

V&E Climate Change Report

June 12, 2012 – Issue 18

Vinson & Elkins is pleased to announce the 2012 edition of *Chambers USA: America's Leading Lawyers for Business* recognized our national Climate Change practice as “great to work with... knowledgeable and extremely responsive.”

Has the New Dawn of Solar Finally Arrived in the Middle East?

By Jon Nash and Christina Kersey

Despite the abundance of sun in the region and the regular expressions of desire to roll out solar generation programs on both a micro and utility scale, the most we could reasonably say to date is that we have seen “green shoots” for the solar sector in the Middle East and North Africa (MENA). While North Africa (particularly Morocco) seems to be moving forward at pace, there has been little sign of significant development in the Gulf Cooperation Council (GCC)¹ countries or even the Levant area. We can point to the success of the 100MW Shams 1 CSP project in the Emirate of Abu Dhabi, which is nearing completion, and smaller 10MW plants in Abu Dhabi and the Kingdom of Saudi Arabia, but there is little else in terms of significant movement on installed solar capacity in the region. On the positive side, there is new capacity in the pipeline. Masdar is currently working on the development of its next 100MW project, the Noor 1 PV project, which Vinson & Elkins is delighted to be advising on, and the general speed of regional project implementation appears to be about to ramp up with the announcement of two new formal renewable energy programs in the United Arab Emirates and Saudi Arabia.

Additionally, King Abdullah City for Atomic and Renewable Energy (K.A.CARE) recently announced plans to generate 41GW solar energy over the next ten years at an estimated cost of US\$109 billion. In Dubai, the development of a new 48 square kilometre solar park was also recently announced, which will boast 1GW of capacity at an estimated cost of US\$3.27 billion. The park is to be named after His Highness Sheikh Mohammed bin Rashid al Maktoum, the ruler of Dubai, and Vice President and Prime Minister of the UAE. These are both very significant programs in terms of size—not just by Middle East standards, but also in comparison to global solar developments to date.

So What's Changed?

The rapid increase in the demand for power throughout the MENA region has been driven largely by population growth, expanding economies, and the development of energy intensive industries—three factors that have put a strain on the region's conventional fuel sources in recent years. This demand is forecasted to continue to grow at more than 7 percent per year for the foreseeable future, which will require an additional 80 to 90GW of new capacity by 2017.²

Taking Saudi Arabia as an example, the country's 2009 domestic consumption of oil and gas was 69 percent higher than in 1999, but its 2011 consumption of crude oil for power jumped an estimated 340 percent in the last five years alone.³

In addition, political and commercial issues have prevented the development of planned gas pipeline interconnections in many other regional jurisdictions, such as the proposed pipelines from Qatar to Bahrain and Kuwait, and from Iran to Sharjah and Oman. This suggests the Middle East is running out of time to introduce significant renewable energy into its generation mix.

Why is Solar the Answer?

Solar irradiance levels in the MENA region are very well matched to meet the midday summer demand peak. It is the opposite of Europe or many parts of North America. Here in the Middle East, the middle of the day in summer represents the time that everyone turns on their air-conditioning and power demand spikes to a peak. Those of us who are involved in the renewable energy business know the capital cost per unit of power output is comparatively expensive. It is unlikely the capital costs will ever reduce to the low levels enjoyed by gas-fired combined-cycle power generation. But that is the key. Solar is not trying to compete there—its true value

Also in this Issue

- 4 The Federal Nexus in EPA GHG Permitting: Additional Burdens on Permit Applicants
- 8 Mexico Passes Climate Change Legislation
- 10 The Social Cost of Carbon and Its Role in the Federal Rulemaking Process
- 13 Australia's Clean Energy Future Package—Does It Have a Future?
- 15 Legislative and Regulatory Updates

see *New Dawn*, page 2

New Dawn, from page 1

is represented by “shaving the peak.” Peak power in the Middle East currently costs a lot of money to generate and solar competes with it already in many places where expensive peak pricing of fuel stock (e.g., diesel, spot LNG) comes into play. Grid parity is already upon us to a significant degree. When relying on conventional fossil fuels alone, the summer demand of about 10.8GW is met with baseload combined-cycle turbines running on cheap legacy gas, together with expensive imported LNG. If 3.5GW of solar PV capacity is introduced, the optimal generation mix changes and the need to “top up” the power supply during peak hours by using expensive LNG-run open-cycle turbines can be almost entirely eliminated.⁴

With oil prices above US\$13 per MMBtu (about US\$80 per barrel oil), solar PV projects become commercially viable in the generation mix without the need for subsidies. As imported gas and/or oil prices continue to increase, this break-even point will continue to drop and solar power will become increasingly more cost effective. This is without factoring in any economic benefit to be obtained through emissions trading schemes, which appear to be growing in influence around the world.

What are the Other Drivers?

The Arab Spring and Diversification of Economies

The Arab Spring has clearly identified the need to respond to the demands and aspirations of the region’s population. Many GCC countries have very young populations which will soon be entering the workforce and seeking new job opportunities. For example, 60 percent of the population of Saudi Arabia is currently under the age of 25. According to the European Photovoltaic Technology Platform, every megawatt of solar power installed creates about 50 jobs in research, manufacturing, installation, and distribution activities. Research has shown that for every 100MW of solar power installed, US\$600 million of GDP growth is generated. These factors have led to a strong push by regional governments towards clean technology and renewable energy innovation as a source of job creation.

Many MENA countries have recognized the importance of diversifying their economies and moving away from the traditional reliance on fossil fuel generated income. For example, the Abu Dhabi government, in an effort to encourage the transition towards knowledge-based and export-oriented industries such as renewable energy, has announced a commitment to making renewable energy sources account for at least seven percent of the Emirate’s total power generation capacity by 2020.⁵ Almost all of this new capacity will come from solar energy. The Shams and Noor projects represent a good step forward in meeting those targets. The decision will contribute to the ongoing diversification of the Emirate’s economy and it is estimated that this commitment will create a renewable energy market valued at more than US\$6 billion over the next 10 years.

On the other hand, some commentators believe that the future lies in creating a large manufacturing base of solar panels in each of the Middle East countries looking to implement solar programs. That concept may not hold true and probably warrants further examination. We accept that if Saudi Arabia implements its program in full, there may well be an economic incentive to install significant manufacturing capacity as a result of the scale of that program. Nonetheless, we remain to be convinced that this would apply across other jurisdictions. More likely, governments would have to fabricate such a market by specifying local content requirements in their programs.

If governments are to roll out solar programs in a competitive bid scenario with a local content requirement, then this will lead

to paying higher than necessary electricity costs as opposed to allowing the market to choose a cheaper source of product (whether it be from China or elsewhere). Should this happen (and setting aside the wails of discontent from electricity regulators in the region), the governments would just be funding another form of subsidy for renewable energy. Is that where regional governments want to end up? A solar program can create jobs in research and development, and based on location, will also necessarily create jobs in maintenance and some in manufacturing. After all, some 60 percent of the cost of a solar PV plant is not related to panels—it relates to the balance of the plant (concrete/steel foundations, the inverter and transformer pads, high voltage wiring, etc). But one needs to be realistic about the aspiration of hosting an entire solar value chain in each country in the region. We must remember that many governments in Europe and elsewhere have also claimed the blossoming renewable energy market as their answer to increased job creation and promotion of economic growth in these difficult financial times. It is not an approach that is exclusive to the Middle East.

The Environment

It is now established wisdom that burning crude oil and its derivatives releases harmful greenhouse gases. The MENA region is facing rapidly rising pollution levels and the accompanying high costs and widespread reduction in quality of life. The region currently has the world’s second-highest air pollution levels (behind South Asia), and the estimated particulate matter concentration is nearly 50 percent higher than the global average.⁶ It is estimated that damage costs due to particulate matter emissions in MENA countries are equivalent to about 0.9 percent of GDP—nearly double the world average of 0.5 percent.⁷ Clean energy sources that do not burn fossil fuels and release particulates would significantly improve air quality.

Lost Opportunity Cost

As well as meeting increasing power demands, renewable energy also has the potential to reduce the domestic consumption of valuable fossil fuels which can then be sold at market prices in the international market. In Saudi Arabia, oil supplied to power plants domestically at the subsidized price of US\$4 per barrel is oil that could otherwise be sold on international markets at a much higher price. The Saudi Electricity and Co-Generation Regulatory Agency estimates that by 2030 the country could burn 850 million barrels of oil a year (30 percent of its crude output) to generate electricity domestically rather than exporting it at world market prices.⁸ In those countries where oil resources are being consumed for domestic power generation (and that does not apply to every country in the region), solar power generation makes economic sense.

What are the Barriers?

Lack of Single Point Responsibility

The renewable energy industry needs a focus for its efforts to engage in the development of a renewable energy program. In most countries in the MENA region, there is no clear ownership at the government level of issues related to renewable energy. This position is beginning to change however as various institutions are being mandated to secure the growth of renewable energy in a country (e.g., MASEN in Morocco, K.A.CARE in Saudi Arabia). Allocating responsibility to one central body allows the industry to engage meaningfully with a country’s goals and targets.

Lack of Regulated Environment

In most MENA countries, the regulatory environment is structured

such that national utility companies define power generation requirements which they are mandated to meet at the lowest possible cost. For this reason, the models for procuring and developing the power sector usually involve private developers under independent power producer (IPP) schemes and at a utility scale only. This procurement model is geared toward large-scale, conventional power stations, which are able to meet specific generation/dispatchability requirements. Again, this position is changing as the traditional IPP model is adapted to suit renewable energy plants on a case by case basis. For example, the Abu Dhabi Shams 1, 100MW CSP plant adopts a modified form of the Abu Dhabi IPP model such that the power purchase agreement has been extensively modified to take into account the “take-or-pay”/non-dispatchable nature of a solar plant.

However, procurement of renewable energy on a project-by-project basis (regulation by contract) is time-consuming. To implement wide scale use of solar technology in the shortest time, governments must consider alternatives and this does not necessarily require the implementation of a “feed-in tariff.” There are some examples of positive changes in the regulatory environment. Jordan has enacted a renewable energy law designed to kick start the implementation of renewable energy projects on a broad basis but to date its government has failed to get behind any significant development. However, the process of developing a regulatory framework which identifies clear policies to govern the installation and distribution of solar power is now underway in several other key markets such as the UAE and Saudi Arabia. As these programs come online and result in development of generation capacity, it is hoped that more and more countries in the region will start adopting policies which will gradually make the MENA region a global hub for solar power.

Lack of Funding Sources

The economic crisis has also led to a global lack of liquidity which has in turn made financing of renewable projects more costly. Bank lending is a precious commodity in the international markets and the Middle East is no exception. Major project development across the region competes for those sources of funding and the smaller-scale renewable energy projects are still seen as getting less “bang for the buck.” However, the nature of solar generation projects (particularly in the PV space) could turn this to their advantage. As the capital cost of PV panels drops, so does the capital cost of funding these projects, ensuring less demand for lending. It will be easier to cover funding gaps on smaller projects than multi-billion dollar projects in other sectors. Further, solar PV is modular. It can grow over time, allowing the possibility to structure lending on a similarly modular basis as plant is brought online and the construction and related performance risk is removed. Lending becomes less risky and could therefore attract more risk-averse lending institutions.

Local Law Requirements

Many countries in the Middle East have complex local law requirements which can prove difficult to navigate for new entrants to the market. Local ownership obligations and complex licensing arrangements require more attention to local law regulation than is commonly the case in the U.S. or European countries. Many new businesses fall afoul of the strict terms upon which a business can operate in the region (licenses do not necessarily cover all activities a business may wish pursue in the field). These and the foreign ownership restrictions may potentially discourage, or at least make it difficult to attract, some investors, but each can be successfully navigated with the appropriate guidance. This is something that we do on a regular basis for clients in the renewable energy sector.

Next Steps

It is now clear that major governments in the region are serious about the implementation of a renewable energy program. It will take time to roll out the programs announced by K.A.CARE and the Dubai government. The devil is always in the detail and it would be foolish if each country did not take its time to ensure that implementation of these programs is tailored to the varying specific requirements or individual jurisdictions. A mere reproduction of what has gone before in the U.S. or Europe would inevitably result in unnecessary difficulties and significant delays. However, the formal commitment of a country to a program and the setting of goals is a very positive step and, for that reason, we are excited by some of the previously mentioned announcements by regional governments looking to expand renewable and alternative energy production and look forward to the next stages of solar energy development in the region.

Jon Nash is a partner and Christina Kersey is an associate in Vinson & Elkins' Abu Dhabi office and members of the Energy Transactions/Projects practice.

V&E is currently advising Masdar on the implementation of a 100MW solar PV plant in the Emirate of Abu Dhabi and also recently advised K.A.CARE in connection with the establishment of a legal and regulatory framework for renewable and alternative energy in the Kingdom of Saudi Arabia.

The firm is a founding member of the Emirates Solar Industry Association and the Middle East Clean Energy Business Council. ■

- 1 The GCC consists of the United Arab Emirates, the Kingdom of Bahrain, The Kingdom of Saudi Arabia, The Sultanate of Oman, Qatar, and Kuwait. See The Cooperation Council for the Arab States of the Gulf Secretariat General, <http://www.gcc-sg.org/eng/indexc64c.html?action=GCC>.
- 2 Ibrahim El-Husseini et al., A New Source of Power: The Potential for Renewable Energy in the MENA Region, Booz & Co. 5 (2009), available at http://www.booz.com/media/file/A_New_Source_of_Power-FINAL.pdf [hereinafter Booz & Co.]
- 3 Saudi Arabia's Coming Oil and Fiscal Challenge, Jadwa Investment (July 30, 2011), <http://www.susris.com/2011/07/30/saudi-arabias-coming-oil-and-fiscal-challenge/>
- 4 Sunrise in the Desert: Solar Becomes Commercially Viable in MENA, Emirates Solar Indus. Ass'n & PricewaterhouseCoopers Int'l Ltd. (January 2012), available at http://www.pwc.com/en_M1/m1/publications/sunrise-in-the-desert-in-collaboration-with-emirates-solar-industry-association.pdf.
- 5 Joanna Hartley, *Abu Dhabi Pledges 7 percent Renewable Energy by 2020*, Arabian Bus., Jan. 19, 2009, <http://www.arabianbusiness.com/abu-dhabi-pledges-7-renewable-energy-by-2020-81231.html>.
- 6 Booz & Co., *supra* note 2, at 6.
- 7 *Id.*
- 8 Rhys Clay, *Saudi Arabia to Unleash Solar by Investing \$109 Billion*, The Energy Collective, May 14, 2012, <http://theenergycollective.com/node/84828>.

The 2012 edition of *Chambers Global: The World's Leading Lawyers For Business* recognized Vinson & Elkins in 29 legal practice areas and seven of the firm's energy practice areas received top-tier rankings. Clients who spoke to Chambers researchers described Vinson & Elkins as “an excellent law firm with a great variety of professionals.”

The Federal Nexus in EPA GHG Permitting: Additional Burdens on Permit Applicants

By Sharon M. Mattox and Matthew T. Dobbins

Introduction

Beginning on January 2, 2011, the U.S. Environmental Protection Agency (the EPA) began permitting greenhouse gases (GHGs) through the Prevention of Significant Deterioration (PSD) program of the Clean Air Act (the CAA).¹ Most states directly issue GHG PSD permits, but EPA currently retains authority to issue GHG permits in Arizona, Arkansas, Florida, Idaho, Oregon, Texas, and Wyoming.² Permit applicants in these states will find themselves confronted with additional federal permitting requirements. When EPA retains authority to issue PSD permits, the requirements of the Endangered Species Act (the ESA)³ and the National Historic Preservation Act (the NHPA)⁴ become part of the PSD permitting process.⁵ This article highlights the unique burdens GHG permit applicants face in states where EPA issues GHG PSD permits, as exemplified by the Lower Colorado River Authority's (LCRA) experience with federal GHG permitting for its Thomas C. Ferguson natural gas-fired power plant (the Ferguson plant).⁶

GHG PSD Permitting

Under the PSD program, major stationary sources⁷ in attainment areas must obtain a permit prior to beginning construction or performing certain modifications.⁸ PSD permitting includes a review of potential control technologies as well as an air quality impact review.⁹ Since 2011, EPA and various state permitting authorities have issued over sixteen air quality permits reflecting Best Available Control Technology determinations for GHGs.¹⁰

The Federal Nexus

Although GHG requirements represent new obligations for PSD permit applicants, environmental laws outside of the CAA also play a role in GHG permitting when the EPA issues the permit. Before discussing the additional laws implicated by EPA's issuance of PSD permits, we note first that curiously, one major environmental law is not: The National Environmental Policy Act (NEPA).¹¹ Generally, NEPA requires federal agencies to analyze the consequences of "major Federal actions significantly affecting the quality of the human environment."¹² Regulations promulgated by the Council on Environmental Quality (CEQ) state that a "major Federal action" includes the "[a]pproval of specific projects . . . by permit or other regulatory decision . . ."¹³ On its face, NEPA and its implementing regulations seem to cover the EPA's issuance of a PSD permit. This would require that GHG PSD permit applicants prepare an Environmental Assessment (EA) or, if necessary, a more extensive Environmental Impact Statement (EIS) as part of their permit application to EPA.¹⁴ Section 7(c) of the Energy Supply and Environmental Coordination Act (ESECA) of 1974, however, exempts actions taken by EPA under the CAA, such as PSD permitting, from the requirements of NEPA.¹⁵ ESECA's statutory bypass of NEPA's substantial obligations means that EPA cannot require permit applicants to prepare an EA or an EIS for their projects.

Regrettably, permit applicants cannot avoid other federal environmental analyses triggered by the EPA's issuance of a PSD permit. Section 7 of the ESA requires that federal agencies consult with the U.S. Fish and Wildlife Service (USFWS) and/or the

National Marine Fisheries Service (NMFS) (collectively referred to as the Service) to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species."¹⁶ Additionally, section 106 of the NHPA requires any Federal agency with the authority to license a project to take into account the effects of the project on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment.¹⁷

A. The Endangered Species Act

EPA's issuance of a PSD permit may trigger ESA section 7 consultation with the Service. Generally, the ESA prohibits the taking of endangered or threatened wildlife species (referred to as listed species).¹⁸ The term "taking" is broadly defined and means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct.¹⁹ ESA section 7 requires that federal agencies ensure that any activity an agency funds, authorizes, or carries out does not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of a listed species' designated critical habitat.²⁰ Any federal permitting decision with the potential to impact a listed species requires consultation with the Service. Consultation is required only for actions that "may affect" a listed species or critical habitat.²¹

A federal agency must analyze all the impacts, including any air emissions associated with the proposed project, on listed species within the project area. Under a strict reading of the ESA, the argument could be made that sources of substantial GHGs and any resulting marginal effects on climate from those GHG emissions may result in an unlawful take of a listed species. This would require consultation under section 7 to analyze the effects of a proposed project's GHG emissions. Several federal agencies, however, have determined that they do not need to consult under section 7 with respect to GHGs.²² Thus, permit applicants are generally not required to analyze the effects of GHGs on listed species within the project area. Instead, applicants must analyze only the effects of regulated criteria pollutants, volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and heavy metals. And so, perversely, a permitting obligation triggered by GHG emissions requires consideration of all environmental effects other than those from GHG emissions.

The requirements of the ESA impose substantial burdens on permit applicants. First, applicants must review the Service's and the relevant state agency's current list of threatened or endangered species found in the project's "Action Area."²³ Regulations define the Action Area as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."²⁴ Indirect effects are those that are caused by the action and are later in time, but still are reasonably certain to occur.²⁵ If no species or their critical habitat is affected by the proposed project, no further action on the part of the permit applicant is required.²⁶

If a permit applicant discovers federally listed species in the Action Area, a Biological Assessment (BA) detailing the potential effects of the proposed project on listed species must be prepared.²⁷ Generally, the permit applicant then submits a BA to the appropriate EPA regional office for evaluation, modification, and ultimate approval. The purpose of the BA is to determine whether or not the effects of a proposed action will result in a take or jeopardize a listed species or critical habitat.²⁸

Although the contents of the BA are left to the discretion of federal Agency involved in the project, regulations state that the agency may consider the following for inclusion in the BA:

1. The results of an on-site inspection of the area affected by the action to determine if listed or proposed species are present or occur seasonally.
2. The views of recognized experts on the species at issue.
3. A review of the literature and other information.
4. An analysis of the effects of the action on the species and habitat, including consideration of cumulative effects, and the results of any related studies.
5. An analysis of alternate actions considered by the Federal agency for the proposed action.²⁹

Additionally, if the proposed action is identical or “very similar” to a previous project’s BA, applicants can incorporate the findings of the previous BA by reference along with any supporting data from relevant documentation.³⁰ In order to incorporate a prior BA, the applicant must demonstrate to EPA that the proposed action involves similar impacts to the same species in the same geographic area and that no new species or critical habitats have been listed or proposed in the Action Area.³¹ The applicant must also supplement the BA with information on any relevant changes.³²

If the final BA determines that the proposed action “may affect,” but is not likely to adversely affect, a listed species, and the Service concurs in writing with the determination, consultation is complete. This is called “informal consultation.”³³ During informal consultation, the Service can suggest changes to the proposed project to either EPA or the applicant in order to avoid a potential adverse impact on any listed species.³⁴

Formal consultation occurs if the agency determines, based on the BA, that the proposed action will adversely affect a listed species, or if the Service does not concur with a BA’s opinion of no adverse effect. According to the regulations, formal consultation can take up to 90 days, with an additional 60 day extension if EPA consents.³⁵ Additionally, neither the applicant nor EPA should make any “irreversible or irretrievable commitments of resources” with respect to proposed project that would have the effect of foreclosing possible alternatives to the proposed project.³⁶ Formal consultation requires the issuance of a Biological Opinion (BiOp) for the proposed project.

A BiOp requires the use of the best scientific and commercial data available in order to provide for an adequate review of the effects of the proposed project.³⁷ The Service can request an extension of the time required for consultation if it determines that additional data is required in order to determine how or to what extent a proposed project will affect a listed species.³⁸ Regulations state that responsibility for funding the gathering of any additional data falls to the applicant.³⁹ During formal consultation, the Service must: (i) evaluate all relevant information to the project, including another on-site inspection; (ii) evaluate the current status of the listed species; and (iii) evaluate the effects of the proposed project and its cumulative effects on the listed species.⁴⁰

If the BiOp determines that the proposed action will result in a take, but will not jeopardize a listed species, formal consultation terminates.⁴¹ The Service will then issue an incidental take permit for the proposed project.⁴² An incidental take permit allows for the taking of any listed species that may occur as a result of the

proposed action and will detail what kind of takes will result from the proposed project and the frequency. The final BiOp must include a statement regarding the incidental take that:

1. Specifies the amount or extent of an incidental taking on the species;
2. Specifies the reasonable and prudent measures the Service considers necessary or appropriate to minimize the impact of the proposed project;
3. Sets forth the terms and conditions the applicant must comply with (including reporting requirements)
4. Specifies the procedures to handle or dispose of any species actually taken.⁴³

So long as an applicant meets the terms of the incidental take permit, the applicant will be protected against prosecution under the ESA.

If, however, the BiOp makes a jeopardy determination, *i.e.*, that the proposed project will result in potential jeopardy to the continued existence of a listed species in all or part of its range, the Service will develop “reasonable and prudent” alternatives to the proposed project.⁴⁴ If the Service is unable to develop any alternatives, it will indicate that in the BiOp.⁴⁵ The permitting agency then has the option to: (i) modify the proposed project and consult again with the Service; (ii) decide not to issue the permit; (iii) disagree with the opinion and proceed to issue the permit; or (iv) apply for an exemption. In practice, if a reasonable and prudent alternative is not available, or if the project will not be modified, the agency generally will decline to issue the permit for the proposed project.

B. The National Historic Preservation Act

EPA’s issuance of a PSD permit also implicates the consultation requirements of NHPA section 106. The requirements of the NHPA are more procedural in nature than substantive,⁴⁶ but can still delay the issuance of the final permit. NHPA section 106 requires that federal agencies take into consideration actions, such as issuing a permit, that could adversely affect historic and cultural properties listed or eligible for listing on the National Register of Historic Places (the National Register).⁴⁷ The parties involved must make a “reasonable and good faith effort” to identify any historical properties.⁴⁸ The lead agency responsible for implementing the requirements of the NHPA is the Advisory Council on Historic Preservation (ACHP).⁴⁹

The general procedures of the ACHP control for EPA’s issuance of a PSD permit. Applicants must coordinate with the State Historic Preservation Officer (SHPO) responsible for the proposed project’s area.⁵⁰ The SHPO assists the applicant in the delineation of the project area and the subsequent identification of any potential historic properties therein. The project area includes the area or areas where the proposed project may directly or indirectly cause alterations in the character or use of historic properties.⁵¹ The scale and nature of the project also influences how the project area is defined.⁵²

Importantly, the scope of NHPA section 106 review is potentially broader than the ESA section 7 review. A federal agency must identify properties, including any prehistoric or historic districts, sites, buildings, structures, or objects, that are listed in the National Register of Historic Places, or eligible for listing in the National Register.⁵³ This

imposes a significantly greater burden on applicants, as it requires an analysis of any items of historic or cultural value in order to determine if they warrant listing in the National Register.

If historic or cultural properties eligible for the National Register are found within the project area, the applicant must determine whether or not the project will have an “adverse effect.” An adverse effect is one that directly or indirectly alters the characteristics of a historical or archeological resource that is listed or eligible for listing in the National Register.⁵⁴ Impacts that may occur later in time must also be considered if they are reasonably foreseeable.⁵⁵ Additionally, applicants must consider the cumulative effects of a proposed project, such as increased noise or air pollution.⁵⁶

An adverse effect is any effect that would “diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.”⁵⁷ Examples include the removal, physical destruction or a change in the property’s characteristics that could affect its integrity.⁵⁸ Adverse effects specifically include “atmospheric elements” that diminish the integrity of the property’s historical features.⁵⁹ If the applicant or the SHPO finds that a proposed project will adversely affect historic or cultural properties, then the parties must begin consultation.⁶⁰

Consultation involves the evaluation alternatives or modifications to the proposed project that could avoid, minimize, or mitigate adverse effects on historic properties.⁶¹ Consultation includes the applicant, the permitting agency, the SHPO, and the ACHP.⁶² Additional parties with an interest in the historical or eligible historical property may also be invited to join.⁶³ The permitting agency must share all documentation prepared as part of the review with all consulting parties and the public.⁶⁴

Consultations usually result in a Memorandum of Agreement (MOA) between the parties that resolves, mitigates, or minimizes the potential adverse effects of the proposed project.⁶⁵ Importantly, the NHPA does not require that an agency choose the least damaging alternative, only that it consider and analyze the impacts on historic resources and develop methods to mitigate the identified adverse impacts.⁶⁶ The proposed project can still move forward if the parties fail to resolve any potential issues, but this requires the approval of the head of the permitting agency.⁶⁷

Case Study: Lower Colorado River Authority

The LCRA was one of the first permit applicants to endure the additional burdens associated with EPA’s issuance of a GHG PSD permit. The proposed project involved the construction of a new 550-megawatt, combined-cycle power plant west of Marble Falls, Texas, on the south shore of Lake Lyndon B. Johnson (LBJ).⁶⁸ The project discharges cooling water into Lake LBJ.⁶⁹ The LCRA and its environmental consultant have been quoted as saying that the ESA and NHPA review represented a greater burden than the GHG permitting process itself.⁷⁰ In a presentation to the Clean Air Force of Central Texas, the LCRA advised future applicants to carefully budget and schedule these additional requirements in order to avoid delaying the PSD permitting process.⁷¹ This section highlights some of the major aspects of the LCRA’s experience and details how LCRA scoped its ESA and NHPA review.

A. ESA Review

In its BA, the LCRA determined that air emissions from the proposed project had the greatest potential to impact areas

surrounding the Ferguson plant property.⁷² Based on this, the LCRA defined the boundaries of the Action Area based on its air emission dispersion modeling.⁷³ The BA measured the effects of the proposed action by using existing emissions from the Ferguson plant as the baseline against the emissions of the proposed new facility.⁷⁴ The BA does not mention any potential effects of the proposed project’s GHG emissions on listed species within the Action Area.

The LCRA identified eight endangered species within the defined Action Area.⁷⁵ As part of its literature review, the BA examined current federal and state lists of endangered and threatened species within Llano and Burnett Counties; a review of all documented rare species and resources known to occur within 15 miles of the Ferguson plant; and a review of relevant scientific literature on the potential impacts of air emissions on general wildlife, listed species, and designated critical habitats in the Action Area.⁷⁶ The LCRA conducted infrared and black and white aerial photography, ground verification of identified vegetation, and pedestrian surveys as part of its attempts to identify any listed species.⁷⁷ Ultimately, the BA determined that the proposed action would have no effect on any of the endangered or listed species because its field investigations did not identify any suitable habitat for a listed species within the Action Area.⁷⁸

B. NHPA Review

The LCRA’s NHPA section 106 review began with an examination of existing historical and cultural records on the area around the Ferguson plant.⁷⁹ Due to its proximity to the head of a small tributary creek, the LCRA determined a moderate probability of the presence of prehistoric sites in the project area.⁸⁰ Archival photographs taken during the original construction of the Ferguson plant were also examined to assess the potential presence of any historical or culture resources at the site.⁸¹ Despite the potential to find historic or cultural resources within the project area, the LCRA’s Cultural Resource staff determined that a field survey was not warranted.⁸² After receiving written concurrence with LCRA’s findings from the Texas Historical Commission, EPA agreed with LCRA’s determination.⁸³

The NHPA section 106 review also included a file search of historical maps, aerial photographs, and relevant literature to assess the visible impacts to any structures eligible for listing on the National Register.⁸⁴ The review discovered several potential structures; however, modern maps and aerial photographs indicated that all potential structures were no longer present or had already been moved in accordance with the SHPO’s directions.⁸⁵ As no historic or cultural resources were identified within the project area, the review did not assess the potential air impacts of the project. As such, the LCRA’s experience sheds little light on the potential depth of NHPA section 106 review with respect to GHG emissions.

Conclusion

The analyses required by the ESA and the NHPA can be costly and time-consuming for permit applicants. Future permit applicants must be cognizant of these additional burdens and plan accordingly. Close coordination with EPA to determine the appropriate scope and depth of the biological, historic, and cultural assessments may be crucial to minimizing the unique impacts of GHG permits in states where EPA retains permitting authority. ■

- 1 75 Fed. Reg. 31,514 (June 3, 2010). The Tailoring Rule is currently under judicial challenge, *Coalition for Responsible Regulation v. EPA*, Nos. 09-1322, 10-1092 (D.C. Cir.); however, the D.C. Circuit declined to stay the implementation of the rule while the challenge was pending. Order, *Coalition for Responsible Regulation v. EPA*, No. 10-1092 (D.C. Cir. Dec. 10, 2010).
- 2 See Environmental Protection Agency, *Clean Air Act Permitting for Greenhouse Gas Emissions – Final Rules Fact Sheet*, Dec. 23, 2010, available at <http://www.epa.gov/nsr/ghgdocs/20101223factsheet.pdf>.
- 3 16 U.S.C. § 1531 et seq.
- 4 *Id.* § 470 et seq.
- 5 The EPA also independently performs an Environmental Justice analysis (the E.J. Order). See Executive Order 12898. Because the immediate burdens associated with the E.J. Order fall on EPA and not directly on the permit applicant, it is beyond the scope of this article, but the analysis can add time and eventual litigation risk to the permitting process.
- 6 Other analyses, such as for the Bald and Golden Eagle Protection Act (the BEPA), are also required. See 16 U.S.C. § 668 et seq. While the BEPA and the E.J. Order represent additional regulatory barriers to a PSD permit from EPA, this article focuses only on the ESA and the NHPA due to the greater burdens associated with these statutes.
- 7 The CAA defines a “major stationary source” in the context of the Prevention of Significant Deterioration program as any source that emits or has the potential to emit 100 or more tons per year of any pollutant and the source falls within one of 26 listed categories or the source emits more than 250 tons per year of any pollutant. 42 U.S.C. § 7475(a). The listed categories include electric generating facilities and certain metal smelters. See *Id.* § 7479(1).
- 8 *Id.* § 7475(a). A modification results when a significant increase in the emissions of any regulated pollutant occurs or when new pollutants are emitted. *Id.* § 7411(a)(4).
- 9 *Id.* 7475(a)(4). See also *Id.* § 7475(a)(3).
- 10 See Margaret E. Peloso & Matthew Dobbins, *Greenhouse Gas PSD Permitting: 2011 in Review*, Vinson & Elkins Climate Change Report, Feb. 10, 2012, Issue 17 <http://www.velaw.com/uploadedFiles/VESite/Resources/ClimateChangeReportFebruary2012.pdf#Art3>
- 11 *Id.* § 4321 et seq.
- 12 *Id.* § 4332(2)(C).
- 13 40 C.F.R. § 1508.18(b)(4).
- 14 See *Id.* § 1501.3 (detailing the requirements for preparation of an EA); see also *Id.* § 1502 (explaining the requirements of an EIS).
- 15 15 U.S.C. § 793(c)(1).
- 16 16 U.S.C. § 1536(a)(2).
- 17 *Id.* § 470f.
- 18 *Id.* § 1538(a)(1)(B).
- 19 *Id.* § 1532(19).
- 20 *Id.* § 1536.
- 21 50 C.F.R. § 402.14.
- 22 See Memorandum from H. Dale Hall, Director, U.S. Fish and Wildlife Service re: “Expectations for Consultation on Actions that Would Emit Greenhouse Gases” (May 14, 2008); Memorandum from Mark D. Myers, Director, U.S. Geological Survey re: “The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas Concentrations, Global Warming, and Consequential Impacts” (May 14, 2008).
- 23 50 C.F.R. § 402.12(c).
- 24 *Id.* § 402.02.
- 25 *Id.*
- 26 *Id.* § 402.12(d)(1).
- 27 16 U.S.C. § 1536(c).
- 28 50 C.F.R. § 402.12(a).
- 29 *Id.* § 402.12(f)(1)-(5).
- 30 *Id.* § 402.12(g).
- 31 *Id.* § 402.12(g)(1)-(2)
- 32 *Id.* § 402.12(g)(3).
- 33 *Id.* § 402.13(a).
- 34 *Id.* § 402.13(b).
- 35 *Id.* § 402.14(e). A consultation cannot be extended more than 60 days without the consent of the applicant. It is often prudent, however, for an applicant to agree to additional time. Thus, regulatory time frames are seldom met.
- 36 16 U.S.C. § 1536(d).
- 37 50 C.F.R. § 402.14(d).
- 38 *Id.* § 402.14(f).
- 39 *Id.* Regulations also state that the permitting agency can fund the gathering of any additional data. However, in practice this burden falls on the applicant.
- 40 *Id.* § 402.14(g)(1)-(3).
- 41 *Id.* § 402.14(i)(3).
- 42 *Id.* § 402.14(i)(1).
- 43 *Id.* § 402.14(i)(1)(i)-(iii)
- 44 *Id.* § 402.14(g)(5); *Id.* at § 402.14(g)(8).
- 45 *Id.* § 402.14(h)(3).
- 46 *Morris County Trust for Historic Pres. v. Pierce*, 714 F.2d 271, 278-79 (3rd Cir. 1983).
- 47 16 U.S.C. § 470f. The Secretary of the Department of the Interior is responsible for maintaining the National Register. *Id.* § 470a(a)-(j).
- 48 *Pueblo of Sandia v. United States*, 50 F.3d 856, 862 (10th Cir. 1995).
- 49 16 U.S.C. §§ 470i(a).
- 50 36 C.F.R. § 800.4.
- 51 *Id.* § 800.16(d).
- 52 *Id.*
- 53 *Id.* § 800.5(a)(1).
- 54 *Id.*
- 55 *Id.* § 800.5(a)(1).
- 56 *Id.*
- 57 *Id.* § 800.5(a)(1).
- 58 *Id.* § 800.5(a)(2)(i), (iii), (iv).
- 59 *Id.* § 800.5(a)(2)(v).
- 60 *Id.* § 800.5(d)(2).
- 61 *Id.* § 800.6(a).
- 62 *Id.* § 800.6(a)(1).
- 63 *Id.* § 800.6(a)(2).
- 64 *Id.* § 800.6(a)(4). The extent of notice and comment at this stage is at the discretion of the permitting agency. The magnitude of the project as well as previous opportunities for the public to comment are also taken into consideration. *Id.*
- 65 *Id.* § 800.6(c).
- 66 *Northwest Bypass Group v. U.S. Army Corps of Engineers*, 453 F. Supp. 2d 333, 341 (D.N.H. 2006)
- 67 16 U.S.C. § 470h-2(l). This decision cannot be delegated. *Id.*
- 68 Biological Assessment of Effects on Threatened and Endangered Species – Thomas C. Ferguson plant Upgrade, LCRA at 1 (August 2011), available at http://www.epa.gov/region6/6pd/air/pd-r/ghg/lcra_other_tomfergusonplant_upgrade.pdf [hereinafter LCRA BA].
- 69 *Id.* at 3.
- 70 RDBenvironmental, A Review of the GHG PSD Permit Process for Texas Power Plant 1, <http://rdbenvironmental.com/wp-content/uploads/2012/01/A-Review-of-the-GHG-PSD-Permit-Process-for-LCRA-Power-Plant3.pdf> (last visited May, 12, 2012).
- 71 Joe Bentley & Larry Moon, Case History of LCRA Ferguson plant GHG Permitting, Presentation to the Clean Air Force of Central Texas, Jan. 26, 2012, available at <http://www.zephyrenv.com/presentations/LCRA-GHG-Permitting-012612.pdf>.
- 72 LCRA BA, *supra* note 68, at 7.
- 73 *Id.*
- 74 *Id.* at 9.
- 75 LCRA BA, *supra* note 68, at III. The species included the black-capped vireo, golden-cheeked warbler, interior least tern, whooping crane, gray wolf, red wolf, concho water snake, and the Bee Creek cave harvestman. *Id.*
- 76 *Id.* at 21.
- 77 *Id.* at 22.
- 78 *Id.* at 33.
- 79 Letter from Daniel J. Prikyrl, Program Manager, LCRA Cultural Resources, to Mark Wolf and Linda Henderson, Texas Historical Commission, Section 106 Review under the National Historic Preservation Act at 1 (Nov. 1, 2010), available at http://www.epa.gov/region6/6pd/air/pd-r/ghg/lcra_other_nhpa.pdf.
- 80 *Id.* at 2.
- 81 *Id.*
- 82 *Id.* at 3.
- 83 U.S. Env't Prot. Agency, Statement of Basis – Greenhouse Gas Prevention of Significant Deterioration Preconstruction Permit for Lower Colorado River Authority 11 (2011), available at http://www.epa.gov/earth1r6/6pd/air/pd-r/ghg/lcra_sob.pdf.
- 84 Letter from Daniel J. Prikyrl, Program Manager, LCRA Cultural Resources, to Mark Wolf and Linda Henderson, Texas Historical Commission, Section 106 Review under the National Historic Preservation Act at 3 (Nov. 1, 2010), available at http://www.epa.gov/region6/6pd/air/pd-r/ghg/lcra_other_nhpa.pdf.
- 85 *Id.*

Margaret Peloso & Matthew Dobbins were honored with the best paper award at the ABA's 41st Annual Conference on Environmental Law for their paper *Moving Beyond Compliance: Using Ecosystem Services to Meet Legal Obligations*. Among other issues, the paper explored the use of wetland preservation as a means to reduce flood hazards and facilitate adaptation to sea level rise. The paper may be viewed [here](#).

Mexico Passes Climate Change Legislation

By Hana Vizcarra¹

On April 19, the Mexican Congress passed a climate change bill that sets greenhouse gas emissions reduction targets for the country, outlines goals for a national climate change policy, and specifically creates the authority to institute a cap-and-trade program in the future. The comprehensive law emphasizes public participation and education and the promotion of renewable resources. The law establishes structures for implementing climate change adaptation and mitigation goals and builds on previous legislative efforts to combat climate change in Mexico. Passed in the *Cámara de Diputados* by vote of 128 to 10 and in the *Senado* by a vote of 78 to 0, the law did not engender the political divisiveness surrounding climate change issues in the United States. President Calderón signed the bill on June 5, and it was published in Mexico's Federal Register (*Diario Oficial de la Federación*) on June 6. The bill goes into effect on September 4, 2012.

Under the Kyoto Protocol, Mexico is a non-Annex I Party, meaning that it does not currently have binding GHG emission reduction targets. As a non-Annex I Party, Mexico hosts numerous projects under the Clean Development Mechanism (CDM), generating certified emission reduction credits that can be used by other Kyoto Parties to achieve their emission reduction targets. The Kyoto regime's flexibility mechanisms, including the CDM, are premised upon the idea that emissions reductions in non-Annex I countries go beyond those that will happen in a business-as-usual scenario and are therefore "additional." The general test for additionality under the CDM requires the project sponsor to demonstrate that the emission reductions created by the process are not legally required and would not happen without the incentives provided by the availability of carbon credits.² Therefore, non-Annex I countries that choose to develop climate legislation are faced with the challenge of how to do so without the resulting law defeating the additionality requirement of the CDM. If a reduction is mandatory under the law, or a project would have happened without the CDM process due to other incentives, it would not be eligible to receive carbon credits.

Mexico's law largely focuses on establishing general policy goals and voluntary reductions, and also requires the adoption of monitoring, measurement, and reporting requirements for yet-to-be-determined industrial sectors. The law provides authority for incentive programs to encourage voluntary emission reductions and even a cap-and-trade program. The law also leaves open the possibility that the government could impose binding emissions reductions limits sometime in the future. Depending on how the government chooses to implement the law, it could pose a risk of defeating additionality requirements and therefore CDM eligibility.

The *Ley General de Cambio Climático* (General Law on Climate Change)³ sets the "aspirational goal" of reducing emissions thirty percent as compared to a hypothetical baseline of emissions that would otherwise occur by 2020 and fifty percent below 2000 levels by 2050.⁴ The law creates the *Fondo para el Cambio Climático* (Climate Change Fund) to pull together public, private, national, or international financial resources for implementing climate change related programs. It also establishes an "aspirational goal" that 35% of the electricity generated by the Federal Government shall come from renewable sources or clean energy by the year 2024, a task that is to be coordinated by the Federal Energy Commission⁵ (*Comisión Federal de Electricidad*) and the Federal Commission for the Regulation

of Energy (*Comisión Reguladora de Energía*).⁶ The government may consider economic and fiscal incentives and instruments such as stimulus efforts, financial instruments such as credits and insurance, and market instruments such as concessions, authorizations, licenses, and cap-and-trade mechanisms to incentivize compliance with the climate change objectives.⁷ The law specifically authorizes the creation of a voluntary emissions reduction market linked to international emissions reduction markets.⁸

The new law identifies the following climate change policy principles and goals:

- Sustainability;
- Shared responsibility between the Federal, State, and Municipal governments and society for mitigation of and adaptation to the adverse effects of climate change;
- Precaution, which is defined as not allowing a lack of total scientific certainty to postpone mitigation or adaptation measures when there is a threat of grave or irreversible harm;
- Prevention;
- Adoption of production and consumption standards for the public, social, and private sectors to transition to a low carbon economy;
- The development of incentives to promote the use of clean energy and renewable energy sources, including the gradual phase out of fossil fuel subsidies;
- Requiring mandatory emissions reporting for specific sources and sectors that generate greenhouse gas emissions and making coordinated efforts to merge other federal or local reporting systems;
- Incentivizing the use of clean public transportation in the Country;
- Taking advantage of methane and other gases generated in waste management;
- Integration, coordination, and cooperation;
- Public participation in the formation, execution, monitoring, and evaluation of the National Strategy;
- Environmental responsibility;
- Use of economic instruments to incentivize the protection, preservation, and restoration of the environment and the sustainable use of natural resources;
- Transparency and access to information and justice;
- Ecosystem conservation and biodiversity; and
- Commitment to the economy and national economic development to achieve sustainability without harming economic competitiveness.⁹

Responsibility under the law is divided between the Federal, State, and Municipal governments, with the bulk of the responsibility placed on the federal government.¹⁰ The federal government must, with public participation, draft a National Strategy on climate change (to be revised every ten years) and update or amend the Special Climate Change Program to implement this strategy. It is given regulatory authority to implement mitigation and adaptation actions envisioned in the law and to regulate emissions. Additionally, the law calls for the promotion of scientific research and education related to climate change issues.

The Federal government must create an emissions reporting system (*Registro*)¹¹ and transmit information to the public through the *Sistema de Información sobre el Cambio Climático* (System

of Information about Climate Change).¹² The government is to establish in its National Strategy document which sectors will face mandatory GHG reporting requirements. Previous governmental policy documents indicate that these are most likely to include the transportation, waste management, electricity, energy, and forestry and agricultural sectors.

The law calls for the development of both adaptation and mitigation policies to achieve its reduction goals. The law outlines the types of objectives that fall within each category. The adaptation section focuses on risk and disaster planning and resource and infrastructure development while the mitigation section focuses on emissions reductions and preserving the environment.¹³

Emissions reductions are to be assessed on a sector-by-sector basis. The law specifically provides that policies that add costs to the private sector or society that will not be financed by international funding sources or other funds may be implemented in a dual-phased approach—initially through a voluntary program and then by establishing specific reduction goals.¹⁴ However, it is unclear if that second phase, creating binding emission reduction targets, will be implemented.

The law outlines particular policy promotion goals for some economic sectors and prioritizes sectors with the highest potential for reductions.¹⁵ For example, it calls for such wide-ranging initiatives in the transportation sector as investing in the creation of bike lanes and non-motorized transportation infrastructure, developing public transportation systems, and promoting working from home or carpooling.¹⁶ In a section addressing reducing emissions in the energy industry, the law specifies including externalities in the decision making process regarding electricity generation, promoting energy efficiency practices, and incentivizing renewable energy development, among other approaches.¹⁷

The law creates various entities to implement its initiatives and provides broader authority to those that already exist. For instance, the law grants broader authority and tasks to the *Comisión Intersecretarial de Cambio Climático* (Inter-secretarial Commission on Climate Change), created by the Federal government on April 25th, 2005,¹⁸ for the elaboration of climate change policies. It will be responsible for promoting coordination between agencies, establishing national policies for mitigation and adaptation, approving the National Strategy, proposing research and regulatory instruments, as well as developing national positions for international climate change forums, among other responsibilities. The law specifies the creation of additional working groups for the Commission, including working groups addressing issues such as emissions reductions, Reducing Emissions from Deforestation and Forest Degradation (REDD), and international negotiations. Additionally, the *Consejo de Cambio Climático* (Climate Change Council) will advise the Commission and work with INECC (described below) to develop the National Strategy.

A new entity within the Ministry of the Environment and Natural Resources, *Instituto Nacional de Ecología y Cambio Climático* (National Institute of Ecology and Climate Change or INECC), will be responsible for the technical work necessary to develop policy recommendations. Among other things, INECC will be responsible for:

- Estimating annual emissions;
- Coordinating scientific and technical research;
- Creating and promoting criteria, methodologies, and technologies for conservation and sustainable use of natural resources;
- Helping develop qualified individuals to work in these fields;

- Collaborating in the creation of strategies and programs for sustainable development, the environment, and climate change;
- Conducting sectorial analysis and analysis of the future costs of climate change and the benefits of proposed actions;
- Evaluating goals and actions in the National Strategy to ensure they comply with the adaptation and mitigation objectives outlined in the law; and
- Proposing policy recommendations regarding mitigation and adaptation actions.

Over the next year, the Mexican government will establish the gubernatorial bodies envisioned in the law and begin the process of developing regulations and implementing the law's initiatives. As it does so, entities interested in participating in credit-producing projects should monitor the development of the specifics of the incentive programs, monitoring and reporting requirements, and any reduction requirements for their potential impact on additionality determinations. Mexico may become an active market for emissions reduction technology even if the changes resulting from this law limit the ability to garner credits from emissions reduction projects. Although the national reduction goals are "aspirational," the programs and regulations developed in order to reach them will place real requirements on industry. Certain sectors will be bound to annually report their greenhouse gas emissions and subject to fines if they do not comply or submit false information, and binding reductions limits remain a possibility in the future. However, the tenuous status of the Kyoto Protocol and the possibility for its renewal as well as the currently depressed price for the CDM's Certified Emissions Reduction units begs the question of how important maintaining additionality for the sake of Kyoto may be.

Much work remains following the President's signing of the bill. The Federal government must work closely with states and municipalities to develop the National Strategy and regulations without duplicating or contradicting local and regional climate change efforts. Many details were left undecided in the law as passed and will require a coordinated effort among Federal agencies. Although an historic bill, the specifics of what impact the climate change bill will have on industry, technology, and emissions reductions projects remain to be seen. ■

1 A special thanks to Miguel Ángel Mateo Simón and Jeanett Trad Nacif at BSTL Abogados in Mexico City for their review and consultation on this article.

2 See EB39 Report Annex No. 10, Tool for the Demonstration and Assessment of Additionality, available at http://cdm.unfccc.int/EB/archives/meetings_08.html#039.

3 *Ley General de Cambio Climático*, passed by the Congress on April 19, 2012, available at http://www.senado.gob.mx/sgsp/gaceta/61/3/2012-04-19-1/assets/documentos/cambioclimatico_corregido.pdf.

4 Artículo Transitorio Segundo.

5 Mexico's National State Utility.

6 Artículo Tercero Transitorio inciso (e).

7 Art. 93.

8 Art. 94 and 95.

9 Art. 26.

10 Art. 50-12.

11 Art. 87 through 90.

12 Art. 76 through 79.

13 See Art. 27 through 37.

14 Art. 32.

15 *Id.*

16 Art. 34.

17 *Id.*

18 For further information, please visit the official site http://www.cambioclimatico.gob.mx/index.php/politica-nacional-sobre-cambio-climatico.html#comision_intersecretarial

The Social Cost of Carbon and Its Role in the Federal Rulemaking Process

By Tom Meriwether and Brandon Tuck

While cost-benefit analysis has been a part of rulemaking analysis for federal agencies since the early days of the Reagan Administration,¹ federal agencies have only recently begun incorporating climate change impacts into their analyses. The preferred measure for incorporating climate change into regulatory cost-benefit analysis is the social cost of carbon (SCC)—the monetized damages associated with an incremental increase in emissions of a particular GHG in a given year, discounted to a present value.²

The determination of a “price” for environmental goods and services that do not have a market value is subject to uncertainties.³ Even for environmental goods whose benefits can all be experienced today, economic analyses often struggle to comprehend and monetize all of the benefits of the relevant ecosystems and the services they provide. For example, a cost-benefit analysis seeking to quantify the benefits of wetland ecosystems would need to place a price on water filtration, flood protection, breeding habitat, and carbon sequestration functions served by wetlands and potentially many other ecosystem functions that are not yet fully understood. These challenges become even more pronounced when principles of cost-benefit analysis are applied to climate change, as the timing and magnitude of predicted climate changes and their resulting impacts remains uncertain. As a result of these inherent challenges, there have been numerous attempts to estimate the social cost of carbon that have produced widely varying numbers.⁴

This article focuses on the SCC values for carbon dioxide (CO₂) currently used in federal rulemaking and examines applications of the SCC. To date, it appears that though federal agencies consider the SCC as part of their regulatory cost-benefit assessment, the SCC itself is considered too uncertain to serve as the basis of a definitive cost benefit analysis. However, recent Environmental Protection Agency actions have shown a potential willingness to stretch the SCC to non-CO₂ greenhouse gases (GHGs) as a means of providing rough estimates of the benefits of federal rules that reduce GHG emissions, suggesting that its use may become more widespread.

Preliminary Government Attempts to Quantify the Social Cost of Carbon

In the context of contemporary rulemaking with cost-benefit analysis, federal regulations are considered to be economically efficient when the costs of regulatory compliance are less than the benefits to society resulting from the regulation.⁵ Under a pure cost-benefit analysis, all of the costs and all of the benefits would be assigned a dollar value. In the context of environmental regulation, however, regulators are often faced with imperfect information that makes it difficult to place a dollar value upon the benefits under consideration. For example, regulation of conventional air pollutants may require that federal agencies place monetary values upon benefits such as number of cases of asthma, avoidance of premature death, ecosystem health, and survival of plant or animal species. Though each of these certainly has some sort of a “value,” reducing the value to a specific dollar figure is an exercise in abstraction. Recognizing this, many federal

regulatory actions to protect public health and environmental quality eschew a full cost-benefit analysis, finding that some benefits are not quantifiable.⁷

The challenges of benefit quantification are amplified for GHGs where the specific harms averted by reducing GHG emissions are both uncertain and remote in time. For example, increased GHG concentrations may adversely affect agricultural productivity and human health, and may lead to increased property damages from flooding, economic dislocation, and the loss of ecosystem services.⁸ Because global climate models cannot predict with certainty where, when, and to what extent these impacts will be felt,⁹ precisely quantifying the benefits of avoiding them is difficult. The SCC attempts to capture these benefits in the cost-benefit equation by adding the SCC to the benefits side. The SCC is intended to serve as a shadow value,¹⁰ or the maximum price society would be willing to pay now, to avoid the set of future economic damages projected to arise from an incremental increase in GHGs. This shadow value is anything but clear. The initial attempts of several federal agencies to quantify SCC in recent years, as discussed below, illustrate this.

By Executive Order 12,866, federal agencies must “assess both the costs and the benefits of an intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs.”¹¹ When that 1993 Executive Order was issued, however, cost-benefit analysis for environmental issues was still in its infancy. Indeed, much of the development and refinement in cost-benefit analyses for environmental resources has emerged in response to the unique challenges posed by environmental problems and environmental policy.¹² Federal agencies, for example, did not routinely consider the costs or benefits of GHGs in regulations for years. That began to change around 2008. One important event was the Ninth Circuit’s 2008 decision in *Center for Biological Diversity v. National Highway Traffic Safety Administration*.¹³ There, the plaintiffs challenged the Department of Transportation’s cost-benefit analysis supporting its corporate average fuel economy (CAFE) standards for light trucks. The Ninth Circuit disagreed with plaintiffs that a particular statute precluded the agency from conducting a cost-benefit analysis,¹⁴ but it agreed with plaintiffs that if the agency undertook a cost benefit analysis, it must consider the benefits that would result from a reduction in carbon emissions. Specifically, the court found that the Department had not tried, either quantitatively or qualitatively, to measure the benefits from a reduction in carbon emissions that would occur under the regulation, despite measuring the regulation’s costs in the form of impacts to manufacturer employment and sales.¹⁵ The court held that if the agency did a cost-benefit analysis, it could not “put a thumb on the scale by undervaluing the benefits and overvaluing the costs of more stringent standards.”¹⁶ The court found the agency’s failure to evaluate benefits from carbon emission reductions arbitrary and capricious, and it remanded the matter to the agency to conduct the proper analysis.

Soon thereafter, a number of agency rulemaking proceedings sought to include “reasoned determinations” for SCC,¹⁸ but these early agency attempts at estimating the SCC were disjointed, uncoordinated, and inconsistent. Two examples are illustrative. A 2008 Department of Energy rule regarding air conditioner and heat pumps assigned a range of \$0 to \$20 per ton of CO₂ emissions for effects within the United States.¹⁹ By contrast, the Department of Transportation’s final rule in early 2009 for the 2011 Model Year CAFE regulations provided separate SCC values to measure domestic effects (\$2) and global effects (\$33), with a “high

estimate” global value that was one standard deviation above the mean value (\$80).²⁰ In addition, agencies who considered SCC frequently declined to include their estimates as a line item on the cost-benefit balance sheet.²¹ In other words, they presented the possible estimates but left them as “non-monetized” benefits in the final calculation.

The Interagency Working Group on Social Cost of Carbon

In light of the inconsistencies in preliminary government agency attempts to quantify SCC, in 2009 the Obama Administration’s Council of Economic Advisers and the Office of Management and Budget convened an Interagency Working Group on Social Cost of Carbon (IWG)²² to “develop a range of SCC values using a defensible set of input assumptions that are grounded in existing literature.”²³

In February 2010, the IWG released a final report providing four SCC values for a single ton of CO₂ for each year from 2010 to 2050.²⁴ The first three values are derived from SCC values calculated by three models employed by the IWG at discount rates of 2.5%, 3%, and 5%.²⁵ The fourth value “represents the 95th percentile SCC estimate across all three models at a 3% discount rate,” and was “included to represent higher-than-expected impacts from temperature change further out in the tails of the SCC distribution,” *i.e.*, a number to serve as a worst-case scenario.²⁶ Table 1 presents the IWG’s projected values for SCC for four selected discount rates.

Table 1. IWG projected values, at ten-year intervals, for SCC at four selected discount rates (in 2007 dollars)²⁷

Year	5%	3%	2.5%	95th percentile
2010	4.7	21.4	35.1	64.9
2020	6.8	26.3	41.7	80.7
2030	9.7	32.8	50.0	100.0
2040	12.7	39.2	58.4	119.3
2050	15.7	44.9	65.0	136.2

The IWG calculated these estimates using three integrated assessment models, each of which was weighted equally.²⁸ Each model “translates emissions into changes in atmospheric greenhouse concentrations, atmospheric concentrations into changes in temperature, and changes in temperature into economic damages.”²⁹ According to the IWG, the three models it considered are frequently cited in peer-reviewed literature and have been used in Intergovernmental Panel on Climate Change assessments.³⁰ The IWG selected several data sets for four key input parameters to run in each model. The four input parameters are (1) equilibrium climate sensitivity,³¹ (2) projected trajectories of key socio-economic statistics, such as global gross domestic product and population, (3) projected CO₂ emissions trajectories, and (4) discount rates. All other model assumptions and features were unchanged. Because both the input parameters selected by the IWG and components of the underlying models required certain subjective decisions, critics of the SCC have focused upon both the assumptions made by the IWG in selecting input parameters and those implicit in the underlying models.³³

Moreover, the IWG forthrightly pointed out several additional key limitations of its estimates and “several areas in particular need of additional exploration and research.”³⁴ For example, none of the three models account for damages from ocean acidification from CO₂ emissions or species and wildlife loss.³⁵ None of the models consider damages in the event global temperature increases are significantly higher than current prevailing projections, and they are

unable to completely predict how humans and human technology may adapt to warmer temperatures.³⁶ Furthermore, the models do not consider the effects of theorized catastrophic impacts of climate change, such as the collapse of the Atlantic Meridional Overturning Circulation, the melting of the West Antarctic Ice Sheet, or large releases of the potent GHG methane from melting arctic permafrost.³⁷ Accordingly, the IWG stated that SCC estimates used for federal regulatory analysis should continue to evolve as knowledge is gained and the available models improve.³⁸

Notably, the IWG did not attempt in its February 2010 report to estimate SCC values for GHGs other than CO₂, such as methane.³⁹ The IWG also opted not to convert the CO₂ SCC values into values for other GHGs using a “CO₂ equivalent” method based on the other GHGs’ respective global warming potentials. According to the IWG, such a simple conversion would fail to account for key differences in the ways the various GHGs affect the climate. For example, CO₂ has a much longer lifetime in the atmosphere than methane, and CO₂ results in some positive impacts from plant fertilization, unlike the other GHGs. The IWG, however, stated that it “hopes to develop methods to value these other [GHGs]” as part of its ongoing work.⁴⁰

Applying the Social Cost of Carbon in the Federal Rulemaking Process

Since the IWG released its report in February 2010, several federal agencies have used the group’s CO₂ SCC estimates in rulemaking cost-benefit analyses in some fashion. Two recent EPA final rules illustrate remaining limitations of the IWG estimates and potential problems with their use in rulemaking.

On February 16, 2012, EPA finalized its much anticipated and controversial National Emissions Standards for Hazardous Air Pollutants (NESHAPs) for coal- and oil-fired electric utility steam generating units, also known as the Mercury and Air Toxics Standards (MATS).⁴¹ As its name implies, the rule is aimed at reducing emissions of mercury and other air toxics from coal- and oil-fired electric generation plants, but EPA estimated that the controls required by the rule will also reduce CO₂ emissions by 23 million metric tons per year.⁴² In the cost benefit analysis justifying the rule, EPA included monetized climate co-benefits from CO₂ emissions reductions of \$360 million, calculated based on the IWG SCC estimates.⁴³ EPA noted, however, that the SCC estimates were subject to “[i]mportant limitations and uncertainties.”⁴⁴ For this particular rule, the estimated climate benefits were two orders of magnitude smaller than the estimated health benefits from reductions in particulate matter emissions, which were estimated at around \$36 billion.⁴⁵ Therefore, the climate co-benefits were not the deciding factor in the cost-benefit analysis. Several other recent federal rulemakings have similarly included estimates of monetized climate benefits from CO₂ reductions where they were not dispositive in the cost-benefit analysis because they were substantially smaller than other estimated benefits.⁴⁶ Although not the deciding factor in these instances, it is nevertheless remarkable that agencies are purporting to make policy decisions based, at least in part, on estimates that are admittedly speculative and constrained.

More recently, on April 17, 2012, EPA released final New Source Performance Standards and NESHAPs for air emissions from the oil and gas industry.⁴⁷ These rules target volatile organic compound and air toxics emissions, but EPA projected that they will also result in a reduction of over one million tons of methane per year beginning in 2015 as a co-benefit.⁴⁸ EPA used a global warming potential approach to convert the IWG’s CO₂ SCC values into SCC estimates per ton of methane. Using this approach, EPA estimated the 2015 climate co-benefits to range from about \$100

million to approximately \$1.3 billion, with a central value at the 3% discount rate of approximately \$440 million.⁴⁹ EPA, however, acknowledged “the uncertainties involved with” converting CO₂ SCC values into methane SCC values using the global warming potential approach and, accordingly, chose “not to compare [the climate] co-benefit estimates to the costs of the rule for this proposal.”⁵⁰ In other words, EPA did not include the monetized climate co-benefits as a line item in its overall cost-benefit analysis, but nevertheless calculated numerical SCC values and vaguely asserted that the climate co-benefits provide additional justification for the regulations. Until the IWG is able to develop SCC estimates for additional GHGs, EPA and other agencies will likely employ similar tactics in their cost-benefit analyses for rules that will reduce emissions of non-CO₂ GHGs.

Conclusions

Agency consideration of GHGs is a relatively recent phenomenon, and it is no surprise that given uncertainty about the interactions between GHG emissions, temperature changes, climate effects, and economic effects, estimation of the social cost of carbon remain difficult. Despite this uncertainty, agencies are likely to continue to adopt the IWG’s suggested values in their rulemaking procedures. ■

1 See Exec. Order 12,291, 46 Fed. Reg. 13,193, 13,194 (Feb. 19, 1981).

2 Intergovernmental Working Group on Social Cost of Carbon, U.S. Gov’t, Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, 2 (Feb. 2010), available at <http://www.epa.gov/oms/climate/regulations/scc-tds.pdf> [hereinafter *IWG Report*].

3 See National Center for Environmental Economics, Environmental Protection Agency, Guidelines for Preparing Economic Analyses at 4-17, 8-12 (Dec. 17, 2010), available at <http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf?file/EE-0568-50.pdf>.

4 See, e.g., Richard S. J. Tol, The Social Cost of Carbon: Trends, Outliers, and Catastrophes, *Economics – the Open-Access, Open-Assessment E-Journal* (2008), available at http://www.economics-ejournal.org/economics/journalarticles/2008-25/version_1/count (surveying 211 estimates of SCC); Richard Tol, The Marginal Damage Costs of Carbon Dioxide Emissions: An Assessment of the Uncertainties, 33 *Energy Policy* 2064 (2005) (surveying 113 estimates of SCC).

5 See Exec. Order 13,563, 76 Fed. Reg. 3821, 3821 (Jan. 21, 2011); Exec. Order 12,866, 58 Fed. Reg. 51,735, 51,736 (Oct. 4, 1993).

6 A recent EPA periodic report on the benefits and costs of the Clean Air Act, as required under the statute, illustrates how the agency incorporates values for several of these benefits. The EPA calculated the benefits of avoided cases of health effects stemming from air pollution, including premature mortality, heart disease, and respiratory illness, primarily from reduced exposure to fine particulate matter and ozone. See generally EPA, The Benefits and Costs for the Clean Air Act from 1990 to 2010 at ch. 5 (March 2011), available at <http://www.epa.gov/air/sect812/feb11/fullreport.pdf>. The EPA also calculated the benefits to ecological systems, such as plant growth, reduced exposure to corrosive air pollutants, and water body acidification. See generally *id.* at ch. 6.

7 See EPA, Guidelines for Preparing Economic Analyses, *supra* note 3, at 11-3.

8 See *IWG Report*, *supra* note 2, at 2.

9 See Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report* 72 (2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

10 See Charles Griffiths et al. Estimating the “Social Cost of Carbon” for Regulatory Impact Analysis (Nov. 8, 2010), available at <http://www.rff.org/Publications/WPC/Pages/Estimating-the-Social-Cost-of-Carbon-for-Regulatory-Impact-Analysis.aspx>.

11 Exec. Order 12,866, 58 Fed. Reg. at 51,736.

12 See generally, Organisation for Economic Co-operation and Development, *Cost-Benefit Analysis and the Environment: Recent Developments* (2006).

13 538 F.3d 1172 (9th Cir. 2008).

14 *Id.* at 1197.

15 *Id.*

16 *Id.* at 1198.

17 See *id.* at 1201-03.

18 See, e.g., Regulating Greenhouse Gas Emissions Under the Clean Air Act, 73 Fed. Reg. 44,354, 44,446 (July 30, 2008) (EPA notice of proposed rulemaking); Commercial Standard Sized Packed Terminal Air Conditioners and Packed Terminal Heat Pumps, 73 Fed. Reg. 58,772, 58,813-14 (Oct. 7, 2008) (Department of Energy final rule).

19 Commercial Standard Sized Packed Terminal Air Conditioners and Packed Terminal Heat Pumps, 73 Fed. Reg. 58,772, 58,814 (Oct. 7, 2008). The Department of Energy recognized that the “domestic effects” of CO₂ reductions would be less than effects from the same reduction measured globally but opted to use only the domestic values in its analysis. *Id.* at 58,813.

20 Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011, 74 Fed. Reg. 14,196, 14,204, 14,346 (Mar. 30, 2009).

21 See Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 Cal. L. Rev. 1557, 1560-61 (2011).

22 *IWG Report*, *supra* note 2, at 3. The *IWG Report* made its debut as Appendix 15A to a Department of Energy final rule in March 2010 on energy conservation standards for small electric motors. See 75 Fed. Reg. 10,874, 10,909 (Mar. 9, 2010).

23 *Id.* at 3.

24 *Id.* at 39 (Table A-1).

25 *Id.* at 1. The discount rate affects the SCC because it reduces the value of future benefits; therefore, the higher this discount rate is, the lower the value that will be placed on avoided future harms from climate change. In some ways, the choice of discount rate dominates the analysis due to the very long time periods that the SCC analysis attempts to capture. The IWG chose to use three different discount rates, and not the 3% and 7% discount rates traditionally used by agencies, to address disagreement in the literature about intergenerational effects, uncertainty, and other challenges inherent in the SCC analysis. See *id.* at 23.

26 *Id.*

27 See *id.* at 28 (Table 4).

28 The three models are the FUND model, DICE model, and PAGE model. See *IWG Report*, *supra* note 2, at 5-8.

29 *Id.* at 5.

30 *Id.*

31 Equilibrium climate sensitivity is defined as “the long-term increase in the annual global average surface temperature from a doubling of atmospheric CO₂ concentrations relative to preindustrial levels (or stabilization at a concentration of approximately 550 parts per million (ppm)).” *Id.* at 12.

32 *Id.* at 6.

33 See, e.g., Masur & Posner, *supra* note 21, at 1580-87; Frank Ackerman & Elizabeth A. Stanton, *The Social Cost of Carbon*, 53 *Real-World Economics Review* 129, 134-41 (June 26, 2010).

34 *IWG Report*, *supra* note 2, at 29.

35 *Id.*

36 *Id.* at 30.

37 *Id.* at 29, 31-33.

38 *Id.* at 33.

39 *Id.* at 12.

40 *Id.*

41 77 Fed. Reg. 9,304 (Feb. 16, 2012).

42 *Id.* at 9,424.

43 *Id.* at 9,306, 9,431-32.

44 *Id.* at 9,431.

45 See *id.* at 9,432.

46 See, e.g., 75 Fed. Reg. 25,324, 25,345 (May 7, 2010) (estimating, for Department of Transportation CAFE standards for cars and light trucks, a monetized present value for climate benefits due to CO₂ emission reductions of \$14.5 billion, compared to \$112 - \$143 billion in benefits for fuel savings); 75 Fed. Reg. at 10,876-77 (estimating, for Department of Energy efficiency standards for small electric motors, climate benefits from reduced CO₂ emissions ranging from \$31.5 million to \$352 million, compared to over \$855 million in energy savings benefits, which alone outweighed the estimated costs).

47 Final Rule, Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, Final Rule. EPA-HQ-OAR-2010-0505 (Apr. 17, 2012), available at <http://epa.gov/airquality/oilandgas/pdfs/20120417finalrule.pdf>.

48 *Id.* at 246.

49 *Id.* at 247-48.

50 *Id.* at 249-50.

2011 Law360 Energy Group of the Year: Vinson & Elkins

“Boasting one of the largest energy practice groups in the world and continually taking the lead on some of the biggest power and energy deals in the U.S., the sterling work of Vinson & Elkins LLP’s energy team has earned it a place among Law360’s Energy Groups of 2011.” View the [Law360 story here](#).

The *United States Lawyer Rankings* for 2012 listed Vinson & Elkins partner Larry Nettles as the nation’s number one environmental lawyer for the fifth consecutive year.

Australia's Clean Energy Future Package—Does It Have A Future?

By Nicholas Molan

In the federal budget handed down on May 8 of this year, Australia's Labor government has confirmed its commitment to the Clean Energy Future Package, a legislative program including a Carbon Price Mechanism (CPM) which will come into effect on July 1 of this year.¹ The legislation will compel around 500 of the country's biggest polluters to pay AUD23.00 for each ton of carbon dioxide they emit, and aims to cut carbon emissions to five percent below 2000 levels by 2020.² Proposals for a carbon tax have historically been politically sensitive in Australia, which is one of the biggest greenhouse gas emitters (on a per capita basis) and is the world's largest coal exporter. Moreover, at a time when much of the world is experiencing economic uncertainty, many in Australia (which has generally been insulated from the current economic situation by an export-led resources boom) question whether it is the best time for a legislative program of this nature. As the Australian public approaches an election year in 2013, the future of the Clean Energy Future Package is expected to be a question returned to the voters.

The Carbon Price Mechanism

The Clean Energy Future Package is an integrated set of 19 acts of parliament designed to combat climate change. The legislation passed the House of Representatives by a narrow majority in October 2011 and the Senate in November 2011. Central to the legislative package is the Clean Energy Act 2011 (the Act), which establishes the framework for the CPM.³

Who is Liable?

The CPM will cover facilities that have annual direct greenhouse gas emissions of 25,000 tons or more of CO₂e (excluding emissions from transport fuels and some synthetic greenhouse gases), and the liable entity will be the person with "operational control" of the emitting facility.⁴ In the case of unincorporated joint ventures (JV), the Act provides for each of the JV participants to be liable in proportion to their equity share, rather than the operator of the facility bearing such liability.⁵ However, the Act expressly excludes biofuel, biogas, and biomass from covered emissions.⁶

The Permits

Carbon permits will be personal property but will also be regulated as financial products, and accordingly there will be certain licensing requirements in relation to them.⁷ From a tax perspective, any income from the sale of permits will be treated as ordinary income rather than capital gains, and transactions will generally not attract general service taxes (GST) unless they constitute derivative transactions.⁸

Setting the Price

The CPM is broken into two phases for pricing purposes:

1. The preliminary stage (July 1, 2012 to June 30, 2015), where the price of carbon will be fixed at AUD23.00 per ton of carbon dioxide during the period July 1, 2012 to June 30, 2013,

and thereafter rising by 2.5% in each of the following two financial years;⁹ and

2. The flexible price phase (July 1, 2015 onwards), where a limited number of permits will be auctioned each year, creating a cap-and-trade system with the market determining price.¹⁰

The fixed price stage is designed to create price certainty, giving liable businesses (and their customers) time to assess the cost of their carbon emissions and the impact of the same on their business, while the flexible price phase is expected to create emissions certainty, as a reducing number of permits (in line with emissions reduction targets) will incentivize companies to reduce emissions and trade excess permits for profit.

The Cap

Starting from 2014, the government will announce caps for the following five years and will repeat the process on a rolling basis every five years thereafter.¹¹ In setting the caps, the government of the day will be guided by the non-binding advice of the Climate Change Authority, an independent statutory authority.¹² In the event parliament does not pass the regulations at each five year interval, a default cap consistent with the five percent target discussed above will apply.

Compliance and Enforcement

Any liable entity that fails to acquire any permits required by the Act will be liable to a fine equal to 1.3 times the fixed price (during the preliminary stage) and double the average market price for that year (during the flexible price phase).¹³ The Act provides for a statutory regulator, the Clean Energy Regulator, to be established to monitor and enforce compliance with the CPM.¹⁴

Reaction To The Clean Energy Future Package

The introduction and passage of this clean energy legislation in Australia was highly controversial, particularly given that the Labor Party went into the last election promising not to introduce a carbon tax but was forced to retract this position in order to win the support of the Greens party to form government.

Critics of the package have claimed that 60% of Australians will be worse off under it, while supporters claim that (taking into account related tax cuts and welfare payments) 90% of the population will be better off.¹⁵ Equally confusing, while certain business and industry groups have been highly vocal in their opposition to the legislation, others have argued that carbon pricing legislation gives businesses more certainty for their investments in an area often with long lead-times and that will be increasingly subject to legislative intervention on a global level. The only thing that is clear is that the legislation appears to have polarized opinion within the country, with the conservative opposition leader, Tony Abbott, pledging 'in blood' to repeal the legislation as his first move in government if elected in 2013.

However, for the time being the Clean Energy Future Package represents the law of the land in Australia, and accordingly liable entities under the CPM as well as businesses dealing with supply contracts or carbon intensive products and services with such entities need to be aware of the liabilities and risks which their current and future contractual relationships may attract. ■

- 1 See Greg Combet, Minister for Climate and Energy Efficiency, *Securing a Clean Energy Future: Implementing the Australian Government's Climate Change Plan*, The Australian Government Department of Climate Change and Energy Efficiency 1-3 (May 8, 2012), available at http://www.budget.gov.au/2012-13/content/ministerial_statements/climate/download/climate_change.pdf.
- 2 *Id.* at 7.
- 3 *Clean Energy Act 2011*, (Cth) pt 4 (Austl.).
- 4 *Id.* at pt 3, div 2, s A(20).
- 5 *Id.* at pt 3, div 2, s A(21).
- 6 *Id.* at pt 3, div 1, s 19.
- 7 *Id.* at pt 4, div 3, s 103.
- 8 *Fact Sheet: Tax Treatment, Clean Energy Future 1*, <http://www.cleanenergyfuture.gov.au/wp-content/uploads/2011/06/17-FS-Tax-Treatment-110707-1358hrs.pdf>.
- 9 *Clean Energy Act 2011*, (Cth) pt 1, s 4 (Austl.).
- 10 *Id.*
- 11 *Id.* at pt 22, div 2, s 289.
- 12 *Id.*
- 13 *Managing the Commercial Implications of a Price on Carbon*, KPMG Austl. 20 (2012), <http://www.group100.com.au/publications/g100-kpmg-managing-commercial-implications-of-a-price-on-carbon-nov-2011.pdf>.
- 14 *Clean Energy Act 2011*, (Cth) pt 1, s 4 (Austl.).
- 15 *Australian Parliament Passes Divisive Carbon Tax*, BBC News (Oct. 12, 2011), <http://www.bbc.co.uk/news/world-asia-pacific-15269033>.

Editors

Benjamin S. Lippard
Partner

blippard@velaw.com

Larry W. Nettles
Partner

lnettles@velaw.com

Matthew T. Dobbins
Associate

mdobbins@velaw.com

Margaret E. Peloso
Associate

mpeloso@velaw.com

Vinson & Elkins' [global Climate Change practice](#) is organized on an interdisciplinary, cross-office basis to counsel clients on the many new legal risks associated with climate change, as well as to help them profit from emerging opportunities. Our team can counsel clients on a range of areas from term sheets to financing, from environmental due diligence to permitting, from IP protection to downstream licenses, and from contracting for emission allowances to compliance audits. Visit our website at www.velaw.com to learn more about Vinson & Elkins' Climate Change practice or e-mail one of the practice contacts or editors noted above.

Vinson & Elkins Opens San Francisco Office

Vinson & Elkins has opened an office in [San Francisco](#), expanding its footprint in Northern California slightly more than two years after entering the market with an office in Palo Alto.

The San Francisco office is Vinson & Elkins' 16th, joining six domestic and nine international offices that work seamlessly to serve clients across the globe. Lawyers in our San Francisco office will initially focus on white collar, antitrust, and complex commercial litigation matters, as well as intellectual property law.

Those efforts will primarily be led by litigation partner [Matthew Jacobs](#), a former federal prosecutor in San Francisco with nearly 20 years of trial experience handling white-collar defense, internal investigations, and complex commercial litigation.

The move into San Francisco will also allow Vinson & Elkins to better serve its clients in the United States, Asia, and around the world who are doing business on the West Coast, particularly those in the energy and technology/life sciences sectors.

The 2012 edition of *Chambers USA: America's Leading Lawyers for Business* recognized Vinson & Elkins as a leading law firm in 33 practice areas, including Climate Change (Nationwide) and Projects: Renewables & Alternative Energy (Nationwide), and selected 91 Vinson & Elkins attorneys as leading individuals.

Our Climate Change practice is well-equipped to represent clients in the energy and renewable energy spaces on GHG permitting, regulatory advice, and other contentious and non-contentious matters. We also advise clients on carbon-related transactions and on developing green investment funds. Additionally, we have been engaged, along with co-counsel, to represent the lead petitioners seeking judicial review of each of the four rule packages comprising the EPA's greenhouse gas control scheme.

Legislative and Regulatory Updates

California State Senate Seeks Delay in Link to Quebec's ETS, Assembly Passes Bill on Use of Profits from GHG Allowance Auctions

On Wednesday, May 23, 2012, the California state Senate budget subcommittee on resources, environmental protection, energy, and transportation recommended delaying the linkage of the state's CO₂ market with Quebec's emission trading scheme (ETS). The text approved by the subcommittee would delay linkage with Quebec's ETS until 2013. California's Air Resources Board planned to link with the Canadian province's cap-and-trade program within the next few months in preparation for the state's first carbon allowance auction. The subcommittee's budget would need to be reconciled with the Assembly's proposed budget before going to Governor Brown for final approval. The Assembly's budget does not currently address linkage with Quebec's ETS.

Additionally, on Tuesday, May 28, 2012, the California Assembly passed AB 1532, creating the Greenhouse Gas (GHG) Reduction Account (the Account) within California's Air Pollution Control Fund. The bill requires all funds, excluding penalties and fines, collected from AB 32's cap-and-trade program to be deposited in the Account. Under AB 1532, funds raised from the auctions of carbon will be used for the purposes of carrying out AB 32, also known as the California Global Warming Solutions Act of 2006. The text of the bill can be found [here](#).

The bill does not specifically state what the funds from the Account will be used for, but it generally requires that funds from the account be used only for measures and programs designed to achieve reductions in GHG emissions. Authorized uses of the funds from the Account include investment in renewable energy projects and improvements in energy and water efficiency, public transportation, and infrastructure to support clean cars. AB 1532 would apply to an estimated \$1 billion expected to be generated from cap-and-trade auctions in 2012-2013. Revenues are expected to grow significantly in future years. The bill now goes to the California Senate for approval.

New Jersey Legislature Passes Bill to Return to RGGI

On May 24, 2012, the New Jersey Legislature passed Senate Bill 1322, calling for the state to reenter the Regional Greenhouse Gas Initiative (RGGI). Last year, Governor Chris Christie announced that the state would leave RGGI, citing the regional program as ineffective in its efforts to reduce GHG emissions. New Jersey's Global Warming Response Act of 2007 calls for a 20% reduction in GHG emissions below 1990 levels by 2020. The bill now goes to the Governor where it faces a possible veto. The text of the bill can be found [here](#).

IEPA Issues Final PSD Permit for Taylorville Energy Center

On April 30, 2012, the Illinois Environmental Protection Agency (IEPA) issued a final air emissions permit for the Taylorville Energy Center's Integrated Gasification Combined Cycle (IGCC) power plant. Although carbon capture and sequestration (CCS) is planned for the project, the final permit imposed numeric GHG emission limitations that did not account for CCS. The final air permit establishes a GHG emission limit of 111.4 tons CO₂e/million

standard cubic feet of synthetic natural gas produced from the IGCC plant. Opponents of the project argue that the permit should include an adjustable CO₂ limit set at a low level when CCS occurs at the plant, and a high level when it does not. Environmentalists have petitioned the Environmental Protection Agency's (EPA) Environmental Appeals Board to review the permit.

D.C. District Court Rejects Atmospheric Public Trust Claims

On May 31, 2012, Judge Robert Wilkins of the District Court for the District of Columbia granted a motion to dismiss in *Alec L. et al. v. Jackson*, one of the cases filed by Kids vs. Global Warming and WildEarth Guardians alleging violations of a public trust in the atmosphere. The Court found that plaintiffs attempts to assert claims under the public trust doctrine—historically applied to states as holder of the public trust and grounded in the historic rights of navigation, fishing, and commerce—against the federal government for a duty to protect the atmosphere “represents a significant departure from the doctrine as it has traditionally been applied.” Specifically, the court found that the public trust is a matter of state law, and it had no jurisdiction to hear a claim asserted under an alleged federal public trust. In addition, the court concluded that even if there were a federal public trust doctrine, the Supreme Court's holding in *American Electric Power v. Connecticut* displaces the claim. The District Court's opinion may be found [here](#). Vinson & Elkins prior analysis of the suite of atmospheric public trust complaints may be found [here](#).

Second Texas GHG Permit Issued by EPA

On May 24, 2012, EPA Region VI issued its second GHG Prevention of Significant Deterioration (PSD) Permit for the state of Texas. The permit allows Energy Transfer Company (ETC) to construct four new natural gas processing plants and associated equipment in Ganado, TX. The processing plants will receive natural gas via pipeline from shale formations in Texas and process the gas for use in homes and businesses. The permit sets an annual carbon dioxide equivalent CO₂e limit for the plants of 602,888 tons per year (tpy). ETC submitted its initial PSD permit application to EPA last summer, and the review took approximately nine months.

The permit represents the first for a natural gas processing facility and requires the use of high efficiency boilers and good combustion practices. The permit also requires some of the facility's engines to be powered by electricity rather than gas in order to reduce GHG emissions. Importantly, the permit does not address the upstream emissions from the power plant providing the electricity for the plants' equipment, something that many environmental groups believe should be considered in the permit review process.

EPA agreed with ETC's analysis rejecting CCS as an available control technology for the processing plants. ETC found that the nearest CO₂ pipeline is owned by a competitor and a planned future pipeline is too distant to justify the transport costs of capturing the stack emissions. EPA Region VI states that it is reviewing 10 other GHG permit applications for projects in Texas, including one for a proposed coke-fired power plant. Vinson & Elkins' analysis of GHG permits issued in 2011 can be viewed [here](#). ■