POLICY CONSIDERATIONS FOR ENERGY TRADE AND INVESTMENT IN APEC

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EXECUTIVE SUMMARY

This paper is submitted in response to the tasking from APEC Energy Ministers' "Beijing Declaration" of September 2, 2014 "to identify significant barriers to APEC energy trade and investment and help member economies improve their capacity in removing these barriers". The Plan of Action for the Energy Trade and Investment Task Force previously identified six priority areas for improvement: (1) policy uncertainty, (2) lack of competition and anti-competitive behavior, (3) weak legal systems, (4) inadequate infrastructure, (5) limits on foreign ownership of energy businesses, and (6) screening/ approval requirements for foreign investment in energy businesses. However, the Task Force was disbanded before completing its work and more needs to be accomplished to ensure that APEC attracts the $7 trillion in energy investment it requires by 2035 while reducing barriers to trade essential to APEC's energy security and economic prosperity.

APEC's trade and investment climate is becoming more complex as governments become increasingly involved in the energy sector. More than ever before, business decisions to invest or trade are influenced by government policy measures than by economic signals from competitive markers. Energy commerce is affected by barriers when they (a) increase cost, (b) increase risk or (c) create obstacles to fair competition. These can be "border barriers" or "behind-the-border barriers". Although there is no single policy formula that will be optimal in promoting trade and attracting investment, key elements in a model framework include:

- Policy certainty ensuring sanctity of contracts
- Open and fair competition on a level playing field devoid of local content rules, quotas, tariffs, restrictions on foreign ownership and investment
- Market based pricing undistorted by subsidies
- Independent government regulation and effective inter-ministerial coordination that is transparent, rules-based, predictable, and allows stakeholder consultation
- Viable legal system that resolves commercial disputes on a timely basis, abides by third party dispute resolution forums and protects intellectual property
- Banking system which allows free transfer of capital

APEC Energy Ministers should meet with ABAC annually in a half-day APEC Energy Trade and Investment Forum. The EWG and CTI should work with ABAC to organize a workshop providing case studies and expert speakers on "Energy Policy and Legal Frameworks Featuring an Independent Regulator". The EWG, CTI and ABAC should meet to implement these recommendation and to establish an APEC Clearinghouse for Best Practices in Energy Trade & Investment.

The APEC Business Advisory Council (ABAC) is pleased to submit this paper in response to the tasking from the APEC Energy Ministers' "Beijing Declaration" on September 2, 2014 instructing the Energy Working Group (EWG) to work with the Committee on Trade and Investment (CTI) and the APEC Business Advisory Council (ABAC) "to identify significant barriers to APEC energy trade and investment and help member economies improve their capacity in removing these barriers."[(1)]

The Beijing Declaration's focus on taking concrete action to remove barriers to energy trade and investment builds upon the May 2007 APEC Energy Ministers Darwin Declaration which endorsed the launch of an Energy Trade & Investment (ETI) Study and ETI Roundtable.[2] Held in 2008, the ETI Roundtable established an ETI Task Force and proposed an Action Plan.[3] This led to the Energy Ministers instruction in their Fukui Declaration of 2010 for the EWG to "progress the Plan of Action for the Energy Trade and Investment Task Force."[4] This Action Plan lists six priority areas for improvement in the trade and investment climate for energy in the APEC region:

1. Policy uncertainty
2. Lack of competition and anti-competitive behavior in specific areas
3. Weak legal systems
4. Inadequate infrastructure
5. Limits on foreign ownership of energy businesses
6. Screening or approval requirements for foreign investment in energy businesses.

Although the Task Force made some progress implementing the Action Plan, especially in the area of environmental goods and services, it was disbanded in May 2014 after eight meetings.[5] More work needs to be accomplished to fulfill the letter and the spirit of the instructions by APEC Energy Ministers and it is important that APEC continue and accelerate its efforts to remove barriers and promote energy trade and investment. It is therefore in light of the Beijing declaration, the EWG Strategic Plan for 2014-2108 and the EWG's "Priorities for 2015" which envisions a "direct dialogue with industry to… identify specific barriers to energy related trade and investment" and the need for private sector "suggestions for future EWG programs"[6] that ABAC respectfully submits this paper to help identify barriers and propose new courses of action to help facilitate increased levels of energy trade and investment in the APEC region.

APEC'S ENERGY SCENARIO AND BARRIERS TO APEC ENERGY TRADE & INVESTMENT

APEC's 21 member economies account for over half of global energy production and consumption, and its share can be expected to grow as the Asia Pacific Energy Research Center (APERC) forecasts that the supply of primary energy to the APEC region will increase by about 53% by 2035 compared to 2005. Coal will remain the major fuel accounting for about one-third of demand followed closely by oil and then natural gas, which has the fastest rate of growth to 2035. Nuclear will have the second highest increase followed by renewables.[(7)] To meet these needs APEC will need an estimated $7 trillion in new investment.[(8)]

Most of this investment will have to come from the private sector but this is not guaranteed. APEC's investment climate is becoming more complex as governments and state-owned enterprises (SOEs) increasingly drive energy markets. SOEs control about 90% of APEC energy resources[(9)] and the International Energy Agency (IEA) has observed that "decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets." The IEA continues by saying that "private sector participation is essential to meet energy investment needs… but mobilizing private investors and capital will require a concerted effort to reduce political and regulatory uncertainties. Even where states and state-owned companies take direct responsibility for energy investment, pressures on public funds and the need for new technology and expertise create room for greater private involvement… Policymakers, though they may recognize investors' needs for long-term consistency are subject to various and sometimes conflicting pressures… Against this backdrop, there is a risk that policymakers fail to provide clear and consistent signals to investors."[(10)] This, therefore, is an important consideration for APEC Energy Ministers as private capital will naturally flow to economies where there are consistent and stable policy signals aimed at attracting investment and maintaining trade in energy.

APEC's energy scenario includes wide disparities in size, resource endowment, developed/emerging economies, a changing mix of energy exporters and importers, and increased intra-APEC trade in energy highlighting the need for more integrated energy markets for trade, investment and global supply chains. Energy security will remain an important concern as APEC is expected to be increasingly dependent upon imported oil, a net exporter of coal and generally self-sufficient in gas. Given APEC's diversity, it is hard to make broad generalizations that apply to every member economy but all APEC members pursue essentially similar goals of energy security and economic prosperity for their people. To this end it is useful to identify certain common obstacles to trade and investment in order to develop solutions and suggest actions that APEC Energy Ministers, the EWG and the CTI can take in conjunction with ABAC.

Energy trade and investment is affected by barriers when they (a) increase cost, (b) increase risk or (c) create obstacles to fair competition.[(11)] These can be "border barriers" such as tariffs, quotas, export subsidies, export bans and procedural hurdles, local content requirements, limits on foreign ownership, and opaque/unpredictable screening requirements for foreign investment. Or they can be "behind-the-border barriers" such as poorly functioning financial markets, weak legal systems, restrictive regulatory approaches,

inefficient/excessive taxation, and price distorting subsidies, among others. Slow project approval and permitting processes, and differing product standards and testing requirements can also be inhibiting factors. A detailed taxonomy of these barriers is presented in the Annex. Economies referenced in this report include some non-APEC economies, as their policy choices provide relevant examples of investment inhibiting or enhancing government decisions.

Trade and investment barriers can manifest themselves in different ways. For example, the oil and gas sector is prone to dealing with barriers at the "border" such as restrictions on foreign investment and equity-shares of projects while potential investors in the power sector might be more deterred by "behind-the-border" factors such non-market-based pricing or restrictions on competition (e.g., generators having fair access to transmission grids). Renewable energy projects are more likely to encounter local content requirements, import/export duties and other restrictive measures designed to protect emerging domestic industries from foreign competition. A common bottleneck is inadequate infrastructure, including pipelines, power grids, rail, road and port facilities. For APEC to reach its full energy trade potential it will have to invest in its infrastructure, and reduce barriers to oil and gas exports.

OIL AND GAS:

Oil and gas exploration projects have huge up-front capital costs on the order of hundreds of millions (even billions) of dollars, involve considerable risk that the investment expenses will not be recouped, and a long term (20-30 year) horizon for commercial return if the project is successful. Adequate commercial returns from successful wells are needed to compensate for losses stemming from unsuccessful exploration efforts. Thus, there not only needs to be in place a framework that will attract investment, there also needs to be certainty that the rules of the game will not change over time and that policies will be applied in a consistent manner. This is especially true for fiscal terms – taxes, royalties, cost recovery mechanisms – as investors will be deterred if there is policy and legal uncertainty that the commercial terms and calculations that their business decisions are based upon will be unilaterally changed.

Attracting foreign investment in oil and gas is imperative for APEC as the IEA estimates that over 80% of upstream oil and gas spending is simply directed toward off-setting production declines in existing fields as compared with investment for incremental new production.[(12)] This dilemma is compounded by the fact that depletion of the most accessible producing blocks requires the development of more challenging fields, frequently in frontier regions where both the costs and the risks are much higher and the need for government investment incentives most acute.

Private companies take a global view in their allocation of investment capital based upon assessments of below ground and above ground risk. Key considerations include is the market open to private investment, is there a level playing field among all producers, is there an independent regulator, transparent regulation and adjudication of disputes, and sanctity of contracts? Issues regarding cost recovery, profit split, domestic market

obligation and local procurement requirements are also important. Private companies and SOEs can both thrive in an investment setting that reflects these characteristics. In fact, history has shown that the most important factor determining a nation's production of oil and gas is frequently not the extent of its resource base but rather the nature of its institutional and regulatory framework for investment. This is borne out by two empirical studies surveying experiences in the Western Hemisphere by the Americas Society/Council of the Americas and the Inter-American Development Bank (IDB).

The Americas report concludes that a nation's investment climate is "paramount" in determining energy production and that "fundamental elements of a positive investment environment include an independent regulator for oil and gas, a state oil company that competes with private companies on a level playing field, competitive royalty and tax regimes relative to risk, and a stable regulatory regime that provides certainty to investors."[(13)] It cites the examples of Colombia and Peru which turned around their oil and gas industries, and boosted oil and gas production by "ending the monopoly of the state oil company, creating independent regulators, and revising contract terms to attract private investors". Canada is singled out for reducing the role of government within the context of a constitutional division of responsibilities between the provinces and the federal government over natural resource development. A new market-oriented approach, including changes in the royalty regime for oil sands, led to greater foreign investment and paved the way for substantial increases in production and exports.

The IDB study divides seven Latin American oil producers into two groups according to their investment frameworks. It concludes that having the appropriate investment incentives and regulatory framework was the reason why one group "permanently increased drilling activity and production" and in the other group production dropped and drilling stalled. Poor regulation is identified as the "key variable for resource rich countries" whose investment and production levels "fall behind."[(14)]

Brazil, Colombia and Peru were placed in the first group as being "open to private investment side by side and in competition with state-owned companies, open to public scrutiny, an independent regulatory agency and stable operational rules". The IDB found that these countries performed better than the second group in terms of increased drilling activity and production. It details how Brazil and Colombia instituted major reforms based upon the Norwegian model that permitted private investment in oil production under the oversight of a newly established independent regulator. This relieved the SOEs from burdensome administrative roles so they could focus on their oil business and attract private capital while the government retained its regulatory authority. By opening the sector up to private investment both countries benefited significantly from an influx of new money, advanced technologies and engineering capacities and as a result, oil production increased. Meanwhile, Peru also enacted reforms which grew investment in drilling and increased production with the only significant difference being the SOE was not open to private investors but still had to compete in an open market governed by an independent regulator.

In the case of Brazil, the reforms enacted in the mid-1990s were revised in 2010 following the discovery of massive "pre-salt" reserves offshore with new laws that increase the state's role and have created greater political and regulatory uncertainty for investors. And there are other examples of countries changing their laws

and regulations in ways that alter the economics of energy projects initially agreed upon, which is why policy uncertainty is such a big concern for investors.

Argentina, Ecuador, Mexico and Venezuela in the second group feature oil production that is under "direct monopoly control by a state-owned company, some degree of discretionary government intervention in both distribution of revenue and management of the company, and the oil sector is closed to competition and public scrutiny". The study describes how in the 1990s Argentina adopted reforms including the privatization of its SOE which eventually led to increased hydrocarbon activity only to see production expansion stagnate when a new government implemented interventionist policies beginning in 2003 that controlled domestic fuel prices, set export quotas and imposed an oil export tax. Ecuador took steps in the mid-1990s to attract investment by allowing joint projects with PETROECUADOR in marginal fields, and private financing of a crude oil pipeline from fields in the jungle to coastal terminals that relieved a major transportation bottleneck and unleashed a giant leap in production. However, in 2007 a new government forced changes in contractual terms regarding profits, and changed existing project ownership regimes from joint partnerships to having companies work as operators for a fee. Foreign investment in oil drilling plummeted as a result and Ecuador subsequently had to take remedial steps to revive the sector. Meanwhile, production declines in oil-rich Venezuela stem from even more pronounced government interference in the operations of its SOE (PDVSA) and the departure of major foreign investors.

The story in Mexico is still unfolding as the reforms announced in August 2013 will allow private investment in its energy sector for the first time in 75 years. Once the reforms are implemented production is expected to increase significantly (especially major deepwater and shale plays), the cost of energy should decline, an estimated 2.5 million new jobs could be created by 2025 and Gross Domestic Product (GDP) is projected to increase by two percentage points.[(15)] This pending transformation of Mexico's energy sector is a major accomplishment that will position it to attract new foreign investment, gain access to advanced technologies, enhance energy security and advance economic prosperity, including a revitalized PEMEX.

Within Southeast Asia, Indonesia is also embarking upon important new reforms, ranging from lowering fuel subsidies to a new Oil and Gas Law. The reduction in fuel subsidies in November 2014 was an important step in rationalizing the domestic market and demonstrated the government's commitment to reforms that can attract new investment. The establishment of an independent regulator and greater clarity on the renewal process for Production Sharing Contracts (PSCs) and cost recovery are important next steps in providing regulatory certainty and sanctity of contracts during this period of transition. More broadly, APEC member economies seeking to attract investment for shale gas development need to design regulatory regimes suited for developing that resource while to promote more energy trade APEC needs to build more oil and gas pipeline infrastructure onshore and offshore, and across-borders.

Based upon the case studies cited above, the key to successfully promoting increased hydrocarbon exploration and production is how governments balance the role of the state with a competitive framework that attracts private investors. Thus, APEC member economies would benefit if there could be new collaboration between APEC Energy Ministers, the EWG, CTI, and ABAC on how policy frameworks can be optimized to attract

investment, including the importance of an independent regulator, properly calibrated fiscal terms and having a level playing field in which SOEs and private companies can compete. Indeed, many of the fundamental principles for a successful policy framework for oil and gas investment also apply to the electric power sector where the need for investment is higher than for oil and gas in about three-fourths of the APEC member economies.[16]

ELECTRIC POWER:

The power sectors in some APEC member economies are growing rapidly while others are experiencing little or no growth. Despite this variation, on average the majority of power sector investment is needed for generation, including new plants and to refurbish existing units. Building and updating transmission and distribution (T&D) networks also requires considerable investment. Promoting trade and investment in low carbon electric power systems is affected by policy uncertainty on approaches to climate change and decarbonizing the fuel mix. The stakes are high as many of the investment decisions for electric power fuels and technologies will build systems that will be in place for decades, thereby locking in key energy and climate trends.

State ownership and vertical integration of power generation, transmission and distribution is prevalent in APEC and all member economies have some privately owned generation. The entry of independent power producers (IPPs) can introduce competition even when there is a single buyer, usually state owned, but it is critical that there be an independent regulator which most APEC economies do not have. Access to the grid needs to be non-discriminatory, especially when generating companies bid into a wholesale power pool. Chile is a good example of how market driven policies, including privatization and unbundling of the power sector, and equal treatment to domestic and foreign investors in energy can attract investment and enable a nation to power economic growth. Chile has benefited with increased access to power, reduced T&D losses, and improved reserve margins although adjusting its fuel mix from reliance upon hydro to fossil fuels and increasing amounts of renewables will continue to be a challenge. Key factors in this success story include free entry into the sector, electricity tariffs based upon marginal costs and not regulated rates of return, a competitive generating market, and an independent regulator.[17]

However, what Chile does not have is power trade links with its neighbors comparable to the Greater Mekong Subregion (GMS) where Cambodia, China, Laos, Myanmar, Thailand and Vietnam have interconnected power capacity of nearly 4 Gigawatt (GW) and are working to take advantage of the opportunity to lower costs, harmonize their regulations, improve efficiency and increase supply by trading electricity and integrating their power networks in a regional power trading system.[18] Although more work needs to be done before national grids are fully interconnected and can dispatch power in synchronized fashion, the GMS has been successful in reducing policy and institutional obstacles to regional trade and investment in electric power. The ADB estimates that regional integration under the GMS could result in savings of 19% of total energy costs or about $200 billion. The savings resulting from expanding the interconnection of GMS power systems alone are estimated at $14.3 billion, mainly due to the substitution of fossil fuel generation with hydropower.[19]

Regional cooperation is important as members such as Vietnam embark upon road maps of reform. Over 96% of Vietnam's population has access to electricity and increased private investment will be needed to satisfy the booming demand for power. Market reforms launched in 2006 aim to restructure the sector and the introduction of competition in 2012 has enabled private participation under the Build-Own-Transfer (BOT) model into a more competitive power market. Key next steps include liberalizing tariffs and investing in power infrastructure as the government's establishment of a new regulator should help mobilize more private finance.

Coal plays a big part in Vietnam's power sector fuel mix strategy and for APEC as a whole. Domestic production of coal can play a key role in support of energy security and when SOEs cannot provide for the public's needs then attracting private investment becomes an important priority. Prohibitions on private coal mining have been a major issue in India where bottlenecks in domestic coal production have contributed to power shortages and created a reliance on foreign suppliers. The new government intends to reform the under-performing state monopoly and allow private investment in coal mining as India has become the world's 3rd largest importer of coal despite have the world's 5th largest reserves. Meanwhile, given APEC's growing appetite for coal, efforts to facilitate greater commercial deployment of clean coal technologies need to be accelerated to improve efficiencies and reduce cost.

Concerns over climate change within APEC have been a driving force for renewable energy development whose investment requirements are front-loaded as operating costs are low. In order to obtain financing, project developers seek long-term price stability. Barriers include market distorting fossil fuel subsidies or when environmental benefits cannot be factored into project economics. The use of cost-based feed-in tariffs and renewable portfolio standards requiring utilities to buy pre-set amounts of power from renewable sources are typical incentives within APEC to attract investment.[20] However effective these incentives can be in the short term they can be counter-productive in the long term for utility scale solar parks and wind farms especially as these incentives rely upon political will which can be withdrawn.[21] Such policy uncertainty has been cited as the major factor inhibiting or delaying investments in renewables during 2013 in the U.S., Germany, India, the UK, France, Sweden, Romania and Poland while retroactive subsidy cuts for existing projects in Spain and Bulgaria reduced new renewables investment to almost zero.[22]

Local content restrictions are probably the biggest barrier to trade in renewables goods and services along with import tariffs.[23] Barriers to distributed generation projects include non-market based pricing as well as limits on foreign ownership, weak Intellectual Property Rights (IPR) protection and a wide variety of grid-connectivity issues.[24] Another barrier is diverse or conflicting technical standards.[25] Many APEC members have embarked upon major research efforts in renewable technologies and so there is a need to harmonize technical standards and testing methodologies for emerging clean energy technologies to foster innovation and commercial deployment. One result has been the dramatic drop in the cost of solar photovoltaics which has made solar a more cost competitive alternative as evidenced by Japan's investment in solar in 2013 which grew by 80% to $29 billion as it reduces the role of nuclear.[26]

Although the Fukushima accident has reduced projections for commercial nuclear power in Japan and Chinese Taipei, nuclear is still expected to play an important role in APEC's energy future.[27] Member economies with

existing plants have responded to the accident by conducting safety reviews and reassessments of their regulations and policies while member economies planning their first plant are expected to continue with their plans. However, these members must not only contend with nuclear's large up front capital costs and long construction times but they must also develop from scratch comprehensive policy, licensing, legal and regulatory frameworks in order to navigate other key challenges (e.g., public acceptance, safety regime, waste management, liability laws, need for trained workforce etc.) Proper infrastructure also needs to be in place including high capacity transmission grids. Requirements for technology transfer are common but can inhibit investment if they are too extreme. Thus, governments must be very proactive in ensuring that they have all the key policy frameworks and institutional elements up and running before they will be in a position to attract private investment in nuclear power.

While investment in nuclear requires long term policy certainty, investments in energy efficiency can respond to short-term policy signals since their financial returns are predicated upon future cost savings as opposed to the creation of an income stream. Reliable policy signals and stable regulatory frameworks are still needed to ensure attractive risk-adjusted returns but there can be one-time investments in buildings, factories and the like under performance contracting schemes which allow investors to write-off investments in energy efficiency as an expense. This may require special financing tools for energy efficiency projects which are able to factor in future fuel savings in funding the initial capital investment. APEC appears to be on track in promoting energy efficiency as a means to promote competitive economies, enhance energy security and combat climate change as its energy intensity is expected to decline by 53% while GDP will increase by 225% by 2035. This does not diminish the priority need for APEC to reduce barriers to energy trade and investment[(28)] but it highlights that if APEC were to reduce its energy demand by 15% it could conceivably reduce its need for energy investment by one trillion dollars.

Based upon the above, it is recommended that APEC expand its existing programs relating to electric power by establishing new activities that build capacity and help member economies develop new policy frameworks that feature an independent regulator, fair competition and effective tariff structures. This could be accomplished through a series of thoughtfully-conceived and fully supported high-level workshops that could be coordinated with similar APEC activities focusing on the oil and gas sector.

CONCLUSIONS AND RECOMMENDATIONS

There is no single policy formula that will be optimal in promoting trade and attracting investment for energy in APEC. What matters most is the combination of policy settings which create an attractive framework that properly balances the expectation of public benefit for resource rent, job creation, access to technology and economic growth with commercial calculations of risk and reward. There are several key themes common to all studies on APEC energy trade and investment such that they can be considered to form core issues for APEC to address in order to be competitive in energy trade and investment.[29]

Key elements in a model framework for trade and investment include:

- Policy certainty ensuring sanctity of contracts
- Open and fair competition on a level playing field devoid of local content rules, quotas, tariffs, restrictions on foreign ownership and investment
- Market based pricing undistorted by subsidies
- Independent government regulation and effective inter-ministerial coordination that is transparent, rules-based, predictable, and allows stakeholder consultation
- Viable legal system that resolves commercial disputes on a timely basis and protects intellectual property
- Banking system which allows free transfer of capital

APEC Energy Ministers, the EWG and the CTI can play an important role in helping APEC member economies remove barriers to energy trade and investment. The EWG should continue its Peer Review Process for Fossil Fuel Subsidies while the disbanding of the ETI Task Force provides a clean slate to move forward in a different way to achieve more progress. Therefore, it is recommended that the following new actions be taken:

1. APEC Energy Ministers should meet with the APEC business community annually in a half-day APEC Energy Trade and Investment Forum
2. The EWG in coordination with the CTI and ABAC should organize a one and-a-half day workshop providing case studies and expert speakers on “Energy Policy and Legal Frameworks Featuring an Independent Regulator”
3. The EWG in coordination with the CTI and ABAC should also organize a two-day Energy Trade and Investment Conference whose agenda addresses issues listed in the Taxonomy annexed to this paper.
4. The EWG and CTI, in conjunction with APERC, should establish an APEC Clearinghouse for Best Practices in Energy Trade & Investment with voluntary reviews of investment parameters and conditions in member economies (laws, rules, regulations, market structure and regulatory framework). This could assist in compiling & maintaining an information inventory for energy trade and investment frameworks in APEC.
5. A joint EWG and CTI meeting with ABAC should be held to implement these recommendations and to develop a realistic new Plan of Action for APEC Energy Trade & Investment.

Policy makers and business leaders have many common interests and the ideas suggested in the EWG's "Priorities for 2015" are welcomed, including having ABAC participate in EWG meetings. The ABAC looks forward to working with APEC Energy Ministers, the EWG, CTI and ABAC in fulfilling the Beijing Declaration by taking these next steps together.

ANNEX:

TAXONOMY OF BARRIERS TO ENERGY TRADE AND INVESTMENT IN APEC

Border Barriers

BARRIER TYPE	BARRIER SUB-CATEGORY
1. Limits on foreign ownership of energy businesses	1.1 Complete prohibition of foreign ownership 1.2 Limited share of foreign ownership 1.3 Mandatory transfer of ownership to State 1.4 Unequal access to land and/or infrastructure
2. Screening or approval requirements for foreign investment in energy businesses	2.1 Screening and approval process lacks transparency and predictability 2.2 Restrictions imposed are disproportionate to domestic interest or security requirements 2.3 Screening and approval process is complex lengthy and disproportionate
3. Operational restrictions	3.1 Performance requirements 3.2. Requirements to use local content 3.3. Operational permits or licenses 3.4. Restrictions on importation of capital and raw materials 3.5. Ceilings on royalty payments 3.6. Restrictions on repatriation of capital and profits 3.7. Inconsistent fuel quality standards 3.8. Inconsistent adoption of sustainability criteria 3.9. Inconsistent maritime energy transportation Rules

4. Energy import and export policies	4.1 Import and export tariffs 4.2 Import and export quotas 4.3 Restricted import and export licenses

Behind-the-Border Barriers

BARRIER TYPE	**BARRIER SUB-CATEGORY**
5. Inadequate infrastructure	5.1 Inadequate domestic infrastructure 5.2 Inadequate cross-border connectivity
6. Excessive regulation	6.1 Complex and lengthy approval processes and other contractual negotiations 6.2 Onerous environmental regulations 6.3 Lack of inter-ministerial coordination 6.4 Excessive requirement for technology transfer 6.5 Restrictive regulations hindering the efficient flow of expatriate employees across borders in support of project construction/operation.
7. Inefficient or excessive taxes	7.1 Ineffective systems for taxing profits on upstream oil and gas 7.2 Inefficient and perverse taxes 7.3 High freight tariffs 7.4 Unstable tax regimes
8. Policy uncertainty	8.1 Policy unpredictability in the energy sector 8.2 Weak energy sector governance arrangements 8.3 Lack of long term policy signal for clean energy technologies 8.4 Climate change policy uncertainty at an international level

9. Weak legal systems	9.1 Regulatory gaps 9.2 Poor protection of property rights 9.3 Unclear regulations and difficulty enforcing contracts
10. Lack of competition and anti-competitive behavior	10.1 Discriminatory treatment between overseas and domestic investors 10.2 Lack of price deregulation and subsidization of domestic energy sources
11. Poorly functioning financial markets	11.1 High cost of finance 11.2 Insufficient capital funding available.
12. Political instability	12.1 Territorial disputes over energy resources 12.2 Risks to physical security of assets/people
13. Corruption	N/A

Source: Based almost entirely on "Taxonomy of Barriers to Energy Trade and Investment" developed by "APEC Energy Trade and Investment Study", pp. 23-24, prepared for Australia's Department of Resources, Energy and Tourism by PricewaterhouseCoopers, September 2008 which can be found at http://www.ewg.apec.org/documents/APEC-ETIStudyReportFinal15Oct2008.pdf *PWC 2007*

ENDNOTES

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10. IEA Special Report "World Energy Investment Outlook 2014", p. 12. The link is httpsOp cit, ://www.iea.org/publications/freepublications/publication/WEIO2014.pdfsee
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12. Op Cit, See IEA World Energy Investment Outlook, p. 2.
13. See "Energy and the Americas: Issues and Recommendations", An Americas Society and Council of the Americas Energy Action Group Report, September 2011 P. 5-6. The link is: http://www.as-coa.org/sites/default/files/Energy%20and%20the%20Americas_Issues%20and%20Recommendations_0.pdf
14. See "Oil Sector Performance and Institutions: The Case of Latin America", by Lenin Balza and Ramon Espinasa, Inter-American Development Bank (IDB), Technical Note No. IDB-TN-724, January 2015. See

pages 2, 34-43, and 50. The link is http://publications.iadb.org/bitstream/handle/11319/6759/Balza%20and%20Espinasa%20%282014%29%20-%20Final.pdf?sequence=1

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