and geographic footprint provides us with a lot of strength. So we look for firms that help extend the capabilities we have or establish a new geographic footprint."

STANLEY: BUILDING SECTOR STRENGTH

Another company looking to build a bigger presence in what it sees as a solid growth sector is **Stanley Consultants** (Muscatine, IA), a 1,200-employee C&E firm specializing in transportation, water and wastewater management, water resources, and energy. Acquisition is part of the firm's strategic plan, although the deals it's done have been small, tuck-in types of pickups, says Gayle Roberts, president and CEO of the soon-to-be 100-year-old firm.

"We've been looking for the last several years for a firm that will expand our water/wastewater capabilities, as everybody is," she tells EBJ. "We want to create a business unit dedicated to water/wastewater, so that's been our key M&A target."

In addition to adding geographical reach and service expansion, "we want the acquisition to be an important part of the business—not to just be consumed and lose its identity," Roberts says. "We have a much different culture than the large publicly traded companies, and we're looking to take the seller's best practices and give them a lot of say in their future. We want them to help us become the leaders in the water area."

Perhaps the biggest challenge that Stanley faces in undertaking such an acquisition is one that's not unfamiliar to privately held firms of Stanley's size. The firm, while not an ESOP, is employee-owned, and its valuation has to reflect a balance of purposes that can constrain the ability to acquire, according to Roberts.

"A few years ago, we went away from book value and are more market-based now, using a formula value backed with an appraisal," she says. "That's a challenge, because you want to be able to maintain the ability to facilitate internal ownership transition and ensure the young people coming in are able to acquire the stock. Yet for the purposes of an acquisition, you're probably paying a higher value for the seller than the value you place on your own company in terms of multiple of earnings. So there's a bit of arbitrage there. The key is finding the synergies in the merged firm that create long-term value."

Picking up companies whose valuations aren't so high is possible, but caution is required. Some buyers absolutely won't touch sellers who are under-performing. Others will, depending on the situation. The acquisition could be the catalyst for the selling firm to execute the last step in the turnaround, or the seller could simply be deficient in one area—less profitability than desired, for example—while matching up well with the buyer's needs in services, geography, mission, and culture. But understand thoroughly the reasons for the under-performance before jumping into a deal, executives advise.

Some buyers won't touch sellers who are under-performing. Others will.

S&ME: AFTER THE TALENT

Randy Neuhaus, CEO of 1,000-employee engineering firm **S&ME Inc.** (Raleigh, NC), knew what he was getting into when the company acquired **QORE Property Sciences** (Atlanta, GA) in 2010. QORE was on the brink of bankruptcy, but Neuhaus saw good talent, service line matchup, geographical fit, and cultural compatibility and was confident that his team's ability to manage could overcome QORE's under-performance.

Neuhaus was happy with the deal when EBJ spoke to him in mid-2011 (Vol. XXIV, No. 5, 2011), and he still is today. "It continues to be a very positive acquisition for us. We've done some consolidating where we had some overlap, and we've completed that process."

Through acquisition, S&ME has been aiming to move outside of its historic roots in the Southeast, and in October 2011, it made its first such move, acquiring the assets of **BBC&M Engineering** (Dublin, OH), a 75-person civil engineering firm specializing in geotechnical engineering, geo-design, environmental engineering, materials testing, and construction observation services.

"That deal expanded us into the Midwest," says Neuhaus. In addition, "it brought in some design services for us. They had some civil and 'geo-design' capabilities in earthen structures such as ash ponds, landfills, and up-ground reservoirs."

Reflecting the importance of good leadership, with a particular nod to BBC&M CEO Steve Pasternack, Neuhaus said that the two organizations were able to begin sharing technical resources very quickly. "It's what you want to happen, but I think it happened more rapidly than I've seen in the past," he says. "We brought capabilities that they were quickly able to take to the marketplace. Their leadership was very engaged in expanding their capabilities."

Acquisition is still part of S&ME's strategy going forward, with an eye towards adding "more high-end environmental or design-related services," says Neuhaus, characterizing "high-end environmental" as encompassing water/wastewater and resource management. S&ME is one of the many firms that isn't dedicating a specific individual to the M&A function. "Our leadership always is on the lookout, and then pushes up possible opportunities to me," Neuhaus notes.

SELLER EXPECTATIONS GETTING OUT OF HAND?

The executives contacted by EBJ note that sellers' expectations have shifted a bit over the years, owing to a number of factors, such as the rampant buyer activity and the recession. Looking back at the run-up to 2008, Stantec's Morisbak recalls a very hot M&A climate—"you almost couldn't go wrong"—but seller expectations may have "started to get out of hand" even as the recession unfolded in 2009. That year "was a sobering process."

"We saw a lot of potential transactions on the table at that time go on hold. As a buyer, we took a little bit of a break to see what the environment looked like, and I think that was true across the industry.

"The drivers didn't really go away, however, and there's been some pent-up demand. A lot of firms have to go through succession processes, and to go through some pain dealing with the economic realities. And there's a wide range of ways in which people have weathered the storm. We're thus seeing a wider range in performance and a bit of a wider range in terms of expectations with regard to purchase price." Morisbak doesn't think the expectations have come down much for the very, very good firms. "The pipeline of potential candidates is as full as ever, and for the second half of this year, it's as active as I've ever seen in it."

NV5's Wright sees sellers as more sophisticated as the environmental and infrastructure C&E market has matured. "There's much more information available on valuations of companies in our service business, and there are many, many more M&A representatives for these companies," he observes. "This has driven a higher valuation expectation from the seller."

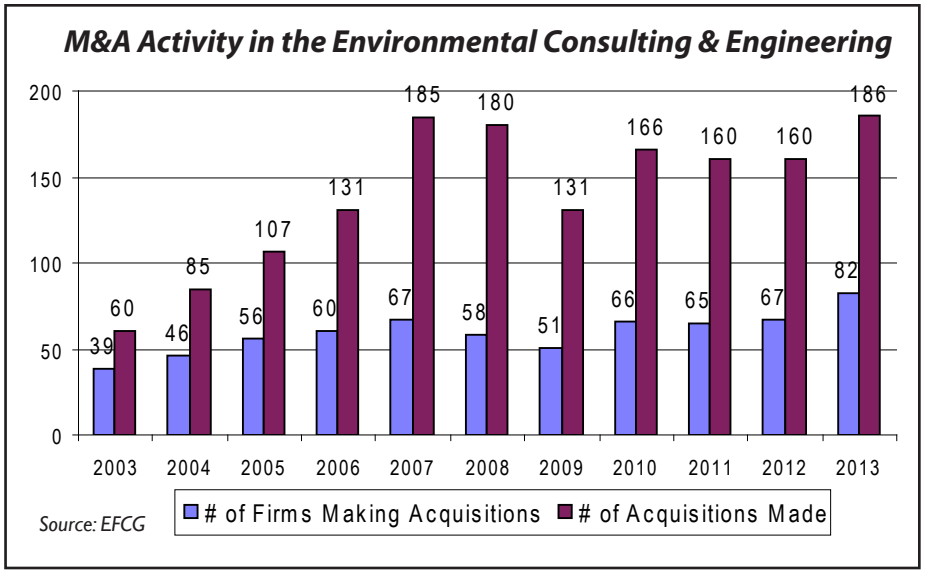
CHA's Rudolph agrees. "The industry is mature enough to establish benchmarks to inform opinions. That leads to more stringent demands."

That's just the way it is in today's market, S&ME's Neuhaus remarks, and it's far from an insurmountable situation. "If the seller is an educated seller, the market pretty well defines the value of firms. It's not hard to get to the right valuation. Where there may be the gap is where the combination contributes to your strategy, and how you put a number on that."

Making more stringent demands also doesn't mean that sellers are getting them. Other pressures—the need for ownership transition, the threat of loss of market share as the competitors get bigger, etc.—can drive the seller to the table and, as usually happens in negotiations, make some compromises.

"We see a number of small to mid-size firms who will find it difficult to compete in the years to come," notes Rudolph. "They're seeing the need and desire to align themselves with bigger companies." He adds, "we don't see an absence of targets."

There's certainly more pain in today's market, and "a lot of small firms are looking for stability," says GZA's Beloff. "They're not looking for a big windfall in terms of cash for the owners. They are looking towards being part of a larger organization for stability." While the larger firms are buying larger companies and can do deals at big multiples of trailing earnings, he adds, "we do them on a projection of what future earnings will be. And typically, the sellers remain with GZA, because it's a career move for them."



LESSONS LEARNED: BOTH SIDES HAVE TO SELL

So on the consolidation goes, apparently at high levels of activity for the foreseeable future. What has the industry, so much more mature now than it was 20 or even 10 years ago, learned about mergers and acquisitions along the way?

"I think the most important thing is being able to have open conversations about why you would want to get together, on both sides," says Stanley Consultants' Roberts. "It's about really understanding the aspirations of the other firm—and not just the top leadership, but the next tier. I've always felt that these conversations start at the highest management levels, and if you can get to that next tier and see what their aspirations are, and if you can provide those things, that's critically important."

"You have to have an integration plan before you do the acquisition," says GZA's Beloff. "You can't go the other way around. You have to know who will be in charge, what the roles will be, what the pricing philosophy is going to be. You can't plan enough ahead of time."

Indeed, he stresses, "more time goes into the integration plan than goes into the commercial terms of the transaction. When I bring one of these potential acquisitions to the board for approval, I know the board has confidence that the business people will come up with a financial deal. So 80% of the discussion is about the personnel issues and the integration plan. If you don't have a good integration plan, run from it, because somewhere there will be a surprise."

CHA's Rudolph quips that the M&A process is "like a hunter getting a bear. Our M&A team can get the bear in the cabin, and then everyone else has to figure how to skin it. And the bear is still alive. There's far more effort and time in making the assemblage of the parts work."

Even a very experienced firm like Stantec knows that no two deal negotiations are alike. "We have pretty good processes established, but, we treat every discussion as unique," says Morisbak. "It's a people business, and we're very cautious to stay away from any cookie-cutter approach." He adds, "the thing we really, really focus on is the right cultural fit. If you don't have that, it's hard to make up for it in any other way."

Everybody agrees about the importance culture. Getting them to define it clearly is another matter, but there, too, some

concrete ideas have developed over time. To NV5's Wright, culture begins with having a strategy and vision for growing the company—in his firm's case, reaching $300 million in revenue in a fairly short term—and "the company we acquire has to share that vision.

"We're measured by organic growth and bottom-line profit," he continues. "Many companies don't share that view—they're 'life-style' companies. We're looking for companies that want to grow in the upper 25% quartile, and be profitable in the upper 25% quartile. Those that view their firms as life-style companies, versus those that want to grow and have their growth measured by objective standards, are not the best fit."

To S&ME's Neuhaus, culture is a function of how the combining companies "approach their clients and projects. Are they business-minded as well as professional-minded? I think that if they are used to focusing on the business part of it, that aligns better with a larger firm, whereas if they are a smaller firm, they may be challenged by the business metrics. We can bring those metrics to the table, and that's an adjustment for them. They just need to have a clear understanding of what the changes are going in."

CHA's Rudolph emphasizes that "our primary goal is to deliver great projects to great clients, but at the end of the day, we have to have a business that is sustainable financially." Ultimately, however, the business is all about people, and about their growth, and any firm planning to join CHA has to be on board with that vision.

"In some companies, the staff are used to being directed somewhat heavy-handedly," Rudolph concludes. "We're a company that's way more about personal empowerment, so we want companies with people who are comfortable in that situation."

Perhaps that's the essential conundrum about culture—empowerment versus full integration. The two aims are far from contradictory, but how it all balances out depends on the attitudes of the two parties to the deal. As many executives tell EBJ, sometimes you just know the first time you sit down together. □

FOUNDER OF 2020 ENVIRONMENTAL GROUP SEES POSITIVES FOR BOTH BUYERS AND SELLERS IN M&A

Al Spiers is the founder and CEO of 2020 Environmental Group. Prior to 2020, Al was SVP Managing Director for ENTRIX, where in five years he doubled ENTRIX's West operations and positioned the firm for sale by its private equity owners to Cardno in 2010. Al has been in the environmental industry since the mid 70s, working on projects around the world and serving as Corporate VP, Strategic Development for URS/Dames & Moore among other positions. 2020 Environmental Group is a management consulting firm aimed at helping environmental businesses expand into new markets, improve financial performance, pursue mergers and acquisitions, or create strategic growth and shareholder value. Founded in San Francisco in 2010, 2020 Environmental Group and its partners have built a growing portfolio of small, mid-size and global environmental company clients across the U.S., and has served as the M&A advisors on 12 buy- and sell-side transactions with a total enterprise value exceeding $100 million.

EBJ: How's the environment for sellers?

Al Spiers: The seller's market continues to be robust, but with a particular new emphasis on smaller size environmental firms ($2-$20 million revenue). This trend is being driven by the fact that most middle market companies ($35-$100 million revenue) have been acquired into global conglomerates, and smaller firms are filling the void. Larger firms ("strategics") are also struggling to grow organically, and instead are choosing to meet their strategic objectives through acquisitions into new markets or geography. This is putting smaller firms in the M&A limelight, particularly those that have a history of strong earnings.

The challenges we see from many of the smaller market sellers is that they are still founder/owners or limited to a few senior partners, and have not given much thought to selling. Also, they have not developed an ownership transition or "exit strategy" and have no realistic idea of their value on the M&A market. When they get an unsolicited call from a buyer asking if they are interested in selling, they are unprepared, other than saying "well maybe, for the right price." This leads to a difficult and bumpy road when a seller does get engaged in the M&A process, usually resulting in the buyer walking way because the company information is not there to support the buyer's due diligence, return on investment model, and enterprise valuation.

At 2020 Environmental Group, we advise our sell-side clients to spend quality time developing an ownership transition and exit strategy, including the supporting business information, even if they are not considering a sale in the near future. This activity focuses on internal measures to increase financial performance, market diversity, brand name recognition, and external market value to potential buyers. Even if they are not going to market, the end result is a higher performing business.

EBJ: How's the environment for buyers?

Al Spiers: Strategic buyers are aggressive in the M&A market right now, with cash on the books and cooperating bankers loaning money at 1-2 points above prime. The challenge buyers are facing also stems from the fact that they are now looking at smaller size deals, and finding that sellers are unprepared to support these conversations. The process gets bogged down because uninformed sellers tend to have unrealistically high expectations of their value. This makes it very difficult for buyers to have a dialogue, and when they do, it requires them to spend more time educating the seller on the process and valuation metrics. That being said, the environment for buyers is fertile, with smaller market companies eagerly waiting for their "white knight" to come along.

EBJ: What is the basic checklist for what sellers need to do to be ready to be looked at?

Al Spiers: Any company considering selling should start the pre-planning process years in advance. Whether it is called a strategic plan or exit strategy, the objectives are the same: actions to increase financial performance, market value and buyer interest. The internal actions a seller takes to increase market value are the same factors used by buyers to evaluate acquisition candidates, the relative strengths and weaknesses of the company, and their bid price. Companies that rank the highest by buyers will be valued highly, while companies ranking low are likely to receive low-ball offers or eliminated from buyer consideration. The measures sellers need to consider are:

Financial Performance: Sellers should focus on having a sustained year-over-year revenue growth, which is highly valued by acquirers, particularly strategics. Equally important is strong earnings or EBITDA (earnings before income taxes, depreciation, and amortization), which is a measure of pre-tax cash flow, and one of the most common indicators in valuing a business. Balance sheet is important and shows buyers that the company has adequate working capital, short cash cycles, a simple equity structure, and few (if any) contingent liabilities.

Leadership and Management: A company needs to put in place an effective organization led by executives with proven ability, expertise, and loyalty; and a well-understood vision of the company's strategic direction and a succession plan that identifies next generation candidates who can step into future management positions.

Clients Contracts and Backlog: The emphasis should be on long-term client relationships, and clients who have funded budgets for future contract work. These are valued highly especially when there are cross-selling opportunities for the buyers. The other two key areas are Markets and Service Offerings and Business Systems and Reporting.

EBJ: What is most commonly under-emphasized and can turn buyers off?

Al Spiers: The classic turn off for buyers is when the founder/owner believes their company is worth more than market value and doesn't understand the basis for a fair valuation. Second, sellers generally do not understand the buyer's investment criteria for making an acquisition. This includes the buyers return on investment (ROI) requirements, such as getting a return in 4 years or less.

Once you get past these fundamentals, other turn-offs for buyers during the M&A process are:

- Secrecy and not having access during due diligence to key staff that hold the client relations.
- No sales, backlog or financial forecasting systems that show what the firm is likely to do in the next 12-18 months.
- Key client relationships tied up with a few senior partners who are also looking to exit after the sale.
- Lack of client diversity, with +30% of revenues tied to one key client.
- No management succession plan.
- A Balance Sheet that does not have adequate working capital, has high amount of debt, long cash cycles, a complex equity structure, and contingent liabilities.

EBJ: How are some buyers un-prepared to seriously consider acquisitions and what do they need to do to prep strategically and operationally?

Al Spiers: Start by pulling your company's strategic plan off the shelf and asking yourself what part of your long term plan will an acquisition accomplish? Use this information to develop an acquisitions strategy that identifies the services, market and geography. Then develop a game plan and team to accomplish that goal. Next, understand your financial resources (cash, stock, debt) and other deal structures (note, earn out) to make an acquisition. Talking to your banker and M&A advisor will help. Calculate the positive impact an acquisition will have on internal shareholder value, as well as the firm's external market value if and when you decide to sell the company. Finally, bring in a qualified M&A advisor who knows your market and players, can help identify acquisition companies that are the right fit for your strategic goals, and knows how to manage the transaction process. And while it may appear to be self-serving, I suggest this advisor should not be a lawyer, mainstream investment banker, or accountant. There is often a time and place for these professionals in the process, but rarely early in the process.

EBJ: What are most buyers looking for strategically for a fit?

Al Spiers: The answers falls into four quadrants: services, markets, geography, clients. Which one, or combination, is high on the buyer's strategic plan objectives? Sometimes the driver for a strategic acquisition is critical mass in a particular geography or market.

EBJ: What characterizes California or western U.S. markets?

Al Spiers: California is the largest market for environmental consulting in the U.S., estimated at close to $10 billion. It also has the largest concentration of environmental firms, with over 350 firms, 250 of which are under 50 employees. The Pacific Northwest and Rocky Mountain states are a close second, particularly with the major growth markets in renewable energy, oil and natural gas, and water resources. Companies are as diverse as there are environmental disciplines. They range from environmental science, engineering, NEPA/CEQA, natural resources management, air quality, health and safety, groundwater, remediation, and new disciplines such as geomorphology and river restoration. U.S. and particularly international buyers are all looking to acquire a piece of the western U.S. marketplace. This is increasing the seller demand for environmental firms in these locations, although not necessarily the enterprise values. Valuations for environmental companies in California and the West are still based on three factors: earnings, earnings, earnings. Those that have a history of strong financial performance will command enterprise values of 5-7 times EBITDA, which is similar to other locations in the U.S. Others will find buyers offering lower prices, generally in the 4-5 times EBITDA). One thing is for sure, California and West Coast markets for environmental services will continue to see consistent and steady growth for the next decade and beyond. □

ZOFNASS PROJECT COMBINES WITH ISI TO GENERATE METRICS FOR SUSTAINABLE INFRASTRUCTURE

Although it is a work in progress, and probably always will be, the Leadership in Energy and Environmental Design (LEED) ratings system for green buildings developed by the U.S. Green Building Council (USGBC) may fairly be called a success. Studies continue to show that the design of a green building doesn't need to come at a premium but rather can yield savings over a building's lifetime, and building owners, along with architects and engineers, have in large measure come around to the view that LEED development should be the standard rather than the exception.

A building with a LEED Silver, Gold, or Platinum rating exists and operates in a larger context, however. Zoom back from a picture of the building itself and you might find, for example, that it is served by a series of roads coursing their way through sensitive habitat. Or, while its own design and electric loads are very energy efficient, the local power source is an old and inefficient coal-fired power plant that should have been replaced long ago.

A growing number of executives and engineering professionals at the leading global infrastructure consulting and engineering (C&E) firms have come to believe that the key to a sustainable economy—balancing the need for economic development with the imperative to use resources prudently—goes well beyond individual buildings. True sustainability must encompass the surrounding infrastructure—power, transportation, building campuses, telecommunications, waste, and water and wastewater—and all these elements must be integrated.

A growing number of these professionals also believe that it is possible to develop a sustainability rating system for infrastructure, modeled on LEED and based on agreed-upon, and in many cases, quantifiable metrics. Such a system would provide a consensus-based measure of how we are doing in progressing towards a sustainable economy, as well as provide a clear yardstick for achievement by infrastructure developers, who increasingly need to justify their capital investments to stakeholders on the basis clear "green" criteria.

Such a system exists today—Envision 2.0, the product of a collaboration between the **Zofnass Program for Sustainable Infrastructure** and the **Institute for Sustainable Infrastructure** (ISI), released in April 2012. None of the developers claim the system is perfect, or final. Indeed, like LEED, a process for continuous improvement is built into the system itself.

Whether it could be done, and how to do it, were always the big questions. More so than any individual commercial building, a power plant, a water treatment plant, or a transportation or telecommunications network has impacts that reverberate broadly out into the community, and even a region or nation. Establishing measures to determine whether a piece of infrastructure is sustainable would have to consider a very broad set of decisions, impacts, and inter-related factors. Perhaps the vision was too complex to realize with any hope of success.

Four years ago, Paul Zofnass, president of the **Environmental Financial Consulting Group** (New York, NY), a financial advisory services firm serving the environmental and infrastructure C&E industry, decided that the stakes were too high not to try. He formed the Zofnass Program in partnership with the **Harvard Graduate School of Design** (HGSD) and other departments at his alma mater, and invited engineering and sustainability professionals from the private sector to collaborate in the development of a metrics and rating system for sustainable infrastructure.

Zofnass identifies a two-fold rationale for the industry-academia partnership. For several years now, leading engineering companies have been developing their own systems for measuring the sustainability of their projects, and predictably, "if one company comes up with a set of metrics, another company will say, 'no, that's all wrong,'" Zofnass explains. The result—well understood by the private companies participating in the Zofnass Program—is confusion in the marketplace and constrained progress in the effort to build truly sustainable infrastructure.

Yet even a collaboration among engineering firms could generate skepticism among people outside the industry, who might think that the industry "is trying to feather-bed the issue," says Zofnass. An academic institution would give any product more credibility, he believed then and believes now, and Harvard has the engineering, science, legal, and business talent and resources to provide the necessary input at a high level. Moreover, he notes, with Harvard's sterling reputation, when it launches a program and sends out invitations for participation, private-sector and government entities alike take notice.

PARALLEL EFFORT

In fact, the **American Council of Engineering Companies** (ACEC), the **American Public Works Association** (APWA), and the **American Society of Civil Engineers** (ASCE) had been working on their own metric systems for sustainable infrastructure. Realizing that duplication of effort made little sense, the associations incorporated ISI as a 501(c)(3) in December 2010 to spearhead the work on a common rating system, which the group called Envision.

"The three organizations realized a rating system was a unique product and needed a single home," says William Bertera, who assumed the position of ISI's executive director in April 2011. When he came on board, ISI had discovered the Zofnass Program and was exploring a collaboration. Immediately seeing the benefits of such a relationship, Bertera met Zofnass and the Harvard team in the late spring of 2011, the parties hit it off, and they announced their strategic partnership in the fall of 2011.

Calling it a strategic partnership "doesn't do it justice," says Bertera. "It's much more interactive than a basic stra-

tegic partnership, which can be a piece of paper, and then nothing further happens. We work every day together. Our developers—the people who put the tool together and tweak it—work hand in hand with one another."

Zofnass says the combination was a big step in realizing his program's vision and a sign that a metric system for sustainable infrastructure was really achievable. "For a while it looked like it was going to be too big an issue to get consensus. After four years, we still think it is complex, but it is doable."

And much has been done. From the ISI-Zofnass collaboration came the release of the Envision 2.0 manual in April and the rollout over the summer of web-based programs for training and credentialing professionals in the application of the Envision 2.0 system and in verifying Envision ratings for projects.

Envision 2.0 is a combination of ISI's Envision and a rating system that the Zofnass Program was already in the process of developing. "We took the good parts of each tool and meshed them together," says Anthony Kane, the rating system research director at HGSD. "We decided to stay with the name Envision. We've spent the last year developing the tool, and it's still a work in progress."

The structure of Envision 2.0 encompasses four stages—exploration and testing, assessment and recognition, operational imperatives, and decision support. The assessment and recognition stage has been the focus of the most detailed work thus far. Within that stage are four "phases"—planning and design, construction, operations and maintenance, and deconstruction and decommission.

A big challenge, says Kane, is balancing the impulse to divide the system up into separate conceptual areas with the need to integrate all of the components into a coherent whole. "It's always in our nature to break things into constituent parts. You have these credits that look like independent chunks, but we live in a systems world, and you have to see how these all work together. For example, right now the system is focused on design and planning, and we have plans to roll out soon some sections on construction and operations. The lines between these areas are always a little fuzzy—who's making the decisions, when in the process those decisions are being made. You have to have these dividers."

Complementing Envision 2.0, the ISI-Zofnass team has developed a related tool—a checklist "that mirrors the same concepts as Envision but is easier to use and is less labor intensive for smaller projects," says ISI's Bertera. Recognizing that using Envision involves some complexity, he notes that "what people want to know before they commit a lot of time and money is whether they are on the right track. The checklist is a wonderful tool for agencies to get a quick peak on whether they are in the ballpark."

WHITE HOUSE INTEREST

In an event that took place before the release of the Envision 2.0 manual, ISI-Zofnass team members met with **White House Council on Environmental Quality** (CEQ) officials and federal agency managers at the White House in March 2012 to discuss standards for measuring sustainable infrastructure. One outcome of that meeting was the identification of some critical roadblocks in incorporating sustainability into federal infrastructure projects.

As Zofnass points out, President Obama has issued an executive order (EO) requiring federal agencies and departments to incorporate sustainability into their missions and activities. The question among federal contracting officials at the meeting was, Zofnass recalls, "given that this order is out there, why is it that so few of the engineering plans that come back to us from the industry have a significant sustainability component?"

Inspired by this question, the Zofnass Program conducted a survey, which found two problems. First, the federal request for proposal (RFP) rules don't have sustainability requirements, and bidders only focus on the requirements that do exist. "That was an eye-opener," Zofnass tells EBJ. "The EO mandate hasn't worked its way into legislation. An engineer has to do what the client wants. So that's problem

Sustainability Metrics

Improved	Life-cycle carbon assessment (4 points): A comprehensive life-cycle carbon assessment has been undertaken in order to estimate the carbon emissions due to materials extraction and processing. Material transportation (for the key materials to be used during construction and operation), and project maintenance and operation including vehicle traffic. The assessment related to materials includes the carbon emissions generated for the key materials to be used in the project, from their extraction, refinement and manufacture, distance transported, and carbon emissions released in use after their incorporation in the completed works.
Enhanced	10 to 40% reduction (7 points): Using a completed life-cycle carbon asesssment, the project team works to design the project so that it produces 10 to 40% reductions in carbon emissions as compared to regulatory requirements.
Superior	41 to 80% reduction (13 points): Using a completed life-cycle carbon assessment, the project team works to design the project so that it produces 41 to 80% reductions in carbon emissoins as compared to regulatory requirements.
Conserving	Carbon neutral (18 points): The completed works is carbon neutral (does not produce any net carbon emissions, or 100% reduction). Using a completed life-cycle carbon assessment, the project team works to design the project so that it is carbon neutral. Extensive use of renewable energy and carbon sinks.
Restorative	Net carbon negative (25 points): The completed works is carbon negative (sequesters more carbon than it produces). Using a completed life-cycle assessment, the project team works to design the project so that it is carbon negative. Extensive use of renewable energy and carbon sinks.

Source: Zofnass Program for Sustainable Infrastructure and the Institute for Sustainable Infrastructure

number one: Why aren't you doing it? You didn't ask me."

Second, the whole cost structure of the federal procurement protocol is today built around construction cost. "There's nothing in the laws for federal funding for the long-term operations and maintenance cost—nothing on how long the building is going to last. There's no requirement or interest in what's going to happen 50 years from now."

The upshot is that, while there is tremendous interest among federal officials in sustainability—as anyone familiar with the Department of Defense (DOD) mission to use resources more efficiently knows—the federal government requires legislative and institutional changes to put sustainability into practice.

That will be a mission that the ISI-Zofnass team will contribute to, but a more immediate mission for the partnership is to address a critical component in any infrastructure owner's or developer's decision to pursue a sustainable project—the economics. Sustainable infrastructure won't be built if developers don't see the payoff.

FOLD IN THE ECONOMICS

The ISI-Zofnass team is working on this issue now, under the direction of Andreas Georgoulias, HGSD lecturer in architecture and research director for the Zofnass Program. Georgoulias recognizes that, as was the case with LEED, there will be a perception that sustainable infrastructure comes with a cost premium, and while this perception is not without foundation, it will ultimately be a matter of looking at full life-cycle costs.

"I would say that it definitely has a cost premium, but that cost is an up-front cost that you have to pay today," he tells EBJ. "The benefits that could come throughout the project's life cycle could be greater by several multiples."

Yet the issue for infrastructure owners and developers is not only how big the cost, but who pays. "Do we decide to save money today and ask someone in the future to pay the cost? This dilemma is not easy to solve," notes Georgoulias. "If someone decides not to pay the up-front cost, those costs will be paid by others. So the question of who pays and who benefits may not have the same answer."

To resolve such issues in the realm of public infrastructure, there will probably be a need for better alignment of government incentives, he observes. Parallel activity will be required on the private side as well. "Even for projects not funded by the government, budgets and long-term benefits are not always aligned."

As part of the Envision package, Georgoulias's group is working on an economic decision tool that will "allow people judge the return on investment of a project and make decisions on what to pursue. We're trying to map the economic return for each and every individual credit, to create a cost-benefit diagram. Then we're trying to identify the multipliers and other factors that affect how the economic benefits can be quantified.

"There has been some discussion to the effect that some credits are difficult to quantify, but I don't want to exclude anything," he continues. "The benefits of a project to the community and its cultural value, or the use of an integrated project management approach, might not be as quantifiable as energy savings. What happens in different credit categories affects how you quantify them. How that aligns with the Envision system is a work in progress."

The current goal is to release an economic tool in 2013. "Depending on the level of detail and complexity, we might have something ready as soon as February or as late as September," he tells EBJ.

Even while the revision and improvement of Envision is ongoing, ISI-Zofnass is working to take the system to the marketplace. That will mean initially targeting the public sector for acceptance. As part of this process, the team is currently reviewing some candidate projects for which to apply the Envision system.

"The first thing to appreciate is that most of the civil infrastructure in the U.S. is owned by the public sector," notes ISI's Bertera."They are basically the client base. Our initial approach is to get the public sector interested, and if they are, they would require it from their service providers. So the relationship with the public sector organizations is very important. We've spent a great deal of time in working and nurturing and trying to inform the public sector, to the point where we have a complimentary membership in ISI to public employees."

Of course, it will be a matter of time, he acknowledges. "We're attempting to apply the concept of sustainability to a wide variety of infrastructure types—and not just civil infrastructure, but quasi-public infrastructure that has great impacts on communities, such as transmission lines, or energy-generating facilities. Just the breadth of the universe we're attempting to serve is itself daunting, and very complicated, because it crosses public- and private-sector lines at multiple points.

"All of that could give you reason to turn and run," Bertera remarks. "On the other hand, it's why we're in the game."

BIG PRIVATE CONTRIBUTION

As noted, several private companies have been involved in the Zofnass Program, which currently has 21 professionals representing 13 companies and the **Inter-American Development Bank** (IADB) on its Sustainable Infrastructure Advisory Board (SIAB). These individuals have not simply served in advisory roles but have participated significantly in the discussions leading to the development of the metrics rating tool. Several spoke to EBJ about their participation in the program, the motivations for their companies to get involved, and the challenges ahead.

Terry Bennett, senior industry program manager for civil engineering and heavy construction at 3D design and engineering software provider **Autodesk** (San Rafael, CA), points out that all of the other firms represented on the SIAB, as wells a hundreds of other engineering firms, are his firm's clients. "We saw this project as an opportunity for us to help educate all designers and the global community around sound infrastructure design."

The world's sustainability challenges "reflect the unintended consequences of wrong design decisions," Bennett tells EBJ. "It wasn't that designers were think-

ing wrong; it's that they didn't have a way to validate their decision-making." What makes sound design decisions more critical for infrastructure is the fact that, whereas you might fix or implode a building that's not functioning properly, "that's not an option for treatment plants and roads."

Bennett had previously led an engineering firm that engaged in geotechnical work on such infrastructure as dams, water and wastewater facilities, and roads, and "it was clear what impact bad design can have on a community. So it was personal."

What the Envision tool does for the first time is "evaluate approaches for infrastructure design," he adds. "These things are put in place and then are around for 50 years, and you're stuck with what you build for the life of that asset. That's what drove our involvement—a vision of optimization of infrastructure at a community level."

The Envision model plugs neatly into the 3D visualization capabilities provided by Autodesk, he adds. "People can look at designs in 3D and see that an approach is the right one from any particular sustainability standpoint. As I worked with the board and Bill Bertera, we saw that we would have to do this on an ever-evolving scale, because everything changes. The vision of having this work based on the latest and greatest best practices means we'll never stagnate."

To SIAB board members Erin Hyland and Robert Beinstein of **CH2M HILL** (Denver, CO), the technical discussions around the development of the sustainability metrics were stimulating enough, but where the collaboration really became exciting was when it came to making the business case for sustainable infrastructure.

Sustainable Infrastructure Advisory Board Members

Company	Individual	Title
ARCADIS	Douglas Owen	Exec VP/Chief Technology Officer
	Wassim Selman	President, Infrastructure Div.
Autodesk	Terry Bennett	Sr. Industry Manager, Civil Engineering & Heavy Construction
CH2MHILL	Robert Beinstein	Director, State & Municipal Programs
	Erin Hyland (Halcrow)	Sr. Consultant, Innovative Project Delivery
exp.	Alida Saleh	Head, Environment & Sustainable Development
Golder Associates	Brian Conlin	CEO
	Roberto Mezzalama	Principal/Project Director
Granite Construction	Geoff Boraston	Director, Environmental Affairs
HNTB	Peter Gertler	Snr VP, High-Speed Rail Services
	Jim Grant	Director, Energy & Fueling Systems
Inter-American Development Bank	Ana Maria Vidaurre-Roche	Lead Infrastructure Specialist, Structured & Corporate Finance
Jonathan Rose Cos.	Jonathan Rose	CEO
Louis Berger Group	Nicholas Masucci	CEO
	Larry Pesesky	Snr VP, Transportation Planning, Economics, & Environmental Science
MWH Global	Lisa Rephlo	Principal, Energy Conservation and Management
NV5	Dickerson Wright	CEO
POWER Engineers	Jack Hand	CEO
	Richard Corolewski	Director, Federal Business
Stantec	Richard Allen	Snr. VP/COO
	Marty Janowitz	VP Sustainable Development

"There were many experts defining the technical components, which was its own task, but the really interesting discussions were around bringing it all together, and determining how much it will cost, and the comparative value between alterative solutions," says Hyland, a senior consultant for innovative project delivery at **Halcrow**, which was acquired by CH2M HILL in 2011. "Seeing that come together and gain some focus was critical."

The question was persistent during the discussions, Hyland recalls: "You have the metrics; now where does the cost come in? Should it be separate? And not just the project costs, but quantifying the benefits, such as health savings. When people were looking at the draft version of the metric system, they saw the different categories around energy efficiency, or recycling, and the conversation was, this is great, but where is the trade-off going to be? To make this tool really useful, we need to have those factors in there."

Beinstein, CH2M HILL's director of state and municipal programs, sees making the business case for sustainability as the primary focus for his work, and he regards tools like Envision as a key to making that business case real. "I think, if we succeed—or when we succeed—there won't be a separate sustainability department in any firm, whether clients or their consultants. We'll just do it the right way."

THE LEED ANALOG

The experience with LEED offers an object lesson on how that business case could go for sustainable infrastructure, Beinstein says. "Early LEED buildings commanded a premium because there was a cachet. As we carried that forward, there were clear, hard metrics that these buildings had lower costs of ownership, so building sustainably became obvious. To encourage sustainable infrastructure, we have to develop an equivalent value proposition, because the metrics and measureable benefits will be very different." The professional and verifier certification programs are still in their early stages, and the extent to which CH2M HILL will certify professionals will be a function of client demand to a great extent, Hyland and Beinstein say.

"As with any professional certification, there's a match between individual interest and market need," says Hyland. "We don't have specific targets and goals, but we respond to client interest, and we are certainly interested in professional education. This would fall into that category."

Again, LEED provides a good analog, says Beinstein. "People didn't say, 'we need 250 LEED professionals,' but as clients demanded it, the company and the industry responded." He adds, "I know we have a number of people in the organization who are looking at Envision and are very interested."

Prior to the formal launch of Envision, CH2M HILL had conducted a pilot project with a client to see how the implementation of a sustainability metrics system would work, and the project was very well received, according to Hyland. "It's certainly a topic of discussion with clients as we talk about sustainability, and it's certainly an option. It's very much in people's minds, and a number of clients have raised it to us as a tool about which they want to learn more. "

CLIENTS ASKING MORE OFTEN

Dick Corolewski, federal business unit director for **POWER Engineers** (Boise, ID) says his firm's involvement in sustainable infrastructure derives from its work in the federal sector, which has been a strong supporter of sustainability (despite the aforementioned contract requirement barriers). There hadn't been much interest among its power and energy clients, although the company did begin to see an increasing amount of business in renewable energy.

"What's been happening is, in the more recent past, a lot of our clients are asking about sustainability, even on the utility side," Corolewski tells EBJ. "'Are we being as green as possible? What is your company's standpoint on sustainability?' We saw that we had to be up to speed with what's happening."

On the power side of the business, the company is getting involved with very sustainable power plants—"the reverse of where we were 10 years ago," Corolewski notes. In addition to developing more renewable energy, the firm is deeply involved in the transition from coal-fired to gas-fired plants and "making gas turbine plants very, very efficient—looking, for example, at energy-efficient motors and components in evaporative cooling, and designing plants to use less water."

On the federal side, particularly at DOD, sustainability work is falling into three buckets: deep retrofits of buildings; increased use of renewable energy (the firm is pursuing renewables-related contracts from the Army Corps of Engineers) and energy security measures to fulfill the DOD mission more effectively. "They're looking at things like micro-grids, and we're trying to help."

Corolewski emphasizes that, while POWER Engineers had been "doing sustainability" for 25 years, in the form of helping clients reduce energy and material use, "we didn't call it that." He also notes that, in addition to clients increasingly asking about the company's take on sustainability, "new employees are asking as well, in almost every interview."

As the company began rolling out a sustainability program in each of its divisions, it found the Zofnass Program through its relationship with EFCG and readily joined up. "We're excited about Envision," says Corolewski. "We've been telling the divisions in the buildings area that we have a process for getting points. Right now, what we're trying to do is get the rest of the divisions up to speed on Envision."

POWER Engineers is also jumping into the Envision certification process, exploring the option of conducting a WebEx seminar on Envision for its employees. Although the firm has not yet applied the system to an actual project, it's looking to do so in 2013 on a small job, and probably not one involving power transmission, says Corolewski. "Some of these transmission projects are so big, they wouldn't be good test projects. You've got to walk before you can run."

Having focused much of her professional work on energy management at water and wastewater treatment facilities, Lisa Rephlo, a vice president and principal at **MWH Global** (Broomfield, CO), sees the Envision tool as providing strong support for her own efforts to establish some sustainability standards for her clients.

"It's really been helpful on a few projects," she says. "I can facilitate a discussion, and where I need help outside my area of expertise—in solid waste and recycling, for example—I could always bring in the right people. But Envision helps me be more thorough in the early part of the discussion and not miss anything."

Envision has had professional value for herself, Rephlo notes. "The reason I'm in the energy field is because I'm interested in efficiency and reducing waste. It helped me learn about other aspects of the sustainability equation. I'm able to round out my skill set in sustainability with this wonderful rating system."

MWH doesn't have Envision-certified professionals or verifiers yet, which is more a matter of budget cycles than commitment. Not knowing when the system would be available, the company's training budgeta hadn't included funds for the certification process this year. "I've done a lot of outreach in the company, saying, when you do your training budget for next year, look at this process as something you should do." The company is also using Envision as a "structure" for discussing sustainability with clients and is working on a pilot project with Harvard, according to Rephlo.

As for deployment in the marketplace, "I would give it another year or so. I'd say next year at this time, some of our forward-thinking clients will want to use it. Next year is a 'building up' year, and then hopefully it will snowball." In the public marketplace in particular, "we're going to have to show what the public benefits are versus the commercial benefits."

A DIFFERENTIATOR?

Will adoption of Envision offer a measureable return on investment or competitive advantage for companies like MWH? "We haven't got there yet," says Rephlo. She suggests, however, that "it's either going to be a differentiator, or if you're not involved in this effort, it will make you look like you are behind the curve."

Doug Owen, executive vice president and chief technology officer at **ARCADIS U.S.** (Highlands Ranch, CO), affirms that clients will have a lead role in determining whether tools like Envision make headway in the marketplace, just as they did in making sustainability part of the conversation in the first place. As a company, ARCADIS saw that "Industrial clients led the way in wanting sustainability in their projects because of the social and governance issues, even if they didn't know how to do it," says Owen, who came to ARCADIS in the acquisition of **Malcolm Pirnie** in 2009.

ARCADIS, of course, had made a significant jump into green remediation. "We developed our own green remediation tools, lacking any other metrics at the time," Owen recalls.

Owen had participated with sustainability guru William Wallace in metrics development on the ISI track, working in the water resources and environment category. "At the same time, the Zofnass Program had contacted us and asked if we wanted to participate. We were excited about joining Paul's group because we see that as an important expansion piece for the Envision model. They have capabilities through Harvard to think through and tackle the weighty issues, like how do you put together an economics package. Envision is about ratings, like LEED, but the economics is the Holy Grail."

Holy Grail, indeed. The discussions around the economics present the biggest challenge, taking on the timeless issues in environmental economics, such as the value of a human life, or biodiversity and ecosystems, Owen declares. "Even though we might not be able to quantify these values, engaging in the dialogue has supreme value, because it allows us to start to articulate what we value and why. And that discussion, beyond that of capital costs, is really important to our clients, because it allows them to take into consideration their stakeholders."

Like other companies represented on the SIAB, ARCADIS will be pursuing the credentialing of its professionals in the coming year, making decisions now on the best classroom approaches. As for leveraging Envision into the marketplace, an ARCADIS professional is serving as vice chair of the Water Environment Foundation's (WEF) sustainability committee and, in addition to being involved in the Envision peer review, has been using that avenue to send Envision out for comments to WEF member firms.

"We have not, as of this date, applied Envision to any specific project," Owens tells EBJ. "But I want it to be fully operational within a year. That's my goal. That means having the people trained and having the ability to apply the system to projects as our clients desire. It doesn't mean it will be applied on 100% of projects. It means we have the capability."

Although Envision 2.0 is currently a U.S.-centric program, there is definitely international interest in sustainability metrics and a great potential to extend Envision's application beyond U.S. borders. Most of the companies represented on the SIAB board have extensive global operations, and the board members report definite interest among their global clients in a scoring system for sustainable infrastructure, even if there is a bit of a wait-and-see attitude on how such a system would work.

Interestingly, in contrast with the United States where the initial focus will be on the public owners and operators of infrastructure, the private sector takes the lead on much of the infrastructure development overseas, on projects such as dams, pipelines, and railroads, according to Roberto Mezzalama, principal and global sustainable development leader at **Golder Associates** (Atlanta, GA). With governments struggling to raise funding for infrastructure investments, "the biggest impacts on society and environment will come from private investment," he says. "And private companies need a social license to operate, generally linked to their ability to achieve sustainable development goals." A system for scoring their ability to accomplish these goals would go a long way towards securing that social license, he suggests.

For its predominantly private clientele, Golder has been providing a series of its own internal tools for evaluating sustainability outcomes on projects. According to Mezzalama, Envision will be a valuable addition to this toolbox, but deploying it will involve a process of bringing its own people on board and then making the case to clients. "We are at a point where awareness, training, and making sure people feel comfortable talking about this system with clients is our first goal," he tells EBJ. "If we can have a good understanding of it by the end of the first quarter of next year, then we can start using this with clients."

SIAB has representation from a multilateral lending institution—the Inter-American Development Bank (IADB), which is planning to evaluate the implementation of the Envision 2.0 system on two projects in the Latin American region and add that input to the other case studies that the ISI-Zofnass team is pursuing. "One would probably be an airport project, and another would be in the energy area," says SIAB board member Ana-Maria Vidaurre-Roche, principal investment officer for IADB's Infrastructure Division. For these projects, IADB will gather data and produce a report sometime within the next few months.

"Our ultimate goal is to try to raise awareness of sustainability in infrastructure development," says Vidaurre-Roche. "We'd like to apply the methodologies to these case studies and see how private-sector developers find how practicable they may be."

There is growing appetite in Latin America for sustainable infrastructure and systems to measure sustainability, she notes. "In the last year, I have seen more and more interest in systems like the Global Reporting Index, and companies have developed increasingly sophisticated tools for measuring their carbon footprint," she says. "The challenge is in finding if a system like Envision is feasible or too complicated."

Thus far, the complexity of the issue hasn't deterred efforts to get a grip on it. Given the progress in the ISI-Zofnass efforts over the past four years, there's good reason to believe that, like LEED today, a system for evaluating the sustainability of infrastructure could be standard industry practice within the next few years. Engineering firms take note. □

NOW IN GROWTH MODE, TRC AIMS TO BE INTEGRAL TO U.S. ENERGY TRANSFORMATION

The United States is in the midst of a great energy transformation, even if the U.S. federal government can't decide on the shape that transformation may take. Fossil fuel production is expanding—unconventional gas significantly so—even as renewable energy generation grows and corporations and municipalities increasingly recognize that energy efficiency is a resource they can't afford to sidestep. The U.S. energy profile is changing dramatically.

Chris Vincze, chairman and CEO of **TRC Companies Inc.** (Lowell, MA), believes firmly in this transformation and is moving his company to be at the center of much of the activity that is making it possible. "TRC over the past few years has built itself around the energy and power marketplace," he tells EBJ, and "we clearly view the energy transformation in the United States as the driver. We feel very comfortable that the market, despite certain failures in Washington in terms of policy. We view this transformation as inevitable."

A venerable environmental consulting and engineering firm with foundational expertise in air quality, TRC grew over the years into a broad-based environmental services firm with remediation as a particular strength. The company went through some restructuring in the mid- to late-2000s but has entered a period of growth, with energy and power as a core target market and substantial success in penetrating that market, in Vincze's view.

"We continue to move in the direction we designed a few years ago," he says. "On top of a company that has really cleaned up its act, we've created a very scalable platform. We're layering growth on top of that platform, and we're showing good financial performance."

The proof is in the numbers. For the fiscal year ending on June 30, 2012, TRC generated operating income of $30 million on net service revenue of $301.8 million, compared with a loss of $7.6 million in operating income on $245.9 million in net service revenue for the previous fiscal year. The 23% growth year over year was split evenly between internal growth and acquisitions, which are a key part of TRC's growth strategy.

Four acquisitions over 18 months contributed to some extent in each case to the financial results for the 2012 fiscal year. In March 2011, TRC acquired **Alexander Utility Engineering** (San Antonio, TX), a 40-employee engineering and design firm serving the electric utility and communications utility markets. TRC followed up in June with the purchase of the 200-employee Environmental Business Unit of Alliant Energy subsidiary **RMT Inc.** (Madison, WI).

"In transmission/distribution, utilities are continuing their capital spend over the next few years and looking at a solid decade of growth."

Then in September, TRC acquired **The Payne Firm, Inc.** (Cincinnati, OH), a 30-person consulting firm providing full life-cycle services to the legal and financial communities and industries ranging from manufacturing and healthcare to higher education. In March 2012, TRC formed a strategic partnership with **EORM** (San Jose, CA), acquiring EORM's East Coast operations as part of the deal to strengthen TRC's environmental management and sustainability services offering.

TRC divides its business into three segments—environmental, energy, and infrastructure. Although the focus on energy is growing—net service revenue for that segment was up 27% for the fourth quarter of 2012 compared with the fourth quarter of 2011—energy still accounts for only about of a third of TRC's business.

In energy, "our skill sets are principally in the power delivery side of the business--doing all the engineering related to getting the electrons to the grid, from feasibility studies to engineering, procurement, and construction (EPC) work," says Vincze. He regards the firm as a leader in the Northeast. Altogether, the firm has more than 600 people dedicated to the power delivery side of the business.

TRC also has a growing energy efficiency business, providing what it refers to as a management consulting business helping commercial customers manage their demand cycle better. To some degree, TRC will compete with companies like **EnerNOC** and **Ameresco** in this market segment, although it more often goes up against the likes of **ICF International**, **SAIC**, or **Honeywell**—and will sometimes partner with these companies, according to Vincze.

A small part of the energy segment is dedicated to telecommunications engineering for power and utility companies. In addition, "we're creeping into generation, although it's not our forte," says Vincze. Overall, however, the consulting and engineering service portfolio to energy and utility companies is aiming to be comprehensive. "We can provide a solution to any energy or utility company in this country in terms of anything they want to do," Vincze declares.

"Our power delivery and transmission distribution services segment has been without a doubt a high-growth market, and continues to be," he adds. "We're continuing our expansions with utilities across the U.S. In transmission/distribution, utilities are continuing their capital spend over the next few years and looking at a solid decade of growth. The same is true for substation engineering.

"That will be true in natural gas as we convert from coal," he continues. "We've won a lot of projects in the shale gas market—even if we don't know yet where all the gas is going to go."

The infrastructure segment of the business, which is very transportation-oriented, represents only about 15% of TRC's net service revenue and "has contracted a

bit," Vincze reports. The firm provides engineering services to a number of state departments of transportation (DOTs), and while there was some growth in FY 2012 when flatness was expected, "it's been a tough few years without a transportation bill, stimulus funding fading away, and states facing deficits," he notes.

The environmental segment still accounts for just more than half of net service revenue, and within that segment, remediation is still the largest service area, accompanied by the full range of consulting services in air, water, and solid waste. Within this segment is a significant volume of environmental work related to pipeline development, says Vincze. "On any multistate or interstate project involving a pipeline, we would very likely be involved."

Air-related services for utilities and other customers is also a big business, he adds. And the environmental management and sustainability practice, involving a range of services from industrial hygiene to carbon foot-printing, is "a big part of the business," he says. "We see that as a high-growth marketplace."

It's the energy-related work that is keeping the environmental segment of the business in growth mode, Vincze acknowledges. Anything related to property and land has been sluggish over the past four years.

"We're not seeing the capital spending on the real estate side," Vincze reports. "Part of our hope in having Payne on board is to get ahead of the curve as acquisitions at the industrial level occur, which we anticipate will happen increasingly over the next few years, as companies consolidate, close plants, and hopefully expand plants as well."

TRC has won some recent major contracts for its Exit Strategy program—a comprehensive suite of cleanup and risk management services to bring sites and site portfolios to closure—but remediation and brownfields redevelopment has been slow to come back. The U.S. Environmental Protection Agency's (EPA) brownfields budget has not been hit as much as other budget items, and that has meant ongoing activity in site assessment (TRC manages a lot of the EPA activity in Region 1), but the partnerships are not forming to invest in the redevelopment of the properties, according to Vincze. "I think we're starting to see tidbits of change there, but it's hard to predict where that market will be for another year or two."

Continuing on the path to success will mean "maintaining our core principles and not becoming too bureaucratic," Vincze notes. A broader challenge for the industry, however, arises from pricing pressures that are to some extent self-inflicted, he observes. "We so under-value this business. We just don't stand up for the value we provide. There are a few CEOs that I talk to regularly who are trying to do address some of these issues, but it's so hard, because this industry is fragmented and parochial. But I think we're conquering that issue too." □

SHAW E&I ANTICIPATES INCREASED OVERSEAS OPPORTUNITIES THROUGH ACQUISITION BY CB&I

It's been a big year for **The Shaw Group, Inc.** (Baton Rouge, LA). The 25,000-employee engineering and construction company made significant moves with regard to the disposition of certain operations in the nuclear and chemicals segments, selling its **Energy & Chemicals** (E&C) business to **Technip** and its interest in the **Westinghouse Group** back to **Toshiba**. The really big move, however, was the signing of an agreement with **Chicago Bridge & Iron** (CB&I; the Woodlands, TX) under which CB&I will acquire Shaw for $3 billion, in a transaction expected to be completed in early 2013.

How that deal will affect Shaw's environmental business, the **Environmental & Infrastructure Group** (E&I), has been the subject of some speculation. Analysts have suggested that CB&I could divest Shaw E&I as a non-core business operation; CB&I is an engineering, procurement, and construction (EPC) contractor serving the energy and resource industries. On the other hand, the engineering firms serving these markets have been very active in building their front- to back-end capabilities, in which environmental services play a critical role.

For now, Shaw officials are not dismissing the possible sale of E&I outright. The company is moving forward, however, on the premise that CB&I's presence in overseas markets will provide E&I with international opportunities at a level it has not seen before.

The sale of E&I "could be a strategy," E&I President George Bevan tells EBJ, but "it wouldn't be on day one. That's not how we're operating right now."

According to Bevan, E&I is viewing the sale to CB&I as "a very positive thing" based on the fact that CB&I does a majority of its work internationally, while Shaw E&I's business is primarily domestic. "We have a number of clients that are operating overseas, and we see opportunities to serve them internationally, particularly in China and Australia."

These clients include Fortune 500 retailers, oil and gas companies, and others, he notes. "We think we would have opportunities in construction management and program management, and in environmental work for the mining industry, which we've done in the U.S."

As of late October, the proposed transaction had passed its Hart-Scott-Rodino AntitrustImprovements Act hurdles. The shareholder votes are scheduled for December.

As for the other deals and how they affect E&I, Bevan says that his group continues to work with Westinghouse on such projects as the construction of new nuclear reactors at Southern Co.'s Vogtle plant in Georgia, led by Shaw's Power Group, and on four nuclear projects in China. E&I is also teaming with Westinghouse in pursuit of upcoming opportunities with the U.S. Department of Energy (DOE). E&I has done some work with E&C, but the sale doesn't materially affect E&I's operations.

Shaw E&I employs approximately 6,000 people, a number that can fluctuate seasonally given the nature of E&I's work, which is heavily concentrated in remediation. Shaw Group ranked at number eight on *Engineering News-Record*'s most recent list of the top 200 environmental firms, based on nearly $1.53 billion in environmental revenue—essentially the E&I operations—for calendar 2011.

According to ENR, Shaw's environmental revenue in 2011 broke down as follows: hazardous waste, 38%; nuclear waste, 46%; air quality, 4%; water/wastewater, 1%; environmental management, 8%; and environmental science, 2%. About 63% of the environmental revenue was generated by contracts with the federal government, 14% with state and local governments, and 22% with the private sector.

BACKLOG DOWN A BIT IN 2012

Bevan reports that 2012 has been a good year for E&I's execution on projects, even if bookings are down. Backlog for E&I as of August 31, 2012, the end of Shaw's 2012 fiscal year, was approximately $4 billion, compared with nearly $5.2 billion at the end of the 2011 fiscal year. Backlog for the Shaw Group as a whole was down from $20 billion to about $17.1 billion. The company did benefit from some stimulus money—for example, at DOE's Paducah Gaseous Diffusion Plant in Kentucky and at the Maywood Superfund Site in New Jersey—but those funds are winding down even while E&I continues to execute on those projects, says Bevan.

As for successful project execution, Shaw expects to commission in November the Inner Harbor Navigation Canal (IHNC) Surge Barrier, a massive structure designed to protect the greater New Orleans area from Katrina-like storm surges. Another, ongoing "mega-project" is the construction of the Mixed Oxide (MOX) Fuel Fabrication Facility, a plant that will process thousands of surplus nuclear warheads at the DOE's Savannah River Site near Aiken, South Carolina. The facility "will probably be operational in 2017 and then have a life cycle of 20 to 30 years for processing these materials," says Bevan.

Despite the political uncertainties associated with the presidential election and the looming "fiscal cliff"—the set of across-the-board federal budget cuts that will take effect in the new year if Congress doesn't come up with a more targeted deficit-reduction plan before then—Bevan is upbeat about the federal marketplace in 2013.

"The Air Force has some $1 billion in remediation contracts that they plan to spend next year," he tells EBJ. In addition, "I think you'll see, no matter who is elected, a new round of base closures. They may start as early as 2013, or maybe go into 2014. That should present good opportunity for Shaw." The company also is expecting more opportunity in restoration and rehabilitation along the Gulf Coast in connection with the 2010 BP oil spill.

"There's an emphasis on awarding contracts to small business, and there's a need for us to team with a small business to get that work."

Of more concern to Shaw, Bevan says, is the federal government's growing reliance on small business. "There seems to be a greater emphasis on awarding contracts to small business, and there's a need for companies like us to team with a small business to get that work." An example is the ongoing work at the Maywood site, which is "being competed now as a small business contract."

These changes will mean some shifts in strategy for Shaw E&I, he adds. "Very few of those small companies have the resources and cash flow to go after and execute on those contracts, so we try to partner with the small companies and help them to successfully execute."

Dealing with the small-business issues and maintaining margins and market share will be the big challenges of 2013, he concludes. And building backlog back up. After a weak fiscal 2012, the 2013 fiscal year is off to a great start. "We've had several nice wins that we haven't announced yet. So business is good." □

AMEC LEVERAGES MACTEC FOR BOTTOM LINE & U.S. MARKET PENETRATION

When Hisham Mahmoud took over in October 2010 as president of **AMEC Environment & Infrastructure** (E&I; Alpharetta, GA), one of the three principal divisions of global engineering giant **AMEC plc** (London, U.K.), the business at that time had 4,500 employees and a different name. AMEC Earth & Environmental (E&E) reflected the historic roots of the unit's environmental business, but did not in a comprehensive way portray the scope of the company's then-current book of business.

"When I looked at the portfolio, AMEC E&E actually did more infrastructure work than environmental work," Mahmoud recalls. He told E&E's management team that the name did not "depict what we're about." The emphasis on "earth and environment" wouldn't, for example, inspire a client to choose the firm to design a bridge, even though that was certainly the type of work E&E was capable of doing and increasingly taking on. "It wasn't hard to convince our management to rebrand," he says.

The opportunity to roll out the new brand and name came with AMEC's acquisition in June 2011 of **MACTEC**, a Georgia-based environmental and infrastructure engineering, planning, and construction support firm employing 2,600 people in 70 U.S. offices. Obviously, the deal also added considerable heft to the new AMEC E&I, which as of the end of calendar 2011 employed in excess of 8,000 of AMEC plc's 27,000 employees.

Up until October 2012, AMEC was organized into three divisions—E&I, Natural Resources, and Power & Process, all of which serve the company's 11 market sectors in various ways. The Natural Resources and Power & Process divisions are broken down further into different business units, essentially on a geographic basis, but E&I

is one division serving the global markets.

"E&I has its own operating structure," says Mahmoud. "We develop opportunities with our other divisions, but we also develop opportunities on our own, so we're not a support business."

(In October 2012, AMEC announced a reorganization of its business into three geographic operations—Americas, Europe, and Growth Regions—designed to better support the future needs of their customers. Mahmoud will lead the company's Growth Regions, which includes all of AMEC's business within the Middle East, Africa, the Commonwealth of Independent States, Australia, and Asia.)

E&I's financial numbers for the first half of 2012 principally show the impact of the MACTEC acquisition. Revenue grew 38% compared with the first half of 2011, to £397 million (about $638 million in mid-October 2012 exchange rates), while profits increased by close to 50%, according to Mahmoud. Growth was largely attributable to acquisition, but synergies realized from the integration of the two companies generated 27% growth in the bottom line, he reports.

About 83% of E&I's 2011 revenue was derived from business in the Americas, 9% from the United Kingdom and Europe, and 8% from the rest of the world. The last category is a target for major growth, however. In early 2012, AMEC E&I acquired **Unidel**, a 260-person Australian firm with a strong focus on unconventional oil and gas and some presence in the mining and water sectors. "That deal brought E&I into the Australian market, where AMEC already had about 1,200 people in the other businesses," says Mahmoud.

E&I has also had success in leveraging its Americas and U.K. talent to win work in the Middle East and Africa. The company recently announced the award of a contract to serve as program manager for the remediation of the oil fields in Kuwait—"a project that's been out there for some time," notes Mahmoud, adding "the global market is quite accessible to us because AMEC has a great platform."

Through that platform, E&I is gaining access to growing opportunities in the oil, gas, and energy markets, and in particular in renewable energy—wind, solar, and biofuels—in the United States and Europe. In a recent project, E&I provided the front-end consulting and engineering services for Sapphire Energy, Inc.'s (San Diego, CA) algae-to-biofuels facility, which the Power & Process Division will build.

Despite opportunities like these, the market is a mixed bag geographically, from E&I's perspective. "The business in Canada is robust," says Mahmoud. Because of the natural resources boom there, Canada "refused to participate in the global recession." Of course, supporting the resources sectors, such as mining and oil sands, has meant derivative opportunity in infrastructure development to support the projects.

"Colleges and universities are not graduating a sufficient number of people with the right skills for what we do."

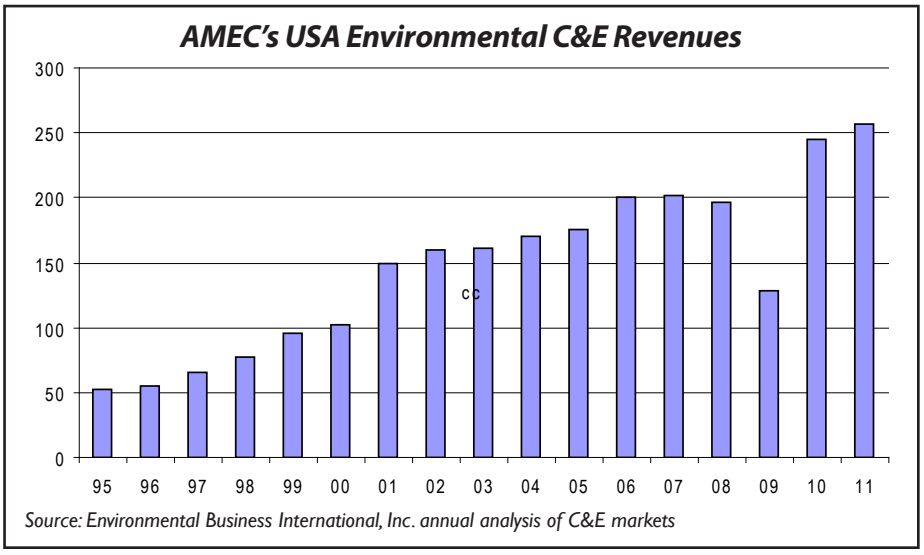
In Europe and the United States, the markets are less even. In U.S. transportation and water infrastructure, the opportunities are mixed "depending on the client," says Mahmoud. "Some municipalities are facing difficulties. However, that market will come back. The demand is there."

E&I picked up a significant amount of U.S. federal government backlog through MACTEC, boosting the federal slice to about a quarter of revenue, Mahmoud estimates. "MACTEC brought us great leverage and a great bench in the federal area," he says, projecting that the public-private client mix will probably continue at about the same level for E&I over the near term.

Being a large firm can have its advantages and its challenges in difficult times, Mahmoud acknowledges. When specific market segments or geographical regions suffer economically, a large firm can shift resources to those that are doing well. But differentiation can be difficult compared with smaller, niche firms that brand around specific specialties, he adds. Any large firm can say that it's better than the others, but "in reality there are a lot of very good large firms out there."

A lot of executives will also say that finding the talent and skills they need to grow is still a huge challenge for the industry. Mahmoud goes further, saying it's a national challenge. "A key issue facing the industry is the fact that our colleges and universities are not graduating a sufficient number of people with the right skills for what we do.

"Our country was built on innovation, and on people taking risks and pushing the envelope," he declares. "Look at all the innovation and technology we've brought to the world. We got above that, for some reason, and we've started thinking, we'll just be the middleman—the person doing the financing or the marketing." With a flash of optimism, he concludes, "I think people are now coming to grips with what we have to do to get back that original vision." □



RESPONDING TO SOFT ECONOMY, SEVEE & MAHER STEPS UP BUSINESS DEVELOPMENT AND DIVERSIFIES

The recession of 2008-2009 affected environmental consulting and engineering firms in different ways and at different times in the downturn's cycle, depending on which markets they serve. The industry's health typically lags economic cycles by several months, and good backlogs of long-term contracts can extend that lag period even longer.

So it was that 2009 was actually the best year ever for **Sevee & Maher Engineers**, Inc.(Cumberland, ME), a 40-employee environmental consulting and engineering firm currently in the process of branching farther out of its traditional New England marketplace. The success was attributable to solid backlog in landfill engineering work for the private sector, which still accounts for about 50% of the company's business, according to Guy Cote, Sevee & Maher's president.

"A landfill expansion can be a 3- to 5-year project," says Cote. "We had a lot of projects in the pipeline." As the backlog was worked down, 2010 and 2011 were leaner years, and 2012 is "shaping up to be about the same," he notes, adding, "we're holding steady. In 2013, I predict growth will be back up to about 5 to 8%."

This return to growth owes as much or more to conditions of the company's own making than to any rebound in the overall economy. "Clients are holding tight onto their money," says Cote. "What used to be easy in terms of adding scope—they now frown on that. They have set budgets, and they stick to them."

The pulp & paper industry has historically been a major client, but the number of operating mills in Maine has gone from about 20 to a mere handful, "so trying to keep people busy here in Maine is difficult," says Cote. The firm's response has been to reach out to other mills up and down the East Coast, and the results have been positive.

"A lot of environmental managers tend to move from mill to mill, sometimes within the organization, sometimes to other companies," notes Cote. Although landfill operations can pose liabilities, they don't make pulp & paper companies money, so the level of attention they devote to their landfills—and the level of expertise in their environmental managers—can vary. Some of these environmental managers on the move thus find that their new employers are spending more than they should on their landfill operations, "so they'll call us," says Cote.

The expertise required in landfill engineering—hydrologists, geologists, engineers, etc.—has been fairly easy to apply to the remediation business, so Sevee & Maher has diversified in that direction, according to project manager and company veteran Jim Atwell. "We don't participate in the big government programs, but we have several Fortune 100 companies we work for in Maine and the Northeast."

Environmental compliance for industrial companies has also been a growth area, Atwell reports. "The private sector has laid off some of their environmental employees and provided opportunity, at the corporate level and the site level."

Another emerging opportunity, providing only a tiny slice of revenue thus far, is in the biofuels arena. Sevee & Maher has perhaps half a dozen small clients who are developing technologies for producing wood pellets or cellulosic biofuels, and even if one or two of those projects move forward to commercial scale, it could mean a big boost for the company. "There are lots of entrepreneurs and investors out there, and we're positioning ourselves to provide strategic support around permitting and project development."

Although Sevee & Maher's professionals have worked outside of New England, the firm only recently established an office outside the region—in Atlanta, at the behest of a client, as often happens. That region will be a focused target of growth over the next few years, according to Cote. "We'd like the Atlanta office to grow to maybe half a dozen people."

The firm's response to the softening of the economy hasn't been limited to geographic and client-sector diversification. The company has seen a need to bring its business development capabilities to the next level of sophistication as well. A history of "word of mouth" marketing has given way to a bit more rigorous attention to the presentation of its qualifications.

"There's now a little more flash to the web site, and our quals packages are a little more creative," says Cote. "We're more professional," he notes, quickly adding that "we were professional before, but very simple."

Commenting on the changes in business development, Atwell notes that the company engaged in some strategy sessions and realized that, with 40 people, it couldn't develop a big marketing program but did have to step up the effort somehow. He recalls that "through the first 20 years of the business, we didn't really have to ask for work. It would have to come to us. More recently, we've had to be more proactive, going to existing clients and asking questions like, 'Did you realize that we provided this service?'"

Sevee & Maher's growth plans don't include expanding significantly in staff. "There's a perception that you can manage a company informally using the engineers and scientists you have if you are under 50 people," Atwell remarks."You get bigger than 50 people, you need a business manager, or office manager, or human resources manager, and you start to build more overhead."

Limiting the growth in staff doesn't obviate the need to find new talented people. With over 600 years of experience among its current staff, Sevee & Maher will have to face the prospect of replacing retirees with the same young people with five or more years of experience that other companies are seeking. Fortunately, three new hires in the past year are working out very well, according to Atwell. "We have clients who ask, 'is so and so still with you, or have they retired?' So getting that next generation in place is really key." □

PBS ENGINEERING + ENVIRONMENT BACK ON GROWTH TRACK AFTER RECESSION

Celebrating its 30th anniversary in 2012, **PBS Engineering + Environmental** (Portland, OR), a 120-employee environmental, civil, and geotechnical engineering firm, has had a history of steady, stable growth. The recession of 2008-2009 interrupted that growth, but the company reports that it's back on track, thanks to a number of factors, including some belt-tightening and a broad diversity of projects and clients.

The roots of the employee-owned company are in building-related engineering, especially as it relates to providing environmental, health, and safety services to entities, public and private, that have multiple facilities. That business still constitutes about 50% of overall revenue, according to CEO Ron Petti. Over time, however, the company has branched out into new service areas, such as remediation and "more technically challenging environmental work" such as air quality.

Today, PBS is serving the Pacific Northwest from eight offices in Oregon, Washington, and Idaho. It's projecting somewhere between $15.1 million and $15.2 million in revenue for 2012—back to its historically steady growth rates, according to Petti.

The economic downturn was most definitely an anomaly in a history of stability, Petti tells EBJ. "The last three years felt like 30; they were definitely the more challenging years. We were in a pretty solid growth trajectory for two to three years before the bubble burst in 2008, and we had grown by 8 to 10% per year over the last 30 years."

A decline in the private-sector side of the business was the principal factor leading to the disruption of this solid growth track, says PBS President Guy Neal, who came on board about four to five years ago to lead the ongoing diversification into new areas and manage day-to-day operations. Private-sector property development work in particular took a hit, affecting PBS as it did other environmental consulting and engineering firms around the nation.

To a great extent, "the public market pulled us through," says Neal. "We had lots of education-related work and assignments for public facilities that were bonded and approved." The education market, K through university, represents about one-third of PBS's revenue, and Neal expects that market segment to remain strong.

Responding to the contraction in sales, PBS took some internal steps, such as staff reductions and what Neal refers to as "some administrative tightening"—elective measures such as limitations on 401k matches. "We managed the bottom line pretty tightly," he says. As a result, the company managed to stay profitable and issue bonuses.

Another key to the company's ability to thrive was more external—the diversification of its business, both in terms of the market sectors it supports and the broad range of clients it is serving and projects it is undertaking at any one time. PBS has completed more than 36,000 projects over its history and averages about 2,000 projects per year. "We have some marquis clients, but if any one of them went away, it wouldn't sink the ship," says Petti.

In some market sectors—for example, solid waste—the existing base of business has increased. Within the past year or two, PBS landed some major solid waste projects, including due diligence, site acquisition, permitting, and design/build work for a major West Coast solid waste management firm that is expanding in the Pacific Northwest.

The company has scored some recent high-profile projects as well. For example, it served as the environmental consultant for the contractor that removed two dams on the Elwha River in Washington state's Olympic Peninsula, as part of the Elwha River restoration project. The dam removals—the two largest in the country to date—have been closely watched by policy makers and environmental groups, as well as the engineering community, as tests of how dam removals in the United States can serve environmental as well as economic purposes. "We were proud to be part of that project," says Neal.

PBS has made advances in two other areas of its business. In transportation, "we've become a really solid go-to firm for design/build projects in the Pacific Northwest," says Petti, who notes that building its reputation in transportation engineering over the last eight to nine years has helped it to land some large projects. He adds that the firm recently won a regional environmental stewardship award—one of two issued—for its work in helping a contractor achieve a high level of environmental compliance on a major project.

On a front that's perhaps a little bit different for an environmental consulting and engineering firm, PBS has also achieved success in leveraging its database and web-hosting capabilities to provide project- and facility-related information to its client base. Clients like Intel, Kaiser-Permanente, Boise Cascade, and PBS's government and education customers can access information on their facilities on the PBS-hosted platform, which allows the client as well as PBS project managers to update data.

Acknowledging that the firm is competing for design-build projects with larger, and sometimes much larger, firms, Petti says that PBS's ability to win design-build work is a function of his, Neal's, and other staff members' long experience in civil engineering and construction management, and confidence in their ability to take on even the larger engineering, procurement, and construction (EPC) projects that come their way.

"We've always been comfortable pursuing work with contractors and working alongside them," says Petti. "We've been doing EPC work for a long time, and we're a licensed general contractor. We don't have the yellow iron in the field, but we manage a lot of work for our clients."

Looking forward, "we're starting to see an uptick on the private-sector side of the business," says Petti. The company has avoided making any moves towards the attractive California market, but clients are starting to exert some pressure on PBS to have a presence there, he notes.

However and wherever PBS grows, the company will attend most closely to its clients and the quality of its work, and to attracting and keeping good talent, says Neal. "We're after clients that we'll have for life. The 2,000 projects we do a year require our 120 people to be very nimble, wearing a lot of hats and doing a lot of work in short order. Having quality people is thus important."He adds, "we've had good success. The lastfive or six hires have been homeruns." ☐

UNDER NEW OWNERSHIP STRUCTURE, ERM EMBRACES "SUSTAINABILITY" BRAND

Long recognized as the largest pure environmental consultancy in the world, **Environmental Resources Management, Inc.** (ERM; London, U.K.) has for the last couple of years been in the process of updating the "environmental" brand. Under a new ownership structure as of July 2012—the latest in a series of ownership changes in recent years—ERM is leveraging that new structure around the recognition that environmental work is no longer simply about addressing the legacy of past industrial practices or complying with environmental law, but about the duty of care that today's corporations must show in using resources wisely and preserving them for future generations.

In short, ERM now sees itself first and foremost as a sustainability consultancy. Under that brand, it has made a significant push to increase its business in the resource and energy sectors, acquiring where needed over the last year or two to strengthen the offering, while maintaining its relationships with key clients in other sectors.

"Our new strategy is simple and has one clear goal: to be recognized by our clients and employees as the pre-eminent global sustainability consulting firm," says Simon Garcia, ERM's global head of communications and knowledge sharing. "We launched the new strategy in 2010 under the banner, 'One Planet. One Company. ERM.' The title acknowledges both the need for society to manage the earth and its resources in a sustainable way and the importance of the consistently high-quality advice and global support that ERM provides to its clients."

Key to implementing that strategy, in management's view, will be the latest change of ownership. In July 2012, "we completed a refinancing that saw **Charterhouse Capital Partners** replace **Bridgepoint Capital** as our private equity partner," says Garcia."Charterhouse acquired a stake in the region of 55%, with the remaining 45% owned by our employees."

The refinancing arrangement with Charterhouse "enabled ERM to embark upon our new strategy, which will allow us to grow into a truly global, market-focused, leading sustainability consulting company," says Garcia."It was important to us that we were able to secure a very good match in terms of scale, cultural fit, experience, and management approach from our investor, and Charterhouse provided that."

A look at the recent financial results show that, even prior to the refinancing, the strategy had been working. The fiscal year ending on March 31, 2012 was ERM's best ever, with gross revenue up 17% over the previous fiscal year to $799 million. The company employs 4,700 people working from 140 offices in 40 countries, and it ranked at number 19 on *Engineering News-Record*'s (ENR) 2012 list of the top 200 environmental firms, up from number 21 the year before.

2012 is shaping up as a continuation of this success. "Year to date, we continue to grow at around 15% organically, and with two highly complementary acquisitions in the last 12 months, we are looking towards another very strong year," says Garcia. "The key drivers relate to the great macro-drivers of our time, including population growth, demand for energy, water, and other 'commodities,' economic development in the emerging economies, and increasing awareness of the fragility of the planet and the impact of this on expectations for major, responsible corporations."

The two acquisitions were both designed to strengthen ERM's presence in the resource sector. The acquisition in October 2011 of **OASIS Environmental**, Inc. (Anchorage, AK), a 100-employee environmental consulting and engineering firm serving the Pacific Northwest market, "gave ERM a position in the Alaskan oil and gas, power and mining sectors," says Garcia. "The combined team allowed ERM to build upon Oasis' legacy as Alaska's largest private environmental services provider."

In September 2012, ERM acquired **Rescan Environmental Services Ltd.** (Vancouver, B.C.), a 170-person environmental consulting firm that provides impact assessment planning, water management, air quality management, and social consulting services to the mining industry around the world, with a particular emphasis on Canada and Latin America. The acquisition "allowed us to build on Rescan's reputation as a highly respected family-run consulting firm in the Canadian mining sector, with the full suite of service provision that ERM had been offering to its clients since establishing a permanent practice in 2003," Garcia notes.

From ERM's perspective, the sustainability marketplace has been undergoing some change as the global economy emerges from recession. "Generally speaking, our major clients are looking at their procurement activities on a global basis," Garcia explains. "Where once they had procured locally, now they are applying more global standards for procurement, seeking benefits in cost saving and economies of scale. So it's imperative for us to engage organizations at a global level as well."

That means that ERM is "talking to organizations much more at the C-suite level now," Garcia notes, whereas "we would have worked previously with supply managers and local managers to get on the preferred supplier list."

He stresses that ERM is well-positioned to make its case at higher levels within client organizations. "We have global practices and global leads, and we've responded very quickly to that trend. We're becoming more strategic partners to our clients, in addition to working on individual sites and individual projects." ☐

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