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YELLOW ALERT FOR NORTH AMERICA ON NATURAL GAS

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The energy ministries of Canada, Mexico, and the United States drew scant public attention near the end of February when they simultaneously issued a 117-page document entitled *North American Natural Gas Vision*.[1] Too bad! This new trilateral analytical report marks a significant milestone toward compatibility in energy policies on the continent, and (without ever saying so openly) it warns that failure to press ahead on a broad front toward even closer ties in resource development, energy infrastructure, and gas trade would spell serious trouble of various sorts for all three NAFTA partners. The situation has not reached the "red" or "orange" level, but it can fairly be interpreted now as a "yellow alert."

The working-level document was issued almost a month before the leaders of the three countries announced at a summit meeting in Texas the formation of a multifaceted "Security and Prosperity Partnership," but it offers a logical base in a critical area of energy for ministerial-level action to follow the template laid down there by Prime Minister Martin and Presidents Bush and Fox. Energy was one dimension of continental cooperation in which the triumvirate pledged to "set specific, measurable, and achievable goals," to identify "concrete steps [the] governments can take to meet those goals," and to "set implementation dates that will permit a rolling harvest of accomplishments."[2]

At the Texas summit, the three leaders called for consultations with "stakeholders" in their respective countries, leading to an initial report within 90 days and follow-up sessions on a semiannual basis. Energy, of course, was not the only sector in which they called for this ambitious pattern of action. Transportation, financial services, and technology were also singled out. But energy interdependence in North America is already well advanced. And, for a variety of reasons, natural gas is both promising and problematic as a "bridging fuel" to a sustainable energy future for the continent.

"Energy independence" in *oil* for the United States is an attractive political slogan, but it is far from a realistic goal. In fact, this is true for all of North America—and even for the Western Hemisphere as a whole. Up until now, however, North America *has* been largely independent from outside suppliers of natural gas (an environmentally advantageous fossil fuel), and this no-nonsense study by the four-year-old tripartite North American Energy Working Group (NAEWG) envisions a future in which correctly interpreted "independence" in natural gas can be maintained out to 2025 and beyond.

The new publication documents how far the three nations, their people, and their industries have come along on the road to successful "interdependence" in natural gas (and, to some extent, energy in general). It admits that there are still barriers to open competition and the free flow of investment in accordance with generally "letting the market decide" (an implicitly accepted principle). But the penultimate paragraph in its text encapsulates the vision, "The economics of a fully integrated North American market would assure that gas would move across borders between the U.S. and Mexico and Canada, finding the most efficient accessed demand."[3]

As the report states, however, "Canada, Mexico and the United States have natural gas policies that follow the spirit of each

1. North American Energy Working Group, Experts Group on Natural Gas Trade and Interconnections, *North American Natural Gas Vision: January 2005*, http://www.pi.energy.gov/pdf/library/NAEWGGasVision2005.pdf.
2. George W. Bush, Vicente Fox, and Paul Martin, "Security and Prosperity Partnership of North America Established," Office of the Prime Minister, http://pm.gc.ca/eng/news.asp?id=443.
3. *Vision*, p. 105.

country's overall energy priorities."[4] Therefore, converting their agreed-upon joint outlook into a workable solution will impose a different set of responsibilities on each country within an integrated market framework, while still keeping with their diverse policy goals and varied industry-government structures, which can nevertheless be mutually reinforcing.

Using the year 2012 as an intermediate reference point, the NAEWG's Experts Group on Natural Gas Trade and Interconnections foresees in this study an unprecedented medium-term squeeze in this part of the world in terms of gas supply and demand—at least until two new pipelines from the far north start to operate and additional facilities that receive and handle liquefied natural gas (LNG) at ports in all three countries are installed.[5] Even then, the three face changes that relatively few government officials have freely acknowledged, and this is what signals a "yellow alert" (my term).

Identical conclusions from a "think tank," industrial source, private-sector consulting group, or even the energy department of a single nation within North America would not carry the same import. This document reveals no secrets, but in the words of John Efford (minister of natural resources, Canada), "It is the first such document to amalgamate public information on natural gas in all three countries."

It is a cinch that this "amalgamation" could not have taken place without approval from the highest executive authority in each country, and thus it represents a current official consensus. The text, tables, charts, and maps have been virtually ready for more than a year. The problem of acceptable translation into three languages (English, French, and Spanish) cannot alone explain the long delay in its release. Postponement until after the 2004 national elections in Canada and the United States probably put off publication for several months at the end, but the precise words and phrases had to be hammered out by bureaucratic negotiation and sanctioned by executives at the very top in each country. Now we can read them, read between the lines, and fill in some blanks. Among other things, here is what I suggest that sort of scrutiny spells out:

1. Leaders now foresee that domestic production in all three respective countries needs to be spurred, but for the foreseeable future, it cannot keep pace with rising demand—including greater use of relatively clean electricity generation at home and back-and-forth trading with North American partners for the sake of efficiency, affordability, and reliability. After LNG, the report assigns the highest priority for the period between now and 2012 to "increased development of unconventional gas (coalbed methane, shale gas, tight gas)"—especially in the U.S. Rocky Mountains.[6]
2. Ownership patterns for energy resources and infrastructure will continue to vary between the countries (and, to some extent, within each). There is no prospect, for example, that Mexico's Pemex will be privatized or that Canada's provinces will yield their primary control over most energy matters to Ottawa. However, considering traditional Mexican sensitivities about treating oil and gas as a "national patrimony," it is noteworthy that Mexico chaired the subgroup of NAEWG that produced this document, which acknowledges that "Trade liberalization . . . and the integration of Mexico into a *continental* natural gas market has created an increasingly interrelated and *competitive* North American natural gas market" (emphasis added).[7]
3. Since 1999, there has been substantial price convergence for gas in the three countries—which now track one another using key market centers with transportation differentials to various points being charged separately or imputed. Although its bulk prices are controlled in Mexico, even Pemex recognizes supply competition in gas, calculating arbitrage among imports and its domestic sources in the north and the south.[8]
4. In percentage terms, Mexico is and will continue to be more dependent on U.S. exports of natural gas than the United States is on its net imports from Canada—which feed the North American pool. "Multiple service contracts" (MSC) that reward the private sector only with fixed fees on which they must bid competitively in Mexico have not appealed much to experienced exploration and production firms concerned with "opportunity costs" and the anticipated hurdles to rates-of-return, and they attracted no bids at all on two MSC offerings. Despite projected total investment of U.S.$4.3 billion, the five contract winners thus far are expected to generate no more than an additional half-billion cubic feet or

4. Ibid., p. 27. The document goes on to devote seven pages (pp. 27–34) to describing the basic energy policy goals and priorities of each country and seven more (pp. 34–41) to different regulatory structures for each.
5. This study assumes that Canada's Mackenzie Delta pipeline will begin delivering gas by 2010 (p. 82), but the pipeline planned from Alaska's northern coastal region will not enter service until sometime after 2012—perhaps as late as 2018 (pp. 15 and 47).
6. *Vision*, p. 81. The NAEWG team sees Western Canada's return from coalbed methane doubling between now and 2012 (p. 82), but still providing only 1.0 bcf/day—a relatively small volume in the national context of about 14 bcf by that time. The U.S. Rockies are regarded as more fruitful in the mid-term, with some 1.7 trillion cubic feet per year then coming largely from the exploitation of unconventional sources there (p. 86).
7. Ibid., p. 64.
8. *Vision* describes the different pricing mechanisms succinctly and clearly (pp. 58–63).

so of gas from Mexico's Burgos Basin next year.[9] Nevertheless, the MSC model may be extended to other (onshore and offshore) plots. (I surmise that some way is being sought to make future participation more attractive.)

5. The report's "Key Findings" treat the idea of *changes* in governmental policy gingerly, but one of the four broad areas it says "governments can address" seems to apply only to Mexico, namely, "Removing restrictions on foreign investment." The others refer to regulatory and tax incentives for investment, streamlining bureaucratic processes, and encouraging energy efficiency (which conserves natural resources in general).[10]
6. To meet its own pledges under the Kyoto Treaty without sacrificing its export market (or weakening the neighboring U.S. economy, on which it relies for more than 85 percent of its total trade in all goods and services), Canada has little choice but to develop "frontier gas" from offshore on both coasts and from territories that are still unconnected to its main pipeline grid. Even then, its exportable surplus of natural gas from mature fields will taper off. Until around 2015, Canada will be supplying less gas to the United States (net) than Department of Energy (DOE) projects we will need to import as LNG from the emerging world market in that fuel form—which is harder to transport because it must be chilled to minus 260 degrees Fahrenheit at atmospheric pressure and regasified before use.[11]
7. At the same time (although there is no specific mention of this in the report, of course), the moment is not that far off when Canada must yield its special position as the largest overall U.S. trade partner, being replaced by a far more populous Mexico. Thus, despite China's wooing Canada to help quench the rapidly growing Chinese thirst for oil and gas through offered infusions of capital for energy infrastructure, Canadians may have some politico-economic incentives to keep their gas exports to their southern neighbors from falling off too fast and too far. Sales via pipelines afford greater convenience, less need for new facilities, and an inevitably higher "netback" to producers. U.S. officials admit privately that they are less concerned about the possible diversion of some Canadian *oil* to China (although that too makes slight economic sense) because adding supply to *any* part of the *already* well-integrated world petroleum market helps to stabilize prices and demand.
8. While relying on free-market principles, the U.S. government needs to find some way to reduce uncertainty for risk-averse investors in the transport and storage infrastructure, which must continue to expand to serve a multiplicity of regional gas markets (some of which straddle national borders), rather than three national markets that would be unacceptably less efficient if they tried to operate with less interdependence.
9. "Delivery and storage systems are key to making natural gas an economical source of fuel for economic consumption."[12] Mexico has virtually no storage facilities for gas and must rely on "packing" its pipelines by compression to handle variations in supply and demand along its routes. The need for new U.S. and Canadian gas storage facilities is less pressing; but Canada needs to improve its east-west delivery system, and north-south links between these two countries will require augmentation on a regional basis as their supply and use patterns shift geographically. Private-sector investment is critical, but its availability is threatened by the risks of construction delays and long-term amortization of the up-front heavy capital outlays in what has been a volatile market.
10. The United States especially must cope with the "NIMBY" (not in my backyard) syndrome that has already allowed relatively modest local opposition to block proposed LNG installations here and in Mexico, as well as gas pipeline routes from Canada's Maritime provinces through New York and New England. NIMBY is based not only on pure environmental protests, but also on resistance from NGOs and local authorities to pipelines that must cross areas they do not serve to reach markets beyond.[13]
11. The more extensive use of LNG need not trade "oil vulnerability" for "gas vulnerability." Despite much higher estimates from some professional jeremiahs (who may exaggerate for the sake of attracting a press audience), the *Vision* publication indicates merely that LNG imports to North America as a whole "*could*" reach 10 percent of total consumption by 2012 and "*possibly*" 16 percent by 2025.[14] At such levels (especially if drawn from a more scattered,

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9. Ibid., pp. 114–115. This added volume is hardly insignificant, representing approximately 10 percent of national production. But it disappoints earlier hopes and does not change the outlook for the continuing necessity of gas imports.
10. Ibid., p. 18.
11. Much LNG being supplied now also contains small amounts of residual natural gas liquids (NGL), changing its calorific content. This compels equipment and arrangements for additional processing—either by diluting, blending with suitable inert gases, or stripping out the natural gas liquids (which have compensatory value).
12. *Vision*, p. 63.
13. Ibid., pp. 17–18.
14. Calculated from data on pp. 81 and 101 of *Vision*. The 2005 edition of *Annual Energy Outlook* (which was still not available in printed form at the time this was written) boosted the Energy Information Administration's (EIA) estimate of U.S. annual imports by 2025 by one-third—from 4.8 tcf to 6.4 tcf. But the resultant price effect was also projected to depress consumption to ~30 tcf, thus raising LNG's share to about 21 percent of the total. In fact, however, even the best economists are only guessing at price elasticities in such a projection, and there are many other limiting factors in the growth of LNG imports.

stable, and competitive bevy of national suppliers than OPEC), LNG should involve less risk of interrupted flow or manipulated pricing.[15] Energy security does not depend on eliminating import dependence completely but on limiting it substantially to reliable sources and maintaining the ability to adjust to disruptions if they do occur. In fact, whenever LNG rises to 10 percent of consumption or so, I believe it should reduce price volatility on this continent by becoming a relatively predictable, *marginal-cost* supply source.[16]

12. All three countries must take care to safeguard the natural environment and to maintain transparency in regulatory processes while simplifying these processes and making them less burdensome.[17] Among the report's terse "Conclusions" is the simple observation that the national governments can find answers to the dilemmas noted by working "together and with stakeholders." Other references identify "stakeholders" as ranging from subfederal governments and industrial/commercial entities to various nongovernmental interest groups. That is a tall order!

I have deduced all these findings by combining an exhaustive examination of the new study with additional background gleaned from more than a decade of close attention to the emerging North American gas market. That market is further intertwined with a coincident market for electricity that involves two-way trade across both the northern and southern U.S. borders, especially on a seasonal basis. Such power exchanges improve reliability, boost energy efficiency, cut costs, and reduce environmental impacts for all three countries, but they have become increasingly more dependent on gas-fueled turbine generator units.[18] One of several "wild cards" is the speed with which less-polluting coal-fired generation technology, such as Integrated Gasification and Combined Cycle (IGCC) turbines, enter the market. These have lately become more popular than gas-fired units for capacity additions by utilities and independent power producers, and this could dampen gas demand if the trend continues—although the recent falloff in gas use by industry as a result of high prices might be reversed if new technology allows a compensating switch *away* from electricity in specialized applications to meet increasingly stringent environmental standards.

At the end of 2003, Canada's "proved reserves" of natural gas amounted to 57 trillion cubic feet (tcf), Mexico had only 15 tcf, and the United States had 186 tcf.[19] One accomplishment of closer continental cooperation has been that all three countries now employ the same internationally accepted definition for such reserves. But this is a mixed blessing, especially if the dates of calculation are not exactly the same. "Proved reserves" are estimated on the basis of the amount of gas that can be removed economically via existing technology from established fields. But this obviously depends on the price of gas and the access to markets, so that conditions on a single day each year (December 31) are officially deterministic. But U.S. wellhead prices for gas have fluctuated since 1998 from less than $2 per thousand cubic feet (mcf) to more than $10 per (mcf), and even the yearlong averages for the years 2001 through 2004 have been inconsistent: $4.00, $2.95, $4.98, and $5.36 per (mcf), respectively.[20] As noted earlier, prices in Canada and Mexico have tended to track these because cross-border gas trade introduces competition among supplies. The "net" import and export figures are thus not as important as they are sometimes portrayed, since exchanges take place for the convenience of both buyer and seller and each gains something.

Aside from "proved reserves," each country has additional gas (including much that has not yet been discovered but is indicated by geologic comparisons) that should be economically recoverable in the future.[21] These carry a variety of designations (with "probabilities" ranging from 10 to 50 percent) but in all, they are currently estimated at over 1,100 tcf —more than four times the "proved" figure. The rate at which they come on line, combined with regional and sectoral changes in demand for gas, will affect the evolution of the intracontinental pipeline grid.

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15. One possible complicating factor is that a rigid interpretation of Mexico's Constitution and current implementing legislation suggests that all LNG imports must flow through Pemex.
16. *Vision* says North America now receives only 1 percent of its natural gas supply as LNG (p. 47), but this is because it chose to rely on older (but comprehensive and authoritative) statistics in order to approach uniformity throughout. Using a combination of sources, I calculated roughly that the LNG share was closer to 2 percent (and rising) during 2003 and 2004.
17. The Mexican government has systematically switched the generating mix for its electricity monopoly from high-sulfur oil to natural gas as an environmentally more friendly fuel. But this resolve could be tested by persistent supply tightening and high prices.
18. Secretariat to the Commission for Environmental Cooperation of North America, "Environmental Challenges and Opportunities of the Evolving North American Electricity Market," http://www.cec.org/files/PDF//CEC_Art13electricity_Eng.pdf .
19. *Vision*, pp. 41 and 44. I found it interesting that the reserves-to-production ratio (R:P) I calculated from gas data reported herein for the three countries was in each case about 9:1.
20. Energy Information Administration, "Monthly Energy Review: January 2005, "http://tonto.eia.doe.gov/FTPROOT/multifuel/mer/00350501.pdf. Table 9.11. (The 2004 statistic is only for the first 10 months.)
21. Mexico's domestic production is still overwhelmingly "associated gas" (i.e., a byproduct of drilling for oil). It is hoped that greater concentration on looking for gas by itself can shift increasing volumes of its gas resource from "probable reserves" to the "proved" category.

Since 1995, the number of gas interconnections between the United States and Mexico has more than doubled—from 7 to 15.[22] Roughly half of the capacity lies far to the east (near the Gulf of Mexico and Mexico's Burgos Basin), and many of those interconnections are now designed to carry flow in either direction.[23] There are 21 active gas delivery points along the U.S.-Canadian border, and total capacity far exceeds that between Mexico and the United States.[24] During 2004, gas trade between Canada and the United States amounted to about 3.5 trillion cubic feet—10 times the U.S.-Mexican level.[25] A substantial amount of gas from Canada's Western Sedimentary Basin crosses the border by pipeline but then continues back northward to recross and serve population centers in eastern provinces.

Facilities to receive LNG from overseas are being added by all three countries, and the plans obviously are to insert this into existing and new pipelines that serve both domestic and intracontinental needs through augmented networks. NAEWG reports that four such new LNG projects had been approved in the United States to complement the four already operating here at the time of its report's release. It also mentions one construction effort in Mexico already underway and two in eastern Canada that have received provincial approval.[26] In all, approximately 40 have been "announced" but in many cases, two or more are potentially competitive and will be dropped as soon as one site seems sure to win the race to be first in that area.[27] In fact, NAEWG says flatly that "There is considerable uncertainty around the timing and availability of various indigenous North American gas supplies and LNG imports."[28]

Producing a snapshot of a complex, developing market framework is always difficult, especially when multiple information bases must be consulted. Although the report does not include an appendix comparing the somewhat different assumptions used by the three countries in their respective projections, the main sources are cited at various points.[29] The U.S. contributors relied heavily on the Energy Information Administration's *Annual Energy Outlook 2004*, which contains some firm figures that only go through 2002. Canada drew largely from its National Energy Board's publication, *Canada's Energy Future: Scenarios for Supply and Demand to 2025*, which was released in early 2003. Mexico based its fundamental projections on *Natural Gas Market Outlook, 2003–2012*, published by its Ministry of Energy in cooperation with Pemex, *La Comisión Federal de Electricidad*, and *El Instituto Mexicano del Petróleo* (and with a similar vintage).

The lagging statistical base explains some numerical assumptions that seem bizarrely naïve (such as 2005 world oil prices of just over $23 a barrel [in 2002 U.S. dollars])[30] and a common "overview" that "The price of natural gas is expected to decline slightly over the next several years followed by a gentle climb."[31] To quote the report itself: "Future natural gas prices in North America will be influenced by a variety of factors: the size and quality of the North American gas resource, drilling rates, economic growth, weather, world crude oil prices, access to imported LNG, interest and inflation rates, and many other factors."[32]

But it is not a set of numbers that make up this document's major contribution; it is relationships—among countries, energy sources, supply, demand, *and* price. Those are addressed in a way that invites consideration and analysis.

There are notable differences among the three countries in how natural gas is used. For instance, only 2 percent of Mexico's consumption now goes to the residential and service sectors,[33] while residential/commercial customers in Canada and the United States account for about one-third of all usage.[34] Mexican homes and businesses are expected to increase their use of natural gas

22. *Vision*, p. 67.
23. Ibid., pp. 68 and 70.
24. Ibid., pp. 68–69.
25. "Monthly Energy Review," Table 4-3.
26. *Vision*, p. 14.
27. In all, five have been proposed for Mexico and eight for Canada (on both the east and west coasts), according to *Vision*, p. 16. The first Mexican terminal (at Altamira, on the Gulf Coast) was scheduled to start operating around the end of 2006 (p. 84); and Canadian project proponents were targeting their first imports by the end of 2007 (p. 83)—although the National Energy Board had predicted a much more conservative goal of 2011.
28. *Vision*, p. 18.
29. Such an appendix would have been helpful, and its inclusion should be considered if the document is eventually printed in "hard copy."
30. *Vision*, p. 116.
31. Ibid., p. 81.
32. Ibid., p. 97.
33. Ibid., p. 55.
34. Ibid., p. 88, and "Monthly Energy Review," Table 4.4.

rapidly as new distribution systems installed by private-sector franchise holders allow them to replace less convenient and often dangerous supplies of "bottled gas." But this sectoral use starts at such a low level that high percentage growth still does not translate into appreciable demand.[35] In Canada, a sectoral and geographic shift in demand is taking place as heating use in the east is gradually rivaled by industrial consumption in the west (especially for the extraction and processing of oil sands).[36]

Overall, the tripartite current intent for meeting the growth in demand and shift in demand patterns is unmistakable: "close dialog on energy policies and regulations to ensure an efficient, reliable, and integrated North American system of natural gas production and delivery."[37] Such words of resolve in the *Vision* document are important, but they clearly cannot be as effective as actions. Unfortunately, the federal authorities in all three countries are not particularly well positioned at the moment to bring about this ultimate translation.

1. Paul Martin's minority government would be hard put under the best of conditions to impose a "national" energy policy on Canada's provinces (which generally run the show in energy development on an individual basis but happily are well attuned for the most part to north-south cooperation in energy and environmental matters). Prime Minister Martin may have to apply the Canadian technique of "soft power" in international matters to domestic leadership on such questions as how Alberta's oil sands are best to be developed in light of continental requirements for both petroleum products and natural gas (now used extensively in recovery and processing from oil sands). This will not be easy.
2. With a hostile opposition Congress, Mexico's president, Vicente Fox, is a lame duck in anticipation of next year's election—in which he is constitutionally barred from seeking a second term. Yet, his latest energy secretary, Fernando Elizondo Barragan, appears to be an unusually vigorous figure who seems to be anxious to tap private-sector initiative and capital for the national energy mission while somehow also allowing Pemex (the national monopoly in hydrocarbon exploration) to shed its role as a "cash cow" and operate more efficiently and effectively in opening up Mexico's Burgos Basin and deepwater deposits of "unassociated" natural gas (i.e., gas found on its own, rather than as a byproduct of conventional oil drilling).
3. President George W. Bush has the luxury of a Republican-majority Congress, but nobody would suggest that energy ranks with Social Security, the Middle East, or judicial appointments in a claim on his finite "political capital." He might be counted on to do as much as possible from the executive seat of government (as was done to implement most recommendations of the "Cheney Report"), but partisan, ideological, regional, and interchamber differences in the federal legislative branch make problematic the adoption of statutory measures to encourage pipeline and gas production investment—or, in fact, a meaningful "comprehensive" energy bill with related provisions (such as an enforcement mechanism for consensus standards on electric-grid reliability).[38]

In this regard, the choice of 2012 as a benchmark for projections in the new natural gas document may be propitious, whether or not this was accidental. That year will mark the end of the first U.S. presidential term *after* this incumbent. Similarly, in Mexico, it will be time to elect a replacement for Fox's successor (who will serve at a later stage in the evolution of a new relationship between chief executive and Congress when that country should be able to adjust less chaotically to a multiparty, loosely federal system, even if the long-dominant PRI returns to *Los Pinos*). By 2012, Canada will be at the end of the five-year period during which it has pledged to sharply reduce its annual average emissions of "global warming gases" under the Kyoto Protocol, and it will be able to assess its progress toward this and other energy-related goals. In any case, the Working Group's "vision" invites attention now to long-term problems that require persistence and defy solution by any single administration.

The mutually beneficial energy interdependence of North America's three self-consciously sovereign nations has had to evolve. It developed in dramatic spurts during the 1990s (with the U.S.-Canada Free Trade Agreement, NAFTA, industry restructuring and regulatory developments in all three countries, the emergence of electronic trading for both gas and electricity, and the convergence of those two energy commodities) and much more deliberately since then (thanks to new security concerns since the World Trade Center attack, the California/Enron problems, and volatile prices that are linked at least as much to global politics and rising Asian energy demand as to the continental situation).

The 2005 North American gas vision did not (and could not) exist in 1990. The history of how interdependence developed is

35. *Vision*, p. 91.
36. Ibid., p. 88.
37. Ibid., p. 9.
38. National Energy Policy Development Group, "National Energy Policy," http://www.whitehouse.gov/energy/National-Energy-Policy.pdf.

recounted in some detail in the new publication, with a "Review" section that covers well over 50 pages before NAEWG offers its "Outlook" on supply, demand, price, post-2012 issues, and continuing concerns. Put together by technocrats (with the true policymakers obviously looking over their shoulders), the document is cautious in its conclusions, and there is no formal list of recommendations. But its message is clear to anyone who has followed the process closely. There will not be a single continental energy policy, yet three distinct policies—in view of diverse interests, capabilities, and systems—can be harmonized if the will is present. The will *is* finally here, because piecemeal modifications of the old "go it alone" spirit for each country have already taken place.

NAEWG has played a quiet role in these adjustments, in part simply by continuing the discourse with achievable short-term tasks in mind and an order of technical expertise that gradually built and reinforced mutual trust. Three years ago it laid the groundwork for a trinational perspective by publishing *North America: The Energy Picture*, in which these three nations for the first time focused on their increasing interconnection and published official statistics using common units of measurement and comparable assumptions about future growth and requirements.[39] The main body of NAEWG (blessed by the leaders of all three countries at a summit meeting in April 2001) has continued to meet semiannually, but most of its work has been done by subgroups that labor steadily. Common efficiency standards for critical equipment and appliances have been introduced, some research and development projects have honed in on technology that can further facilitate transborder energy exchanges, and nontechnical barriers to such trade have been examined methodically. It is no accident that the top federal energy regulators in all three countries now meet regularly three times a year and have adopted the principle of "conscious parallelism." This was a big step for Mexico, where an autonomous body had to be fashioned that could exercise some judicially enforceable regulatory authority over the separate governmental monopolies in hydrocarbon and electricity—as well as over independent gas distributors, independent power producers, and other private-sector entities that have been allowed to enter the energy industry only recently and under obvious limitations.

One shortcoming of the 2002 *Energy Picture* document was that it almost ignored the demand side of the energy balance; another was that it completely omitted any mention of environmental obligations. Both defects have been corrected in *North American Natural Gas Vision*, although more could and should be done in regard to the second. A clean, feasible way to handle this might be to direct representatives of the North American Commission for Environmental Cooperation (established trilaterally in a side agreement to secure U.S. ratification of NAFTA) to participate formally in future NAEWG meetings and projects, but such a move would require agreement and action at the highest levels of each government—an unlikely event any time soon. It will not be pushed from below on either the energy or the environmental side because of suspicions and sometimes enmity between them at some working levels.

Another fertile but difficult ground on which to press overall interaction in gas and other energy areas would be through trilateral meetings of federal legislators, which have never taken place (although there are regular bilateral parliamentary exchanges). The key members who would make such discussions most worthwhile are notoriously busy, and I have observed that Canadians in particular resist this innovation—with the apparent conviction that most "North American" matters are best handled on a traditional "bi- and bi-" basis (which incidentally, they think, makes it more difficult for the United States to "control" the agendas). One high official has advised me that a successful trilateral meeting of lawmakers might have to focus on a single theme or issue, thus inviting attention from specialists (or at least those who have serious special interests).

Strengthening the gas market to the mutual benefit of all might not be attractive enough to encourage a breakthrough on this, even if the U.S. Congress started things off by holding a meaningful hearing on this *North American Natural Gas Vision*. Harried officials at DOE, already called on to testify so often on so many topics before so many committees and subcommittees, will probably not welcome even raising this possibility.

Short of that, however, let us hope that members of Congress (along with their counterparts in Mexico and Canada and opinion molders of all types) will pay some attention to the latest report NAEWG has produced. It is worth reading, worth studying, and deserving of some thoughtful response.

39. North American Energy Working Group, *North America: The Energy Picture*, http://www.eia.doe.gov/emeu/northamerica/engindex.htm.

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