The Experts

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Colin Kelly is a partner in Alston & Bird's Products Liability and Litigation & Trial Practice Groups in Atlanta, Georgia. He focuses his practice in the areas of mass/toxic torts and he has been the company crisis management experience. Colin has a history of trying difficult cases in difficult places and over the past several years has tried seven fatal cancer cases in courtrooms from Miami to Boston. Colin recently served as national counsel to a green technology company involved in consumer product-related lawsuits throughout the US and Canada. Colin has litigated complex matters for many Fortune 500 companies and has prepared cases for trial in 15 different states.

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Karen Price has over twenty years' experience in integrated risk management, major infrastructure projects and climate change. Karen has consented numerous significant projects and leads large project teams on major and contentious developments from their inception through to consent, providing legal advice and strategy to get projects over the line.

Karen is experienced in the use of Alternative Disputes Resolution to achieve this. Karen is recognised as a world leader in climate change issues. She negotiated the only two Negotiated Greenhouse Agreements with the Crown, and facilitated securitisation and trading in carbon credits on international markets for a range of clients. Karen is listed as an experienced environmental lawyer on the global stage and listederver (L) for inclusion in Best Lawyers in Canada. The Lexpert Canadian Legal directory recognizes John as a Repeatedly Recommended leading practitioner in environmental law. John is named annually to The International Who's Who of Environmental Lawyers.

John is the managing partner of Willms & Shier Environmental Lawyers LLP. He is an active participant in a number of industry associations. He is a member of the Canadian Brownfields Network and serves on the Technical Advisory Committee. He is a member of three MOE Brownfields Stakeholder Working Groups, at which he represents concerns of site operators, consultants and developers:

- The Brownfields Stakeholder Working Group
- A&WMA/MOE's Air Practitioners' Stakeholder Working Group

John serves as a Director of the Ontario Environmental Industries Association (ONEIA). He is a member of and active participant in the Air & Waste Management Association. He belongs to the Ontario Stone, Sand & Gravel Association and the Canadian Manufacturers and Exporters.

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Environment Law

1. What areas are currently creating the most work for environmental lawyers?

Bromberg: The practice of environmental law has changed considerably over the last 25 years - from responding to notices of violation and understanding how best to comply with myriad regulations – to determining how to get ahead of the curve and be proactive. Areas such a green law and related marketing practices, issues pertaining to renewable energy and integrating it into the existing grid, introducing consortia into the renewable energy world, Power Purchase Agreements, carbon credits, fracking and representing the various parties to agreements governing their respective rights (and managing the PR aspects of this divisive issue) are all matters creating work for environmental lawyers today. I strongly suspect that there will be a fair amount of litigation over the “green” claims that have become so ubiquitous and, in many instances, so misleading or inappropriate. I anticipate litigation arising from solar installations including property damage (to the roofs) as well as complex contract claims. Of course, any time an environmentally distressed property is involved in a transaction, environmental lawyers are needed to negotiate the terms of the agreement, allocating the environmental risks, liabilities and obligations. This provides significant work in the more industrialized states/areas where nearly all properties have environmental issues. Before the last economic downturn in the US, there was considerable interest in acquiring and rehabilitating environmentally contaminated properties. As the economy continues to recover, I am beginning to see renewed interest in this area, from entrepreneurs to investors (both private and public).

Price: Large businesses, particularly before Boards of Inquiry specifically appointed under the RMA to determine applications for nationally significant projects, are currently dominated by reading (or state highway/expressway) proposals. Minerals and petroleum exploration continues to be very active, with support from Government policy (and reform) promoting investment and development of this sector. At the same time the use of fracking to exploit resources has become increasingly controversial. There has also been work in fisheries and aquaculture, with recent legislative reforms to aquaculture legislation, and new regulation of New Zealand’s exclusive economic zone and the continental shelf. Energy work (particularly renewable energy generation) continues, but at a much lower volume than in previous years as a result of reduced demand post GFC.

Willms: Willms & Shier focuses on environmental, energy and Aboriginal law, and all three practice areas have seen a major increase in litigation over the past five years. First Nations and Métis communities are increasingly relying on the courts to resolve complex issues centred on the duty to consult prior to resource development, as well as to clarify their treaty and constitutional rights. Green energy policies promoting solar and wind-based projects are running into fierce local opposition, while the hydraulic fracturing of unconventional oil and gas reserves is raising new environmental concerns. Finally, provincial regulators are becoming more aggressive in utilizing their enforcement powers, while the courts appear to be more willing to impose the higher sentences mandated by our amended regulatory framework.

Gersungan: In Indonesia, the major environmental issues include illegal loggings or mining operations, deforestation, and environmental protection. For example, while the number of prosecutions in Ontario have held relatively steady over the past three years, the fines levied have increased dramatically from $1.1 million in 2010 to almost $3.3 million in 2011 and more than $5 million in 2012. This also contrasts with the previous years as a result of reduced demand post GFC.

2. Have there been any recent regulatory changes in your jurisdiction?

Bromberg: Regulatory program in New Jersey has experienced significant changes over the last several years. Through the promulgation of the Clean Air Act, the New Jersey Department of Environmental Protection (“NJDEP”), to a privatized program led by Licensed Site Remediation Specialists (“LSRPs”) or private environmental consultants, much of the work that has been historically performed by the NJDEP has been shifted to the private sector. This has been facilitated by a new model of private environmental consultants working with the NJDEP to ensure compliance with the applicable environmental laws and regulations. While the NJDEP continues to be involved in the day-to-day operations of the program, the LSRPs are responsible for the majority of the site remediation projects.

Tucker: The Renewable Independent Power Producer Programme in South Africa is entering its Third Bid Submission Window. To date 28 renewable energy projects have reached financial close in this programme, with 19 scheduled to reach financial close in April in 2013. There is a steady stream of environmental review work for developers, sponsors and lenders arising from this programme.

Compliance matters, appeals and criminal defence work are growing in importance as the enforcement directorates of the Department of Water Affairs and the Department of Environmental Affairs (called the Blue and Green Scorpions respectively) increase the range of enforcement activities.

Mining continues to be a big source of work, notwithstanding the present state of the world economy. New mining developments are often contentious from an environmental perspective and are opposed by community and environmental groups, this can lead to appeals of Environmental Management Programmes, Water Use Licences Judicial review and interlocution applications which are amongst the matters that have assisted new mining developments with.
Gurvan: Yes. Following the enactment of the current Environmental Law (No.32 of 2009), which replaces the previous law (No.23 of 1997), several implementing regulations have been issued. These include a government regulation on the procedures for obtaining environmental licenses (No.27 of 2012) and a number of Environmental Minister’s regulations, such as on the guidelines on the enforcement of the law in the process of enforcing Environmental Impact Analysis Study (AMDAF) documents and environmental licenses (No.17 of 2012), the guidelines for imposing administrative sanctions in the environmental protection and management sector (No.2 of 2013), and on the environmental audit (No.3 of 2013).

Whittaker: Yes, a significant volume of new regulations have been adopted recently to bring Ireland in line with its obligations under EU, particularly in the area of Environmental Impact Assessment, Water Services, Renewable Energy, Environmental Liability and Chemicals and Dangerous Substances Regulations.

A new Irish water utility company is being established in 2013, with resulting contractual, governance, financing and legislative changes. Also domestic water charges are to be introduced following a national water meter installation project, and we are likely to see an overhaul in the way that water services and water infrastructure is delivered, managed and financed in the future. It is intended that this will drive greater efficiencies and technical innovation. The Commissioner for Energy Regulation is to take over the role of Water Services Regulatory Authority.

Tucker: The Department of Environmental Affairs continues to implement a new regime for air emissions compliance and licensing and a new regime for waste licensing. These are in a transitional phase and the Department of Environmental Affairs has recently required the registration of waste activities lawfully carried out since the new waste regime commenced but which would require a licence under the new regime.

The Department of Environmental Affairs has also proposed amendments to the “Section 24G” regime in terms of which a company can “regularise” the unlawful commencement of a listed activity for which an Environmental Impact Assessment should have been done. The amendments propose making it more difficult to obtain a 24G authorisation.

3. Given the fast pace of change and an increased sensitivity to litigation risk, is there a greater emphasis on due diligence?

Bromberg: The effect on due diligence depends on the transaction and the dynamics of the deal. There are instances in which other aspects of the transaction make the risks of environmental issues of less import. While there may be, in fact, be other drivers for a transaction, the environmental issues associated with the assets being acquired should always be well and thoroughly vetted because in the end, whatever the original impetus for the deal, it is often eclipsed by environmental issues that were not fully delineated or understood. In a number of instances of which I am aware, the failure to properly and fully understand and track down all of the environmental concerns before the closing have totally “flipped” the economics of the proposed redevelopment. For example, significant contamination that was not detected prior to the closing could result in millions in unexpected remedial costs, rendering the redevelopment far more costly than had been planned and narrowing, if not totally eliminating, and the profit margin.

Because environmental issues carry such potentially expensive consequences, I consider the due diligence provisions of the transaction to be critical. They should be addressed early on in the deal in the Letter of Intent and subsequent documents. The more due diligence involved at the more locations the more time is required. Another wrinkle in the due diligence world in New Jersey was introduced with the SRRA, to which I alluded above. LSRPs are obligated by law to report to the NJDEP what are known as Immediate Environmental Concerns (“IECs”), potentially leaving the seller with lingering obligations for LSRPs lead many parties to elect not to have an LSRP conduct due diligence. Indeed, I generally counsel owners/sellers of assets with potential or known environmental issues to stipulate that an LSRP may not be used by the buyer to conduct the due diligence. For that reason many environmental consulting firms in NJ have elected to have both LSRPs and non-LSRPs (who do not have similar obligations) on staff.

Price: In terms of environmental due diligence, no. This is despite increases in the maximum statutory penalties, and correspondingly increasing fines being imposed by the Courts, for environmental non-compliance. Most companies pay general attention to environmental compliance, and may even have policies and procedures in place for this purpose. However, it appears the potential implications of non-compliance, and resultant enforcement action, remain insufficient for this to be a high priority for most businesses operating in New Jersey. It is not therefore unimportant to see breaches of environmental compliance conditions. For example) there are always completely preventable, and avoidable, breaches of environmental compliance obligations as a result of either poor management practices, or a focus on time/cost issues (or both). Many businesses continue to pay scant regard to environmental matters in a mergers/acquisitions context, again perceiving these to be of insufficient consequence.

Willens: Yes, especially with the province utilizing enforcement provisions that impose liability on directors and officers. We are also seeing cleanup orders for contaminated sites and other environmental problems being issued directly on D & Os. Much of the heightened emphasis on due diligence is focused on transactions involving real property. Phase I and II site assessments, designed to reveal any toxic contamination problems on a property, have become the norm. For manufacturers and service companies, it also makes sense to work with your legal counsel to craft and implement an effective due diligence program. Due diligence will prevent mishaps and is a defence if a misrepresentation results in prosecution.

Gurvan: Yes. The Environmental Law requires any business and/or activity likely to have a significant impact on the environment (e.g. to cause changes to land formation and the landscape or to potentially cause environmental pollution/damage) to be furnished with Environmental Impact Analysis Study (AMDAF) documents and obtain an Environmental License prior to commencing the business/activity. The community must be involved in the process of composing the AMDAFL documents. The AMDAFL document forms the basis for determining the environmental worthiness. Also, an environmental audit to assess compliance with prevailing laws and government policy is required for, among others, any business and/or high-risk activity (e.g. nuclear power plant).

Kelly: In my experience, absolutely yes. Environmental and toxic tort verdicts and settlements in most major US states like California, New York and Florida continue to rise steeply. High profile environmental spills and mining explosions have created renewed public, governmental and media interest in criminal prosecutions for violations of environmental regulations. These confounding factors make it very difficult for even the most innocuous manufacturing or project-related industry a litigation risk and require acquisition companies to do even more in their environmental due diligence. Although I am a litigator, I counsel companies about environmental due diligence and have seen environmental/toxic-tort indemnity issues sink a deal.

Tucker: A more rigorous approach to contaminated land proposed in the National Environmental Management: Waste Act (“Waste Act”), which provisions have not yet commenced, is likely to have a big impact on the due diligence investigation required before a sale of business is undertaken. This is because the Waste Act prohibits the transfer of contaminated land without first informing the person to whom that land is to be transferred that the land is contaminated. Where the land in question is the subject of a remediation order, the Waste Act prohibits its transfer without notifying the Minister or MEC. The Minister or MEC may impose conditions which must be complied with before the transfer can proceed.

As such, in a transactional context it will be important to establish in the first place whether or not the land is contaminated. The important point is that the transfer of the land to the buyer will be regarded as having been carried out by the owner (or the person intending (an owner) may be liable for assessment and remediation costs, even if contamination occurred before the acquisition of ownership.

Where a sale of business transaction is dependent on the transfer of the land, the transaction will be delayed. This will especially be the case where the land is a remediation site because the Minister or MEC will have to be informed of the pending transfer and then determine the conditions under which the transfer must be permitted.

1. With carbon prices plunging, what measures can be taken to generate real incentives to reduce emissions rather than just the purchase of cheap credits?

Bromberg: The Wall Street Journal has sponsored an “Economics: Creating Environmental Capital” conference for the last several years that generates ideas and innovations to economically stimulate change that could result in the reduction of emissions and stimulate renewable and alternative energy. There seems to be a common belief that the private market, through large investment funds such as the California Public Employees Retirement System (“CALPERS”) and Dominion Resources Inc. can and are making a difference through their investment policies. Unfortunately, these investments have thus far been largely losing propositions, with CALPERS chief investment officer noting that such investments have been a “noble way to lose money.” By way of solution, he posits taking illiquidity risks and getting paid for those risks. He notes that what would be needed to make these markets take off is for some entity to step in and either raise the price of carbon or lower the cost of the alternatives. Similarly, the CEO of Skoll Global Threat Fund believes that market mechanisms can be brought to bear in the production of greenhouse gases unless there is a price on carbon that results in entrepreneurs knowing what to aim at and companies knowing what to produce. Others believe that a country and community need to focus more on making green energy cheap and investing in research and development in that regard. Clearly, turning around the waning investments in the green economy of the energy spectrum would go a long way to stimulating change. While natural gas folks might know now to it be an attractive alternative, many warn that the energy needed to extract it bears more of a carbon footprint than was previously believed, even when a carbon credit is applied for about 30% of the US energy profile, up from 13% in 2000 and taking place only behind coal.

A tax incentive program tied into the reduction of emissions is always an attractive alternative to business and would, I believe, produce meaningful results. Since economics is always a powerful driver of change, I would challenge the economists to come up with a scheme that would induce business and industry to cut back on harmful emissions while impacting the bottom line. As a policy matter, it may be advantageous to first incentivize those businesses, such as power plants, that are creating a disproportionate amount of the carbon. That being said, in our increasingly inter-connected world, participation of all countries in the world, a goal that has thus far proven elusive given the varying conditions of the world’s economies.

A somewhat different economic approach to reducing emissions, while not specifically addressing industrial operations, is to continue to build innovative approaches to the donation of land to Land Trusts across the country and world. This succeeds in protecting land from future development and increasing forests whose ecosystems can help to offset (NO HYPHEN) the escalation of the output of greenhouse gases. Approaching the top industrial entities as well as banks and other financial entities and engaging such organizations with them can lead to extensive and complicated negotiations but can ultimately result in very real tax, environmental and PR benefits.
Price: The NZETS aims to cover all gas and all sectors, and includes the forestry sector. Prices for NZUs issued by the NZ Government have plunged following a similar track to carbon prices in Europe. However, due to the bankability of NZUs for future commitment periods, they receive a premium price to other international markets. The Government has recently moved to restrict certain types of international projects from being able to surrender NZUs. However, what will likely have much greater impact on pricing of NZUs, is the inability to access and surrender Kyoto credits beyond 2015. This is the outcome of the NZ Government signalling in December 2012 that it was not prepared to commit to further Kyoto reductions. It is the Government that the NZU will need to put in place some kind of fixed price regime for the post 2015 period to keep the forestry sector incentivised to plant sinks.

Wills: Ontario is falling behind its self-imposed targets to cut the greenhouse gas (GHG) emissions that are linked to global warming and climate change. To close the gap, the Ministry of the Environment is crafting a “made-in-Ontario” GHG emissions reduction program to address major emitters of carbon dioxide, methane, nitrous oxide and other GHGs. Targeted sectors would be expected to cut their current emissions by five per cent over the first five years of the program. Among the proposals on the table are several “flexible compliance options,” including a market-based emissions trading system, offsets for projects undertaken by unregulated sectors (such as landfill methane capture and forestation projects), and support for efficiency investments in energy conservation and renewable energy. However, according to a recently released provincial discussion paper on the subject, “a carbon tax is not an approach that is being developed in Ontario.” Meanwhile, we are watching developments in other provinces. For example Quebec has just adopted a cap and trade system as part of the Western Climate Initiative, with the first joint auction planned for August 2013. British Columbia has been imposing a “revenue neutral” carbon tax on GHG emissions since 2008. Alberta uses a combination of efficiency improvements, carbon off-set credits and payments into its Emissions Management Fund to promote reductions. Nova Scotia has imposed a hard cap on GHG emissions from electricity providers. Saskatchewan is collecting baseline emissions data to determine future reduction requirements and/or payments in its Technology Fund Corp. And the federal government is proceeding with a series of regulations to control and reduce emissions from the major GHG producing sectors, beginning with coal-fired electrical generating plants.

Whittaker: We are advising the Sustainable Energy Authority of Ireland and a number of Energy Services Companies on the development of standard and bespoke Energy Performance Contracts (EPC). No other Irish law firm can boast our level of experience and expertise in this emerging area, and we are currently advising on EPCs involving both energy users (typically a building owner) and the provider of energy efficiency measures, payment for which is subject to careful measurement and verification processes. EPC common in other jurisdictions, including Canada and the US, but is still in its infancy in Ireland. The opportunities for the water, agriculture, food, technology, public and private sectors are huge. The investment required to implement energy efficiency measures is often recouped from the savings achieved in enforcing such measures during the lifetime of the project. Funding for these projects typically comes from third parties or directly from the ESCO itself. This makes EPC an attractive method to building owners for financing and implementing energy efficiency improvements. EPC is driven by the need to increase energy and operational efficiencies, reduce costs and in some cases to meet new legal obligations. At an EU level, it is underpinned by Energy Efficiency Directive Regulations and Green Procurement rules. Ireland has endorsed the European Union’s policy on green public procurement, which provides for an EU indicative target of 50% green procurement, meaning that 50% of all public contracts should be procured using core green criteria.

5. Does your jurisdiction offer any incentives for organizations which meet compliance with environmental legislation?

Bromberg: While New Jersey has no incentives, as such, for organizations complying with environmental regulations, a number of attractive funding programs provide monies to entities that are redeveloping environmentally contaminated properties. In many instances these monies are outright grants as opposed to loans (although lower cost loans are also available). We have worked extensively with many companies and the various state agencies (such as the New Jersey Department of Environmental Protection and the NJDEP) to successfully analyze and maximize the funding available to developers and redevelopers from these programs. It is often advisable to review them all in the context of the proposed project so as to factor them into the economic pro forma. This has been a great boon to developers working in New Jersey.

Price: The main “incentive” for compliance with environmental legislation is the penalties that can be imposed under the Resource Management Act for non-compliance. If an individual or organisation is prosecuted and found guilty of breaching environmental legislation, they may be convicted and (in the case of a real person) receive a criminal record. The penalties include a fine or imprisonment (in the case of an individual), and in some instances clean-up costs. The current maximums are 2 years imprisonment or a $300,000 fine for a natural person, and a $600,000 fine for other bodies (including companies). If the offence is a continuing one, a further fine may be imposed of $10,000 for every day or part of a day during which the offence continues. In addition, the RMA provides councils with powers to impose pecuniary penalties, and to suspend or refuse to issue a resource consent if the person or organisation has been convicted of an environmental breach. There are no “positive” incentives for environmental compliance beyond what the private sector offers. For example, insurers may reduce premiums for companies obtaining ISO 14000 accreditation.

Wills: Ontario is implementing a permit-by-rule process to minimize bureaucratic delay and fast track environmental approvals in a growing number of industry sectors for projects that are considered “low risk.” However, the province can suspend, revoke or refuse to issue an Environmental Compliance Approval if the past conduct of the applicant (or the directors and officers of a corporation) “affords reasonable grounds to believe that the person will not engage in the activity in accordance with the [Environmental Protection] Act.” Similarly, under the proposed amendments to the federal Navigable Waters Protection Act, the Minister can refuse to issue an approval if that refusal is “in the public interest, including by reason of the record of compliance of the owner under this Act.” This follows the recent trend, beginning with BC and now spreading to other provinces, to limit both the provision of permits and the enforcement provisions of their primary environmental legislation to increasing the fines and other penalties that may be imposed on repeat offenders. The courts are also being given greater latitude in imposing tougher sentences, including jail terms, on companies and their officers that have poor compliance records. On the other hand, an Environmental Penalty Order in Ontario can be reduced by up to 35% where there was a qualifying environmental management system in place at the time of the violation.

Gerungan: Yes. In general, the incentives provided include exemptions from or reductions in corporate income tax, subsidies, and, for some kinds of projects, tax holidays as well. The Environment Ministry provides incentives to companies which apply eco-friendly principles in their business activities, such as lessancy in acquiring the required licenses, and tax and customs facilities for exporting or importing eco-friendly goods. Incentives provided by the Forestry Ministry to companies that rehabilitate forests or lands include provision of land or facilities and infrastructure. The Government also provides national power efficiency awards and appreciation to companies to encourage efficient energy consumption in their business operations.

Whittaker: The EPA, Enterprise Ireland and IDA Ireland, the Sustainable Energy Authority of Ireland has compiled a guide for business on green enterprise supports called ‘Developing a Green Enterprise’. This guide provides information on where businesses can go for State agency assistance and support in relation to water conservation, waste prevention, energy efficiency and clean technology.

The Rural Environment Protection Scheme (REPS) was originally designed to reward Farmers for carrying out their farming activities in an environmentally friendly manner and to bring about environmental improvement on existing farms. More recently, our client the Irish Food Board has introduced a Sustainability Charter for Irish food and drink manufacturers, with associated supports to underpin the “Origin Green” brand. Quite a number of environmental grants and sustainability funds are also available from the EU. The Irish Government also provides support for renewable energy which provides alternatives to fossil fuels.

6. Are there any natural resources being factor out?

Bromberg: I am not sure what this means. But, let me take an opportunity to comment on the issue of natural resource damages (“NRD”). For many years, NRD damages were a huge environmental issue in the US, generating significant funds for the state and federal environmental agencies and costing companies millions of dollars. In recent times, however, we are seeing less of an emphasis on NRD damages, except in the largest and most egregious instances. We are also seeing a shift from entirely monetary compensation in such cases to a mix of monetary compensation and environmentally advantageous projects such as the creation of wetlands, dedication of property to land trusts, and the like.

Gerungan: Yes. Under the Forestry Law, all forest areas in Indonesia including the natural resources in there are under the authority of the State and must be used for the maximum benefit of the people. In protected forest areas, open-pit mining is prohibited. Quite recently, given the decrease in fossil fuel and the limited ground water reserves, the Government has issued regulations requiring everyone to save energy (particularly, subsidized oil-fuel) and ground water. The Government is also keen to replace oil fuel with renewable energy and to limit coal production quotas, exploitation and export in an effort to conserve its resources.

7. What eco-friendly products or innovative technology can you see taking 2013 by storm?

Bromberg: We are seeing increasingly positive results coming from technologies such as Sita Thermal Desorption that essentially heat up contaminated soil/groundwater for the purpose of volatilizing off the contaminants. These technologies are becoming increasingly used and increasingly more effective and surgical in their application (i.e., targeting specific and carefully delineated areas of a site). Unfortunately, this technology requires significant energy, which is a drawback, not only in terms of cost but also in terms of the environment and the carbon footprint for the remediation. Indeed, I firmly believe that we are fast approaching a significant turning point in the treatment of contaminated soil and water, examining that carbon footprint and other consequences of these “fixes” that we have been applying over the last several decades. That I believe to be the big challenge to environmental law going forward. We will need to find the ways to use renewable energy sources in remedial programs more effectively. We are making a start, for example, BY partnering solar panels on capped waste sites but have a long way to go.

Gerungan: The Government is promoting, among others, agriculture-based goods, green and clean energy development and energy diversification to increase the use of new and renewable energy (e.g. coal bed methane, geothermal and bioenergy). Companies are encouraged to apply efficient energy consumption and eco-friendly principles in their operations. Thus, goods which are reusable, recyclable and bio degradable, and technology which consumes less energy, uses renewable energy (e.g. solar or wind power), and reduces emission level and pollution are highly likely to be successful in 2013. These include water-based chemical products, organic consumer goods, bio-fuel or electric vehicles, and electric power plant using renewable energy resources (e.g. geothermal).
Kelly: A dynamic new technology company in Atlanta is poised to capitalize on consumer and business demand for "greener" or more energy-efficient electronics. This company sells a credit card sized technology chip that helps improve the life span of large electronic products like televisions, washers/dryers, refrigerators, etc. The technology helps electronic equipment manufacturers maximize power efficiency while protecting against common voltage sags, brownouts, over-voltage conditions, and power outages that silently damage most of our large electronic products every day. The irony is that electronics are becoming more sophisticated and more efficient, but the power grid running these products remains relatively antiquated and inefficient by comparison. The market for bridging this divide with a card-sized technology chip is virtually unlimited worldwide.

8. The concerns about possible pollution to ground-water by the chemicals in hydraulic fracturing (“fracking”) fluids, and the leakage of methane, a gas that aggravated global warming have resulted in France and South Africa slapping a moratorium on fracking. Are the concerns justified?

Price: New Zealand has a history that has been undertaken in the Taranaki Region for more than 23 years. In 2012, as a result of public concern at the increasing use of fracking, often by overseas companies, New Zealand’s Parliamentary Commissioner for the Environment undertook an investigation into fracking and its potential effects. This resulted in new regulations that put large amounts of fresh water needed in the fracking process. As a result of the moratorium on fracking, the chemical compounds used in the fracking liquids, the release of fugitive methane emissions, the contamination of ground-water supplies by both the fracking fluids and the naturally occurring contaminants released by the process, practical worries about increased traffic, dust and noise, and an increase in seismic activity. While agencies in Canada and the U.S. investigate the validity of these concerns, regulators in both Alberta and New Brunswick have developed more detailed technical standards for hydraulic fracturing. These could be implemented on a well-by-well or a drilling pad-by-pad basis through the approvals process to reduce the risk of contamination. The results of this further investigation are expected later in 2013. The PCE has, however, concluded that a nation-wide moratorium on fracking is not presently justified.

Whittaker: The Irish Government is currently undertaking a consultation process and it is recognised that further studies are required before the effects of the proposed type of hydraulic fracturing on the Irish environment are fully understood. It is commonly accepted that the geological complexity found in Ireland and North West Europe makes it particularly hard to predict potential seismic or groundwater impacts.

Wilms: While hydraulic fracturing of oil reserves has been practiced for nearly 60 years in Canada, there have been serious concerns raised over the last few years about the environmental impacts of "fracking" our extensive reserves of shale gas in Western Canada, Ontario, Quebec, Nova Scotia and New Brunswick. These range from concerns over drilling for oil and gas to the chemical compounds used in the fracking liquids, the release of fugitive methane emissions, the contamination of ground-water supplies by both the fracking fluids and the naturally occurring contaminants released by the process, practical worries about increased traffic, dust and noise, and an increase in seismic activity. While agencies in Canada and the U.S. investigate the validity of these concerns, regulators in both Alberta and New Brunswick have developed more detailed technical standards for hydraulic fracturing. These could be implemented on a well-by-well or a drilling pad-by-pad basis through the approvals process to reduce the risk of contamination. The results of this further investigation are expected later in 2013. The PCE has, however, concluded that a nation-wide moratorium on fracking is not presently justified.

Kelly: Those concerns are not grounded in the science underlying hydraulic fracturing. The industry operates under multiple layers of strong regulation designed to protect groundwater, using state-of-the-art, closed-loop systems and redundant layers of cement and steel. And the industry's track record speaks for itself: more than a million wells safely drilled in the US alone. With respect to global warming, America's increased use of natural gas has led to the lowest level of GHG emissions in a generation. And with "green complements" and other technical innovations, the industry is shrinking the already-small GHG footprint of natural gas.

Tucker: On 29 April 2011 the South African Minister of Mineral Resources announced that the processing of applications to explore the Karoo for gas would be suspended pending an investigation by a government task team of the implications of shale gas exploration and production using hydraulic fracturing in the Karoo Basin. The South African Minister of Energy has acknowledged, even if one were to adopt a conservative estimate of the prospectivity of South African shale gas, it is difficult to dispute the many benefits for the United States to have a strong source of domestic energy. Recent studies show that natural gas supports almost 3 million jobs nationwide. In current times of global energy instability, there may be some benefits for the United States to have a strong source of domestic energy.

Environmental groups have threatened legal action to set aside the grant of any rights to explore for shale gas in the Karoo Basin. It remains to be seen whether their concerns will be adequately addressed by the proposed regulations and the threat of litigation will be averted.

9. On the positive end of the scale, it is also believed that the shale gas boom could cut costs significantly for the chemical industry and ultimately benefit the apparel, electronics, machinery and other industries. How will this affect your national economy; and what affect will it have on a more global scale?

Whittaker: The Irish Government is, on balance, supportive of all private sector initiatives for securing additional sources of energy, including shale gas and offshore oil and gas. Concerns regarding the security of supply and Ireland's exposure to the escalating cost of imported oil and gas are real and it is recognised that they could adversely affect Ireland's competitiveness in a world economy. The impact that shale gas has had on the cost of energy in the US has not gone unnoticed in this jurisdiction, nor has the fact that the companies interested in Ireland, including Tamboran Resources, have estimated that some 4.1 trillion cubic feet of gas may be available in Ireland.

Kelly: Natural gas has already provided an enormous benefit to the American economy generally and to many communities that have been struggling. You don't have to look further than places like West Virginia or Youngstown, Ohio—an old steel town that is experiencing a manufacturing renaissance due to the shale gas boom in the Mid-Atlantic. Meanwhile, factories are moving back from overseas and recent studies show that natural gas supports almost 3 million jobs nationwide. In current times of global energy instability, there may be some benefits for the United States to have a strong source of domestic energy.

Tucker: South Africa may have a technically recoverable shale gas resource of 485 trillion cubic feet ("tcf") in the Karoo Basin, which is potentially the fifth largest resource of its kind in the world and the largest in Africa.

The South African Minister of Energy has acknowledged, even if one were to adopt a conservative estimate of the prospectivity of South Africa's shale gas reserves, it is apparent that, they are likely to be a "game changer" for the South African energy sector and are likely to feature more prominently in Integrated Resource Plan for Electricity 2010 – 2030 in the short to medium term when the resource is proven.

From an investor perspective it is notable that the potentially most prospectively potential shale gas acreage is likely to be advertised and awarded through a competitive bidding round (whereas applications are generally processed on a first come first served basis).

10. What key trends do you expect to see over the coming year? In an ideal world what would you like to see implemented or changed?

Bromberg: As noted above, I believe that over the coming year we will begin to evaluate how and why we are remediating contamination in the soil nation on the two different benefits and environmental perspectives. As energy continues to be a consideration, we must look at how and why we may be addressing these issues. While private industry can certainly evaluate these issues, I believe that the environmental agencies of the state and federal government must take the lead in identifying what must be addressed, what "contaminants" we might be able to leave in the soil and groundwater, and in stimulating the private sector to innovate.

Whittaker: A comprehensive licensing regime for the offshore and marine environment, which effectively and efficiently regulates activities including offshore oil and gas, offshore wind and ocean energy, deep sea fishing, fisheries protection, marine leisure activities, and coastal zone management. Currently Ireland's marine environment is not adequately regulated from an environmental perspective, but certain significant EU legislation is due to be fully implemented including the Marine Strategy Directive and Regulations on Marine Spatial Planning. Regulatory uncertainty stymies development and innovation.

We have also recently published a Climate Change Bill and the Irish Government has re-stated its commitment to using Green Procurement as a significant driver towards change, and the Energy Efficiency and End Use Directive is also going to lead to greater use of EPC by public and private building and facility owners.

On 27 March 2013 the Government announced changes to the financial supports for renewable wind energy generation, which provides greater certainty that the wind sector and which is likely to see an increased level of investment in onshore wind. The highest levels of 'wind to grid' were also reported in March 2013. Ireland has significant wind resources, some of the highest in Europe, and currently two companies are proposing to construct direct power lines to export Irish renewable energy direct to the UK national grid. Philip Lee is act...
Kelly: California’s Green Chemistry Program enacted by the California Department of Toxic Substances Control (DTSC) was designed to force companies to use chemistry to reduce or eliminate hazardous material components in their manufacturing process. Its scope is massive and applies to all vendors in the consumer product supply chain -- manufacturer, importer, retailer, etc. I expect to see more state governments following California’s green chemistry lead (a handful of US states already have done just that). In an ideal world, companies would prefer some level of consistency between California, other states and the federal government regarding those substances now regulated as “chemicals of concern” and would prefer that uniform safe threshold limits for these substances be based on independent science and medicine, rather than politics.

Tucker: The legal regime for dealing with contaminated land, particularly historically contaminated land on which ongoing industrial operations are being conducted, urgently needs regulatory certainty. This impacts on a number of areas, for example:

- The actual reporting and intervention levels for contamination are not presently certain and these need to be established for an appropriate regime to operate;
- The contaminated land provisions in the Waste Act which await commencement are unclear and regulations and guidelines are needed to operationalise these;
- In the licensing context the authorities frequently require water quality and other standards for historically contaminated land that are impossible for the operation to comply with.
- Presently there is uncertainty in the Waste Management context regarding when clean up of contaminated land triggers the need for a waste management licence and there is uncertainty regarding the manner in which the authorities should be involved in clean up of minor spills on land.

These are matters which the Department of Environmental Affairs is working on but real progress on these matters in the current year would be welcomed.