THE QUEST FOR CLIMATE ADDITIONALITY: SEARCHING FOR EMISSION REDUCTIONS UNDER THE UNFCCC'S CLEAN DEVELOPMENT MECHANISM

INTRODUCTION

The United Nations Environment Programme (UNEP) recently found that the world is on track to emit fifty-nine gigatonnes carbon dioxide equivalent ($GtCO_2e$) in 2020,[1] an amount 145 times greater than pre-industrial emissions[2] and 34% higher than the level of "safe" emissions as agreed by the international community.[3] While UNEP and other international bodies such as the Intergovernmental Panel on Climate Change (IPCC) provide much needed guidance on some of the most pressing scientific and policy questions related to climate change, there remain numerous technical, political, and legal issues that must be resolved in order to successfully combat this growing global threat.[4] One such issue is ensuring the additionality of mitigation efforts, that is, making certain that initiatives aimed at reducing greenhouse gas (GHG) emissions actually bend the global emissions trajectory away from business as usual and towards a pathway that will avoid a full-on climate change crisis.[5]

In this context, additionality refers to "an effort that is supplemental to the business-as-usual . . . scenario . . . of greenhouse gas . . . emissions generated by mitigation activities."[6] The GHG mitigation associated with a project or effort is additional if the reduction in net GHG emissions is above and beyond what would have occurred in the absence of a targeted

---

1. UNITED NATIONS ENV'T PROGRAMME, THE EMISSIONS GAP REPORT 2013, at xii (2013), *available at* http://www.unep.org/pdf/UNEPEmissionsGapReport2013.pdf.

2. *Climate Change Mitigation*, UNITED NATIONS ENV'T PROGRAMME, http://www.unep.org/climatechange/mitigation/Introduction/tabid/29397/Default.aspx (last visited Dec. 10, 2014).

3. UNITED NATIONS ENV'T PROGRAMME, *supra* note 1, at xii.

4. *See, e.g.*, *History*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, http://www.ipcc.ch/organization/organization_history.shtml (last visited Dec. 10, 2014) (stating that the IPCC was created to "prepare, based on available scientific information, assessments on all aspects of climate change and its impacts"); Ban Ki-moon, Sec'y Gen. United Nations, Briefing to the General Assembly on the Impact of Hurricane Sandy (Nov. 9, 2012), *available at* http://www.un.org/apps/news/infocus/sgspeeches/statments_full.asp?statID=1697 (explaining the institutional challenges remaining to address climate change).

5. MICHAEL GILLENWATER, GHG MGMT. INST., WHAT IS ADDITIONALITY? PART I: A LONG STANDING PROBLEM 4 (2012), *available at* https://ghginstitute.org/wp-content/uploads/content/GHGMI/AdditionalityPaper_Part-1(ver3)FINAL.pdf.

6. CHARLOTTE STRECK, THE CONCEPT OF ADDITIONALITY UNDER THE UNFCCC AND THE KYOTO PROTOCOL: IMPLICATIONS FOR ENVIRONMENTAL INTEGRITY AND EQUITY 1 (2010), *available at* http://paperzz.com/download/380115.pdf. In this Note, the term "business-as-usual" refers to the continuation of current emissions trends into the future, assuming that no further actions to mitigate greenhouse gas emissions are taken.

effort addressing climate change.[7] An emission reduction is not additional if emissions would have declined even without specific climate change-focused policies or projects, due, for example, to technological improvements or demographic changes.[8]

Why is additionality important? It is critical that policy makers and implementers focus their attention and limited resources on policies and measures that actually contribute to changing the current trajectory of ever-increasing emissions. If emission reductions are not additional, they are not, in fact, reductions at all.[9] Furthermore, in a compliance regime, such as a legally binding cap-and-trade system or other framework of mutually agreed commitments, additionality is necessary to uphold the environmental and financial integrity of the mitigation framework.[10] In short, the additionality of GHG mitigation is a foundational element of any scheme to reduce global emissions and thereby avoid the most dangerous anthropogenic impacts on the climate system.[11]

This analysis assesses how Parties to the United Nations Framework Convention on Climate Change (Convention or UNFCCC) have operationalized the requirement of additionality in the context of the Kyoto Protocol's Clean Development Mechanism (CDM). The CDM encourages emission reductions by allowing public and private entities from developed countries to invest in climate-friendly projects in developing countries.[12] In return, the investors may receive carbon credits corresponding to the quantity of emission reductions relative to business-as-usual.[13] The CDM presents a unique opportunity to examine the implementation of additionality due to the mechanism's extensive collection of rules and

---

7. *Id.*

8. *See* GILLENWATER, *supra* note 5, at 3 (explaining that additionality is about assessing causation and attributing emission reductions to specific policy interventions).

9. Adam Regele, *Forest Offsets and AB32: Ensuring Flexible Mechanisms are Firm*, 19 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163, 175 (2013).

10. *Id.* at 171–72. In a compliance regime, a jurisdiction has committed to achieve a certain level of reductions; penalties for non-compliance may include censure and/or payment per ton of emissions over the limit. The introduction of "false" emission reductions undermines the integrity of a jurisdiction's emission reduction target, as well as the goal of reducing global emissions. In the case of a cap-and-trade system, such false emission reductions may also create market perversities. *Id.*

11. *See generally* INTERGOV'TL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS (Thomas F. Stocker et al. eds., 2013), *available at* http://www.ipcc.ch/report/ar5/wg1/ (detailing the observed impacts of global climate change and anticipated impacts under a range of emissions scenarios).

12. *What is the CDM*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://cdm.unfccc.int/about/index.html (last visited Dec. 5, 2014).

13. *Id.*

guidelines governing the design and implementation of project activities.[14] Furthermore, the CDM's policies of transparency and stakeholder participation enable an informed analysis of both the rules governing additionality and their implementation in the context of renewable energy project activities.

This additionality analysis will focus particularly on hydropower, wind power, and biomass energy projects under the CDM. The emphasis on renewable energy is warranted based on its critical role in climate change mitigation; the IPCC's 2004 Fourth Assessment Report found that, absent near-term changes to existing trends, "energy-related GHG emissions, mainly from fossil fuel combustion, are projected to rise by over 50%" between 2004 and 2030.[15] As of December 2013, nearly three-quarters of project activities registered in the CDM database address emission reductions in the energy sector.[16] Furthermore, encouraging the development of renewable energy technologies in developing countries—the countries eligible to host renewable energy project activities under the CDM—will have benefits that reach far beyond climate change mitigation to encompass sustainable development, reduction of air pollution, and environmental and ecological protection.[17]

The goal of this analysis is threefold: (1) synthesize a general rule or rules for when emissions reductions from renewable energy CDM projects are not additional as compared to business-as-usual; (2) critique the rule(s) describing project-level additionality against the requirement of additionality contained in the Convention and its Kyoto Protocol; and (3) assess the appropriateness of the synthesized additionality rule(s) in the context of recent shifts in the international climate policy paradigm. This analysis may inform ongoing discussions regarding the fate of the CDM as the international community shifts away from the Kyoto Protocol and towards the global framework for climate change mitigation and adaptation currently being negotiated under the UNFCCC.[18]

---

14. *EB Meetings*, UNFCCC, http://cdm.unfccc.int/EB/index.html (last visited Dec. 5, 2014) (select "The role of the CDM EB" on the right side of the page).

15. Ralph E.H. Sims et al., *Energy Supply*, *in* CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE 253 (Bert Metz et al. eds., Cambridge Univ. Press 2007), *available at* http://www.ipcc-wg3.de/assessment-reports/fourth-assessment-report/.files-ar4/Chapter04.pdf.

16. *See Project Search*, UNFCCC, http://cdm.unfccc.int/Projects/projsearch.html (last visited Dec. 5, 2014) (listing project activities under "Scopes" related to renewable energy).

17. Sims et al., *supra* note 15, at 256, 272–73, 309–10.

18. Conference of the Parties, Durban, Nov. 28–Dec. 11, 2011, *Decision 1/CP.17, Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action*, at 2–3, FCCC/CP/2011/9/Add.1 (Mar. 15, 2012).

Part I of this analysis focuses on the structure and function of the CDM within the Convention and its Kyoto Protocol. It briefly explains the evolution of the CDM through decisions taken by the agreements' governing bodies: the Conference of the Parties (COP) and the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP). It then addresses the structure and function of the CDM and its Executive Board, including the development and implementation of processes and methodologies, paying particular attention to the treatment of additionality. The first part concludes with a detailed description of the phases of the CDM project cycle that highlights points in the decision-making process at which additionality plays a critical role.

Part II introduces the additionality analysis. This Part begins with a brief description of existing and proposed renewable energy project activities under the CDM. It then introduces the set of decisions and other documents used in the additionality analysis, and proceeds to analyze the factual context of the selected CDM project activities against the "law" of additionality as defined in the relevant international conventions and standards. This Part also identifies why proposed project activities fail the additionality assessment, and concludes by synthesizing a set of rules for when CDM project activities are not additional based on the factual patterns that emerge from looking across a range of rejected proposals.

Part III assesses the consistency of the rules identified in Part II with the international law on additionality contained in the Convention and Kyoto Protocol, as well as with the additionality rules and guidelines prescribed under the CDM. Finally, Part IV compares the CDM's additionality rule to another, newly formed greenhouse gas mitigation framework, California's project-based offset protocols under Assembly Bill 32.

I. ADDITIONALITY WITHIN THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

In the context of the UNFCCC, additionality comes into play most prominently in Article 12 of the Convention's Kyoto Protocol, which establishes the CDM. The CDM is one of three "'flexible mechanisms'" under the Kyoto Protocol, which also include Joint Implementation (Article 6) and emissions trading (Article 17).[19] Article 12 establishes a project-

19. Sophia Tsai, *UNFCCC Technical Workshop on Mechanisms of the Kyoto Protocol*, COLO. J. INT'L ENVTL. L. & POL'Y, 220, 220–21 (2000); Kyoto Protocol to the United Nations Framework Convention on Climate Change arts. 6, 7, 12, 17, Dec. 11, 1997, 2303 U.N.T.S. 148 [hereinafter Kyoto Protocol].

based mechanism that, in essence, allows developing countries[20] to earn certified emission reductions (CERs) by hosting projects that decrease GHG emissions relative to business-as-usual.[21] Certified emission reductions are tradable; developing countries can sell their CERs to developed countries, which then may use the CERs to meet their national emission reduction targets.[22] The CDM thus functions as an offset mechanism—CERs may, to a certain extent, displace emission reductions that developed countries would otherwise have to achieve domestically.[23] Developing countries may undertake CDM project activities unilaterally, or may partner with a developed country that supports a CDM project activity in exchange for the CERs produced.[24]

A. CDM's Basis in the Convention and its Kyoto Protocol

The ultimate objective of the UNFCCC is contained in Article 2, which calls for "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[25] Article 2 states that this objective also applies to "any related legal instruments that the Conference of Parties may adopt," which includes the Kyoto Protocol.[26] Parties to the Convention adopted the Kyoto Protocol at the third session of the COP on December 11, 1997.[27] However, the Protocol did not enter into force until a little over seven years later, on February 16, 2005.[28] There are currently 192 Parties to the Kyoto Protocol (191 nation-states and one regional economic integration organization); this subset of Parties of the Convention comprises the governing body of the Kyoto Protocol, which is referred to (somewhat confusingly) as the

20. Developing countries are all countries not listed in Annex I to the UNFCCC. *First Steps to a Safer Future: Introducing the United Nations Framework Convention on Climate Change*, UNFCCC, http://unfccc.int/essential_background/convention/items/6036.php (last visited Dec. 5, 2014).

21. Kyoto Protocol, *supra* note 19, art. 12.

22. *What is the CDM?*, *supra* note 12.

23. Kyoto Protocol, *supra* note 19, art. 12.

24. *What is the CDM?*, *supra* note 12. The terms "CMP" and "COP" refer to both the decision-making bodies and the meetings at which they annually convene to take decisions regarding the Kyoto Protocol and UNFCCC, respectively. *Glossary of Climate Change Acronyms*, UNFCCC, http://unfccc.int/essential_background/glossary/items/3666.php (last visited Dec. 5, 2014).

25. United Nations Framework Convention on Climate Change art. 2, May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

26. *Id.*

27. Kyoto Protocol, *supra* note 19.

28. *Id*.

Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP).[29]

Article 12 of the Kyoto Protocol lays out the basic framework of the CDM.[30] The language therein indicates that Parties designed the mechanism to achieve three purposes: (1) to assist developing countries in achieving sustainable development, (2) to provide a way for developing countries to contribute to the ultimate objective of the UNFCCC, and (3) to assist developed countries in complying with their emission reduction targets under the Kyoto Protocol.[31] While the CMP has general authority over the CDM, it agreed to delegate supervision of the mechanism to an executive board (the Board).[32] In addition to laying out the general objectives and structure of the mechanism, Article 12 also contains the skeleton for further operational guidance, including a mandate that emission reductions be "additional to any that would occur in the absence of the certified project activity" in order to qualify under the CDM.[33]

Building off of the foundation established in Article 12, the CMP adopted principles,[34] modalities and procedures,[35] and guidance relating to the CDM at its first meeting in December 2005;[36] the resulting package of six decisions constitutes the basis for an operational CDM. As a preliminary matter, these decisions affirm that the CMP has ultimate authority over the CDM and that the Board supervises the CDM "under the authority and

---

29. *Status of Ratification of the Kyoto Protocol*, UNFCCC, http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Nov. 17, 2013); *Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP),* UNFCCC, http://unfccc.int/bodies/body/6397.php (last visited Dec. 5, 2014).

30. Kyoto Protocol, *supra* note 19, art. 12.

31. *Id*.

32. *Id.* ¶ 4.

33. *Id.* ¶ 5(c).

34. Conference of the Parties, Montreal, Nov. 28–Dec. 2005, *Decision 2/CMP.1, Principles, Nature, and Scope of the Mechanisms Pursuant to Articles 6, 12, & 17 of the Kyoto Protocol*, at 4, FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006).

35. Conference of the Parties, Montreal, Nov. 28–Dec. 2005, *Decision 3/CMP.1, Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol*, Annex, at 7, FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006) [hereinafter CDM Modalities and Procedures].

36. Conference of the Parties, Montreal, Nov. 28–Dec. 10, 2005, *Decision 4/CMP.1, Guidance Relating to the Clean Development Mechanism*, at 30, FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006) [hereinafter *Decision 4/CMP.1*]. The CMP also took decisions at this time on modalities and procedures for large- and small-scale afforestation and reforestation project activities under the CDM and on further guidance relating to the CDM. Conference of the Parties, Montreal, Nov. 28–Dec. 10 2005, *Decisions 5–7/CMP.1, Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol*, at 61, 81, 93, FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006) [hereinafter *Decision 5–7/CMP.1*].

guidance of the [CMP]."[37] The CMP's decisions also establish modalities and procedures defining the qualifications and requirements for designated operational entities (DOEs), which are legal domestic or international entities that work with CDM participants to ensure that proposed projects meet the necessary requirements.[38] The Board and CMP must approve all DOEs before they may begin working with project participants.[39]

The CMP's decision on modalities and procedures goes on to describe each of the phases of the CDM project cycle, as well as the criteria by which the Board and DOEs must assess the suitability of proposed project activities.[40] One such criterion is additionality, which the CMP defines as a necessary condition for approval at several phases of the CDM project cycle.[41] The CMP requested the Board to develop guidance and methodologies to implement the requirement of additionality, and specified that "[a] CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity."[42]

The CMP meets annually, *inter alia*, to identify key issues associated with the CDM that require Parties' further attention, and to decide whether to supply guidance and/or request the Board to undertake further work on modalities and procedures.[43] The CMP has regularly made decisions encouraging the Board to develop tools for project participants to use in demonstrating and assessing additionality that are applicable across a broad range of project types and circumstances.[44] The CMP has recently stressed the need for the development and use of tools and methodologies to be

37. CDM Modalities and Procedures, *supra* note 35, ¶ 5. The Board's role is discussed in greater detail below.

38. *Id.* ¶ 27.

39. *Id.* ¶¶ 21–27.

40. *Id.*

41. *Id.* ¶¶ 37(d), 43, 45(b), 62(f), 63.

42. CDM Modalities and Procedures, *supra* note 35, app. C, ¶ (a)(v); Kyoto Protocol, *supra* note 19, art. 12, ¶ 5(c). The definition of additionality is slightly different for afforestation and reforestation CDM project activities as mitigation is measured in terms of the amount of carbon dioxide removed *from* the atmosphere by the growing trees, as opposed to the reduction of emissions *to* the atmosphere relative to what would have occurred without the project activity. *Decisions 5–7/CMP.1*, *supra* note 36, Annex, ¶ 12(d).

43. CDM Modalities and Procedures, *supra* note 35, ¶¶ 2–4.

44. *E.g.*, Conference of the Parties, Durban, Nov. 28–Dec. 11, 2011, *Decision 3/CMP.6, Further Guidance Relating to the Clean Development Mechanism*, ¶¶ 37, 40, FCCC/KP/CMP/2011/10/Add.2 (Mar. 15, 2012); Conference of the Parties, Dec. 7–19, 2009, *Decision 2/CMP.5, Further Guidance Relating to the Clean Development Mechanism*, ¶ 24, FCCC.KP/CMP/2009/Add.1 (Mar. 30, 2010) (requesting the Board to establish simplified modalities for demonstrating additionality).

simple, objective, transparent, and consistent with the need to ensure the environmental integrity of the CDM.[45]

B. Implementing the CDM

The following discussion briefly summarizes the CDM project cycle, examines in more detail the role of the Board, and describes the standards, procedures, methodologies, and tools used to implement the CMP's guidance on the matter of additionality. It is important to note that this is not a comprehensive description of this mechanism, but rather an overview of components relevant to the analysis of additionality under the CDM.

1. The Project Cycle

Currently under the CDM, there are five categories of project activities, each with its own set of methodologies and considerations: (1) large-scale projects, (2) small-scale projects, (3) large-scale afforestation and reforestation projects, (4) small-scale afforestation and reforestation projects, and (5) carbon capture and storage.[46] This analysis focuses on large-scale projects, and specifically on large-scale project activities related to renewable energy;[47] small-scale projects employ simplified methodologies that may implicate a distinct set of issues regarding

---

45. *See, e.g.*, Conference of the Parties, Nairobi, Nov. 6–Dec. 17, 2006, *Decision 1/CMP.2, Further Guidance Relating to the Clean Development Mechanism*, at 5, FCCC/KP/CMP/2006/10/Add.1 (Mar. 2, 2007) (encouraging the Board to develop more methodologies with broad applicability and to improve the tool for the demonstration and assessment of additionality); Conference of the Parties, Poznán, Poland, Dec. 1–12, 2008, *Decision 2/CMP.4, Further Guidance Relating to the Clean Development Mechanism*, at 9 ¶ 36, FCCC/KP/CMP/2008/11/Add.1 (Mar. 19, 2009) [hereinafter *Decision 2/CMP.4*] (requesting the Board "to further enhance the objectivity of approaches used to assist in the demonstration and assessment of additionality while ensuring environmental integrity"); Conference of the Parties, Durban, Nov. 28–Dec. 11, 2011, *Decision 8/CMP.7, Further Guidance Relating to the Clean Development Mechanism*, ¶ 17, FCCC/KP/CMP/2011/10/Add.2 (Mar. 15, 2012) [hereinafter *Decision 8/CMP.7*] ("*Encourages* the Board to extend the simplified modalities for the demonstration of additionality to a wider scope of project activities").

46. *CDM Methodologies*, UNFCCC, http://cdm.unfccc.int/methodologies/index.html (last visited Dec. 5, 2014). The CMP added carbon capture and storage as an eligible CDM activity in 2011; to date there are no approved methodologies and therefore no registered carbon capture and storage projects. Conference of the Parties, Durban, Nov. 28–Dec. 11, 2011, *Decision 10/CMP.7, Modalities and Procedures for Carbon Capture and Storage in Geologic Formations as Clean Development Mechanism Project Activities*, FCCC/KP/CMP/2011/10/Add.2 (Mar. 15, 2012); *see CDM Methodologies* (showing that there are currently no proposed or approved methodologies for carbon capture and storage projects).

47. *See Project Search, supra* note 16 (narrowing search to "Large Scale" projects).

additionality than those investigated here.[48] This analysis does not consider additionality issues related to "programmes of activities."[49]

The CMP supplied the basic structure of the CDM project cycle in the annex to decision 3/CMP.1 (also referred to as the CDM Modalities and Procedures). As an initial matter, the CMP set out eligibility requirements for Parties participating in the CDM: The developing-country host of the potential project activity must be a Party to the Kyoto Protocol and must have the specified institutional structures in place.[50] Potential project participants must submit a project design document (PDD) that describes, *inter alia*, the project's purpose, technologies employed, methodology for assessing emissions both with and without the proposed project activity (baseline methodology), environmental impacts of the proposed activity, sources of finance, and a plan to monitor the project activity and collect data relating to emission reductions and other project characteristics.[51] The PDD must also explain how "anthropogenic emissions of greenhouse gases . . . are reduced below those that would have occurred in the absence of the registered CDM project activity;"[52] that is, the project participants must demonstrate the additionality of the proposed project.

Project participants must contract with an approved DOE,[53] which will review the content of the PDD against the Board's guidance and requirements. The Board refers to this independent evaluation of the proposed project activity as validation.[54] The validation process requires the DOE to determine, among other things, whether the PDD describes an activity that would result in emission reductions "that are additional to any that would occur in the absence of the proposed project activity."[55] The DOE must also determine whether the project participants' chosen baseline methodology will provide for the assessment of emission reductions that are

---

48. UNFCCC, CDM METHODOLOGY BOOKLET 40 (5th ed., 2013), *available at* http://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf.

49. A program of activities is a bundle of activities that are collectively related to a policy or stated goal that reduces GHG emissions. Programs of activities that result in emission reductions additional to those that would occur in the absence of that program are eligible to receive CERs under the CDM. UNFCCC, GLOSSARY OF CDM TERMS 15 (Version 07.0, 2012), *available at* http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf.

50. CDM Modalities and Procedures, *supra* note 35, ¶¶ 29, 30.

51. *Id.* app. B.

52. *Id.* app. B, ¶ 2(d).

53. The Board provisionally approves DOEs according to its accreditation standard; the CMP grants final approval based on the Board's recommendation. CDM Modalities and Procedures, *supra* note 35, ¶ 3(c).

54. *Id.* ¶ 35.

55. *See id.* ¶¶ 37(d), 44–48 (explaining the criteria a proposed baseline must meet in order to be consistent with the CMP's criteria on, *inter alia*, additionality).

real, measurable, verifiable, and additional.[56] If the PDD satisfies these requirements, among many others, the DOE prepares a validation report and submits the PDD, the report, and supporting documentation to the Board with a request for registration.[57]

The Board has two options upon receiving a DOE's registration request. If the Board agrees with the DOE's assessment, no further action is required and it will register the project activity eight weeks after the initial request.[58] However, if any participant in the proposed activity or a critical mass of the Board's members finds reason for further investigation, that party may request a review of the PDD.[59] The review must be related to issues associated with the validation requirements—one such issue may be the proposed project's additionality.[60] If the Board decides review is warranted, it establishes a review team and tasks it with re-assessing the PDD and compiling additional inputs and comments from the project participants and the public.[61] At the conclusion of the review, the Board has three options: register the proposed project activity, request that the project participants make corrections to the PDD before allowing registration, or reject the proposed project activity.[62]

Registered project activities are contained in the CDM's database; however, registration does not necessarily mean that the project participants have committed to move forward with the project.[63] If project participants implement an activity as planned in the PDD, the next step in the project cycle is to monitor and report the project activity's impact on emissions.[64] The DOE calculates emission reductions relative to a project activity's baseline emissions; that is, the business-as-usual emissions that would have occurred in the absence of the registered CDM project.[65] The baseline-setting process is closely related to the project's additionality—recall that "[a] CDM project activity is additional if anthropogenic emissions of greenhouse gases . . . are reduced below those that would have occurred in

---

56. *Id.* ¶ 37.

57. *Id.* ¶ 40(f). Concurrent with its registration request, the DOE must make its validation publicly available on the CDM website. *See id.* ¶ 40(g). (requiring DOEs to make validation reports "publicly available upon transmission to the Executive Board").

58. *Id.* ¶ 41.

59. *Id.*

60. *Id.*

61. *Decision 4/CMP.1*, *supra* note 36, at Annex III, ¶¶ 11–12.

62. *Id*., at Annex III, ¶ 18.

63. *See How to Implement Offset Projects*, CARBON OFFSET RES. & EDUC. INITIATIVE, http://www.co2offsetresearch.org/consumer/ProjectCycle.html (last visited Dec. 5, 2014) (explaining that project registration and implementation are independent processes).

64. CDM Modalities and Procedures, *supra* note 35, ¶¶ 53–60.

65. *Id.* ¶ 44.

the absence of the registered CDM project activity [i.e., the baseline emissions]."[66] The methodologies for calculating baselines are specific to individual project types. For example, the methodology used to calculate emission reductions from a new grid-connected renewable energy project differs from that used for a project that improves the efficiency of existing generation.[67]

Next, the DOE associated with a project activity uses information gleaned from the project's monitoring system to verify the project activity.[68] The CMP defines verification as "the periodic independent review and ex post determination by the [DOE] of the monitored reductions in anthropogenic emissions . . . during the verification period."[69] In essence, a DOE verifies a project activity by determining whether the project's claimed emission reductions are "real," that is, whether they were correctly measured and calculated against the approved baseline and are additional to what would have occurred in the absence of the project activity.[70]

After the DOE has verified a project activity's emission reductions, it certifies to the Board that it has done so and that the emission reductions claimed by the project activity were, in fact, achieved.[71] The DOE must submit a certification report, based on its verification report, to the Board. If there are no objections within fifteen days, the certification is complete and the Board will issue CERs for the CDM project activity.[72] However, if any party involved in the project activity, or three or more members of the Board, request a review, the Board will not issue CERs until the conclusion of that review.[73] The certification review has three possible outcomes: approval of the proposed issuance of CERs, a request to the DOE to make corrections before approving CERs, or denial of the proposed issuance of CERs.[74]

Project participants must specify the length of the crediting period during which a project activity is eligible to receive CERs.[75] The CMP

---

66. *Id.* ¶ 43.

67. *See* UNFCCC, CDM METHODOLOGY BOOKLET, *supra* note 48, 9–15 (laying out the methodologies associated with different types of project activities).

68. *See CDM Project Cycle,* UNFCCC, http://cdm.unfccc.int/Projects/diagram.html (last visited Dec. 5, 2014) (explaining that after a project is registered, a Designated Operational Entity (DOE) "verifies that emission reductions took place, in the amount claimed, according to approved monitoring plan").

69. CDM Modalities and Procedures, *supra* note 35, ¶ 61.

70. *Id.* ¶ 62.

71. *Id.*

72. *Id.* ¶¶ 65, 66.

73. *Id.* ¶ 65.

74. *Decision 4/CMP.1*, *supra* note 36, Annex IV, ¶ 18.

75. CDM Modalities and Procedures, *supra* note 35, ¶ 49.

requires that participants select either a seven-year crediting period that may be renewed a maximum of two times, or a single ten-year period that cannot be renewed.[76]

2. The Executive Board

Article 12, paragraph 4 of the Kyoto Protocol delegates supervision of the CDM to its Executive Board. While the CMP provides foundational guidance and guides the Board's priorities and agenda, the ten-member Board is responsible for a range of tasks including developing procedures, approving new methodologies, accrediting DOEs, registering projects and issuing CERs, and developing and maintaining a CDM registry and public database containing information related to registered project activities.[77]

The CMP has further delegated the task of operationalizing the policy guidance contained in the Kyoto Protocol, and the CMP's decisions under the Protocol, to the Board.[78] In response, the Board has developed an extensive framework of standards, tools, procedures, guidelines, and other supporting documents to guide project participants, DOEs, and review teams.[79] The Board also consults with project participants and other outside experts to develop and approve new methodologies for designing, implementing, and monitoring project activities.[80]

3. The "Law" of Additionality

The "law" of additionality under the UNFCCC is contained in several layers of decisions, guidance, methodological guidelines, and tools. This section describes the law of additionality as it applies to large-scale renewable energy CDM project activities; specifically, to the proposed installation of wind power, hydropower, and biomass-based energy generation.

a. Additionality Under the Kyoto Protocol

Article 12 of the Kyoto Protocol requires that CDM projects meet three conditions in order for the DOE to certify the resulting emission reductions:

---

76. *Id.*

77. *EB Meetings,* UNFCCC, *supra* note 14 (select "The role of the CDM EB" on the right side of the page).

78. CDM Modalities and Procedures, *supra* note 35, ¶ 5.

79. *See Reference/Documentation*, UNFCCC, http://cdm.unfccc.int/Reference/index.html (last visited Dec. 5, 2014) (outlining the types of documentation the Board provides related to the CDM).

80. *CDM Methodologies*, UNFCCC, *supra* note 46.

> Emission reductions resulting from each project activity shall be certified by operational entities [DOEs] to be designated by the Conference of the Parties serving as the meeting of the Parties to this Protocol [the CMP], on the basis of: (a) Voluntary participation approved by each Party involved; (b) Real, measurable, and long-term benefits related to the mitigation of climate change; and (c) *Reductions in emissions that are additional to any that would occur in the absence of the certified project activity*.[81]

Limiting the CDM to only those projects that provide additional emission reductions is critical to the integrity of the Kyoto Protocol. The central feature of the Kyoto Protocol is the limitations it places on developed countries' emissions; the quantified emission reduction limitation commitments contained in Annex B make each developed country legally responsible for achieving its specified quantity of reductions.[82] Developed countries may use emission reductions that originate outside their national accounting systems, for example, CERs resulting from CDM projects in developing countries, to supply a portion of their emission reductions.[83] If CERs are not additional, developed countries' mitigation targets lose their integrity; that is, a country could ostensibly achieve its mitigation target when, in reality, it has not decreased its emissions by the requisite amount. And, if countries fail to meet their targets under the Kyoto Protocol using additional emission reductions, there is an argument to be made that they have not been diligent in pursuing the ultimate objective of the Convention.

It is important to note the specific language of Article 12's rule for additionality—that certified emission reductions must be "additional to any that would occur in the absence of the certified project activity."[84] In using this language, Article 12 specifies the particular type of additionality a CDM project must satisfy: The proposed project must generate emission reductions that would not have occurred *in the absence of that particular project*.[85] Article 12 thus creates a context-specific additionality analysis that evaluates the impact of a proposed CDM project on business-as-usual

---

81. Kyoto Protocol, *supra* note 19, art. 12 (emphasis added).

82. *See Clean Development Mechanism*, UNFCCC, http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php (last visited Dec. 5, 2014) (explaining that each developed country Party to the Kyoto Protocol is legally responsible for achieving the level of emission reductions inscribed in Annex B).

83. *Id.*

84. Kyoto Protocol, *supra* note 19, art. 12.

85. *Id.*

emissions for a specific project type within the relevant geographic region and economic sector.

The COP deemed additionality sufficiently important to include it as an element of conventional law under the UNFCCC; however, it supplied no further guidance on the subject in the Kyoto Protocol. Instead, the COP left the work of putting the law of additionality into practice to the CMP, which is responsible for the mechanisms of the Kyoto Protocol.[86] The CMP's package of six decisions[87] supplies guidance relating to all aspects of the CDM; on the subject of additionality, however, their decisions simply reiterate the Kyoto Protocol's requirement that the Board and DOEs consider the requirement as a criterion for validating, registering, verifying, and certifying a project activity.[88]

b. The Executive Board's Interpretation of Additionality

The concept of additionality thus owes most of its substantive development to the Board; indeed, CMP decisions frequently request the Board to consider and adopt further guidance for demonstrating and assessing the additionality of proposed project activities.[89] The Board promulgates guidance in several forms, two of which are relevant for this analysis: (1) standards, which specify the "mandatory levels of performance" each project activity must achieve in order to be eligible under the CDM;[90] and (2) tools, which operationalize standards and "are used to calculate determine, demonstrate, estimate, identify, and/or test information relating to a CDM project activity."[91] This analysis will focus

86. However, in an interesting twist, the CMP would not actually come into existence until the Kyoto Protocol entered into force, which was not until 2005. *Kyoto Protocol*, UNFCCC, http://unfccc.int/kyoto_protocol/items/2830.php (last visited Dec. 5, 2014). In the interim, the COP drafted and adopted guidance in the form of COP decisions on a number of issues, including the CDM, in order to provide countries with a basis for moving forward on climate change mitigation. Once the Protocol entered into force, the CMP formally adopted the COP's "dummy" decisions and guidance as its own. *See* CDM Modalities and Procedures, *supra* note 35 (stating CMP's decision to "give full effect to" COP's relevant decisions). For simplicity, the text here refers only to decisions drafted and taken by the CMP.

87. *Decisions by the CMP*, UNFCCC, https://cdm.unfccc.int/Reference/COPMOP/index.html (last visited Dec. 5, 2014).

88. CDM Modalities and Procedures, *supra* note 35, ¶¶ 37(d), 41, 43, 62(f), 63.

89. *E.g.*, *Decision 5–7/CMP.1*, *supra* note 36, ¶¶ 25, 26; *Decision 2/CMP.4*, *supra* note 45; *Decision 8/CMP.7*, *supra* note 45, ¶¶ 17, 18 (requesting the Board to consider "possible ways of improving the current approach to the assessment of additionality").

90. CDM EXEC. BD., EB 67 REPORT ANNEX 4, CDM EXEC. BD. DECISION AND DOCUMENTATION FRAMEWORK 5 (Version 04.0, 2012), *available at* http://cdm.unfccc.int/Reference/Notes/gov/info_note02.pdf.

91. *Tools,* UNFCCC, http://cdm.unfccc.int/Reference/tools/index.html (last visited Dec. 5, 2014). There is additional documentation, including procedures and guidelines, available to help project

on three documents—two standards and one tool—that flesh out the law of additionality: the CDM Project Standard, Validation and Verification Standard, and Additionality Tool.

i. The CDM Project Standard

The CDM Project Standard is the starting point for project participants seeking to undertake a CDM project activity and to obtain CERs based on the resulting emission reductions.[92] The Project Standard contains overarching rules for the design and implementation of project activities, as well as for monitoring the resulting GHG emission reductions.[93]

With regard to additionality, the Project Standard sets out two types of information that project participants must include in their PDDs. First is the "prior consideration" analysis, which requires project participants to demonstrate that they considered CDM registration as a necessary condition of implementing the project activity.[94] To this end, project participants must provide evidence either that the CDM was "seriously considered" in the decision to implement the project,[95] or that "the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity."[96] Second, project participants "shall demonstrate, in accordance with the selected methodology and the requirements relating to prior consideration of the CDM . . . that the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the proposed CDM project activity."[97] In essence, the Project Standard requires project participants to include in their PDDs the steps they took to assess the additionality of the proposed project activity.

---

participants assess and demonstrate the additionality of CDM project activities. However, the information necessary to inform the "rule" of additionality is adequately represented in the standards and tools. *Id.*

92. CDM EXEC. BD., CLEAN DEVELOPMENT MECHANISM PROJECT STANDARD 7, U.N. Doc. CDM-EB65-A05-STAN (Version 04.0, 2013) [hereinafter CDM PROJECT STANDARD].

93. *Id.*

94. *Id.* at 10.

95. *Id.*

96. *Id.* The first formulation is used when project participants start the CDM registration process prior to a project's start date, while the second is used when project participants seek to register a project after the start of implementation. *Id.*

97. *Id.* at 13.

ii. Additionality Tool

The Board lays out these steps in its methodological tool for the demonstration and assessment of additionality (Additionality Tool).[98] Use of this tool is mandatory for project participants using pre-approved methodologies to design and implement project activities; however, participants designing new methodologies may propose alternate methods to demonstrate additionality for the Board's consideration.[99] The Additionality Tool lays out a five-step process for demonstrating and assessing additionality;[100] however, not all five steps are relevant or required for every project.[101] The combination of additionality tests that a project must satisfy depends, *inter alia*, on the project type and methodology, as discussed below.[102]

The Additionality Tool's step zero is an optional analysis under which project participants may demonstrate that the proposed activity "is the first in the applicable geographical area [and] applies a technology that is different from technologies that are implemented by any other project . . . ."[103] The "first-of-its-kind" test is applicable only to a subset of CDM projects, including activities related to renewable energy technologies.[104] If a project participant can demonstrate its proposed project activity is the first-of-its-kind in accordance with the Board's guidelines, the project activity is additional and the Additionality Tool's steps one through four are unnecessary.[105]

If a project activity is not the first-of-its-kind, project participants must proceed to step one, which requires project participants to "[d]efine realistic

98. UNFCCC, METHODOLOGICAL TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY 6–14 (Version 07.0.0, 2012) [hereinafter ADDITIONALITY TOOL], *available at* http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf.

99. *Id*. at 4.

100. *Id.* at 3.

101. *Id*. at 3, ¶ 4.

102. Project participants may also demonstrate the baseline-setting and additionality components of project design using the combined tool to identify the baseline scenario and demonstrate additionality. The combined tool contains the same five-step process for demonstrating and assessing additionality as the additionality tool. UNFCCC, COMBINED TOOL TO IDENTIFY THE BASELINE SCENARIO AND DEMONSTRATE ADDITIONALITY 3 (Version 05.0.0, 2012), *available at* http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-02-v5.0.0.pdf.

103. CDM EXEC. BD., GUIDELINES ON ADDITIONALITY OF FIRST-OF-ITS-KIND PROJECT ACTIVITIES 2 (Version 02.0, 2012), *available at* http://cdm.unfccc.int/Reference/Guidclarif/meth/meth_guid43.pdf.

104. ADDITIONALITY TOOL, *supra* note 98, at 4–5, 7.

105. GUIDELINES ON ADDITIONALITY OF FIRST-OF-ITS-KIND PROJECT ACTIVITIES, *supra* note 103, at 2.

and credible alternatives to the project activity(s)."[106] These alternatives must include proceeding with the project without being registered under the CDM, not undertaking the project activity (that is, continuing with business as usual), and pursuing alternative technologies or activities that "deliver outputs services . . . or services . . . with comparable quality, properties and application areas."[107] Step one then requires project participants to assess each alternative's consistency with mandatory laws and regulations. If the project activity is the only alternative that complies with the relevant legal requirements, it is not additional—it is likely that a project developer would be required to implement the project and achieve the associated emission reductions even in the absence of the CDM.[108] If there is more than one legally viable alternative, the project participant must continue through the subsequent steps of the Additionality Tool.

The Additionality Tool then allows project participants to choose between using the investment analysis (step two), the barrier analysis (step three), or both.[109] The investment analysis determines whether the proposed project activity either is the most economically or financially attractive alternative, or would be economically or financially viable without the anticipated revenue from the sale of CERs.[110] Project participants may choose the most appropriate of three possible methods for the investment analysis: simple cost, investment comparison, or benchmark.[111] The essence of all three methods is that a project activity is not additional if (1) it is the most economically attractive among the identified alternatives, or (2) its anticipated financial performance is better than a predetermined benchmark value (for example, the internal rate of return on investment).[112] If a proposed project activity is not economically attractive according the tests in step two, project participants may choose to continue to step three, or to proceed directly to step four of the additionality tool.[113]

Step three, the barrier analysis, is the conceptual inverse of step two's investment analysis. Project participants using the barrier analysis must identify one or more impediments to the proposed project activity that would both (1) prevent the implementation of the proposed project activity if it were not conducted under the auspices of the CDM, and (2) not prevent

106. ADDITIONALITY TOOL, *supra* note 98, at 7.
107. *Id.* at 8.
108. *Id.*
109. *Id.* at 9.
110. *Id.*
111. *Id.*
112. *Id.* at 11.
113. A project participant may also choose to proceed first to step 3, the barrier analysis. *Id.*

the implementation of at least one of the alternatives.[114] The Additionality Tool requires that project participants provide evidence of purported investment or technological barriers under step three, such as regulatory information, industry norms, statistical data, or written documentation of independent expert judgments.[115] If the evidence provided indicates there are, indeed, barriers to the implementation of the proposed project activity that would not prevent the implementation of one or more of the alternatives, the project participant may proceed to step four of the Additionality Tool.[116] However, if the proposed project activity fails either one or both of the requirements above, the project is not additional.[117]

The last step of the Additionality Tool is the "[c]ommon practice analysis," which provides a credibility check that assesses the degree to which "the proposed project type (e.g. technology or practice) has already diffused in the relevant sector and region."[118] The common practice analysis for renewable energy project activities entails comparing the prevalence of comparable projects, that is, renewable energy projects of similar capacity/output that use the same energy source/fuel, to that of all similarly sized energy projects (both renewable and non-renewable).[119] If the specified quantitative analysis based on this information reveals that the proposed CDM project activity is actually relatively common within the host country, then the proposed project activity is not additional.[120]

iii. The Validation and Verification Standard

Finally, the validation component of the CDM Validation and Verification Standard provides guidance for DOEs evaluating whether a proposed project activity "meets all applicable CDM requirements, including those specified in the Project standard, relevant methodologies, tools, standardized baselines and guidelines."[121] As part of the validation process, "[t]he DOE shall determine whether the proposed project activity is additional as demonstrated in the PDD."[122] To this end, the reviewing body must assess whether a project participant has complied with each step

114. *Id.*
115. *Id.* at 13.
116. *Id.*
117. *Id.* at 12–13.
118. *Id.* at 13.
119. CDM EXEC. BD., GUIDELINES ON COMMON PRACTICE (Version 02.0, 2012), *available at* http://cdm.unfccc.int/Reference/catalogue/document?doc_id=000003096.
120. *Id*.
121. CDM EXEC. BD., CDM VALIDATION AND VERIFICATION STANDARD 11, U.N. Doc. CDM-EB65-A04-STAN (Version 07.0, 2014)
122. *Id.* at 26.

of the additionality analyses outlined above. DOEs must examine the rationales, data, assumptions, and justifications underlying a project's additionality assessment.[123] The Validation and Verification Standard requires DOEs to describe the information used in the additionality analyses, as well as to confirm whether the project participants correctly determined that the proposed project activity is additional.[124]

In summary, to be registered under the CDM, proposed project activities must support the ultimate goal of the Convention; that is, they must contribute to avoiding dangerous anthropogenic interference with the climate system.[125] The Board will decide whether to register a validated project activity based in part on whether the project activity will result in emission reductions above and beyond those that would occur under business-as-usual.[126] The DOE makes its initial additionality determination in the validation phase, basing its assessment on whether the project participants complied with the requirements laid out in the Board's Project Standard and Additionality Tool.[127] If the Board does not find fault with the DOE's assessment, it may register the proposed project as a CDM project activity.[128] If the Board flags potential problems regarding the project's additionality, it can request a review of the relevant areas of the PDD.[129] Subsequent to the review, the Board may choose either to reject a project activity or to register it under the CDM.[130]

II. THE ADDITIONALITY OF RENEWABLE ENERGY PROJECT ACTIVITIES UNDER THE CDM

A. Overview of Project Activities

There are fifteen "scopes," or categories, of eligible project activities under the CDM.[131] Scope One CDM projects encompass activities within the energy industry, including projects based on both renewable and non-

123. *Id.*

124. *See id.* at 26, 27, 30–31 (explaining that the DOE must describe how it determined that the information in the project design document is credible and must confirm the accuracy of the investment analysis, among other duties).

125. UNFCCC, *supra* note 25, art. 2.

126. CDM Modalities and Procedures, *supra* note 35, at 14–15.

127. *Designated Operational Entities*, UNFCCC, http://cdm.unfccc.int/DOE/index.html (last visited Dec. 5, 2014).

128. CDM EXEC. BD., CLEAN DEVELOPMENT MECHANISM PROJECT CYCLE PROCEDURE 17, U.N. Doc. CDM-EB65-A32-PROC (Version 04.0, 2013).

129. *Id.*

130. *Id.* at 18–20.

131. *Project Search*, *supra* note 16.

renewable energy technologies.[132] The Board registered the first CDM project in 2004.[133] As of November 6, 2014, project participants submitted 4,050 requests for registration of large-scale Scope One energy projects,[134] and the Board registered 3,877 of these proposed project activities and rejected 140.[135]

This analysis focuses on proposed renewable energy project activities in three categories: (1) wind power, (2) hydropower, and (3) biomass-based energy used for electricity, heat, or combined heat and power. Specifically, this analysis evaluates eighteen large-scale renewable energy project activities that the Board rejected for CDM registration based on concerns regarding additionality. These eighteen rejected project activities were chosen from the larger group of 140 based on several factors: the type of technology employed (renewable energy in one of the three categories named above); the availability of documentation regarding the additionality analyses; the date of the validation decision; and the desire to balance, to the extent possible, the number of projects in each of the three renewable energy categories.[136]

Of the eighteen rejected projects, eight were grid-connected hydropower projects,[137] six were grid-connected wind power projects,[138]

---

132. *Id.*

133. Press Release, UNFCCC, The Kyoto Protocol's Clean Development Mechanism Takes Off: First CDM Project Registered (Nov. 18, 2004), *available at* http://cdm.unfccc.int/press/releases/2004_02.pdf.

134. *Id.*

135. *Id.* Over the same period, project participants submitted a total 7,765 requests for registration in all categories of project activities, 267 of which the Board rejected. *Project Search*, *supra* note 16.

136. After controlling for the first three factors, I selected decisions starting with the most recently rejected and worked backwards through time. This is for two reasons: (1) the quality of validation and registration ostensibly improved and those decisions become more consistent as project participants, DOEs, and the Board gained familiarity with the process, and (2) the standards and tools are continuously updated, and using the most recent project activities maximized the likelihood that the validation decisions were based on the versions of the standards and tools presented here. *See, e.g.*, ADDITIONALITY TOOL, *supra* note 98, at 15–16 (showing the degree of change the tool has undergone in a short amount of time).

137. TÜV SÜD INDUSTRIE SERVICE GMBH, VALIDATION OF THE CDM-PROJECT: YUNNAN DIQING JISHA HYDROPOWER PROJECT 11 (2009) [hereinafter TÜV SÜD, VALIDATION REPORT 2869], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 2869, go to Validation report link); KOREAN FOUND. FOR QUALITY, VALIDATION REPORT: YUNNAN YOUGANGGOU HYDROPOWER PROJECT 9 (2010) [hereinafter KOREAN FOUND., VALIDATION REPORT 3082], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 3082, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE MONJOLINHO ENERGÉTICA S.A.'S CDM PROJECT 9 (2009) [hereinafter BVC, VALIDATION REPORT 3261], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 3261, go to Validation report link); SWISS ASS'N FOR QUALITY AND MGMT. SYS., CDM VALIDATION: BAC HA HYDROPOWER PROJECT, VIETNAM 3 (2011) [hereinafter SWISS ASS'N, VALIDATION REPORT 4921], *available at*

and four were grid-connected biomass-based power.[139] The relevant DOEs validated one project activity in 2006, three in 2007, seven in 2009, three in 2011, and four in 2012.[140] Finally, three of the project activities were based in India, three in Brazil, six in China, and one each in Malaysia, Vietnam, Mexico, Panama, Ecuador, and the Philippines.[141] These eighteen project

---

http://cdm.unfccc.int/Projects/projsearch.html (search reference number 4921, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE PASSOS MAIA CDM PROJECT 10 (2011) [hereinafter BVC, VALIDATION REPORT 6331], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 6331, go to Validation report link); APPLUS+ LGAI TECHNOLOGICAL CENTER, S.A., VALIDATION REPORT: CONSTRUCTION AND OPERATION OF THE HYDRAULIC POWER PLAN CHICOASÉN II 21 (2012) [hereinafter APPLUS+, VALIDATION REPORT 7684], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 7684, go to Validation report link); ICONTEC INT'L, VALIDATION OF THE PROJECT: BONYIC HYDROELECTRIC PROJECT 8–9 (2013) [hereinafter ICONTEC, VALIDATION REPORT 7822], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 7822, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE OCAÑA HYDROPOWER PROJECT 9 (2012) [hereinafter BVC, VALIDATION REPORT 9377], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 9377, go to Validation report link).

138. KPR MILLS, BUREAU VERITAS QUALITY INT'L, VALIDATION REPORT: 19.27 MW GRID CONNECTED WIND ELECTRICITY GENERATION PROJECT 3 (2007) [hereinafter BVC, VALIDATION REPORT 1042], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 1042, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE HEILONGJIANG FUYUAN WIND POWER PROJECT 9 (2009) [hereinafter BVC, VALIDATION REPORT 2775], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 2775, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE HEILONGJIANG DABAISHAN WIND POWER PROJECT 9 (2009) [hereinafter BVC, VALIDATION REPORT 2776], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 2776, go to Validation report link); TÜV RHEINLAND JAPAN LTD., LIAONING BEIPIAO BEITAZI I WIND FARM PROJECT 18–19 (2009) [hereinafter TÜV RHEINLAND, VALIDATION REPORT 2830], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 2830, go to Validation report link); TÜV NORD CERT GMBH, VALIDATION REPORT: HEBEI CHENGDE YUDAOKOU WINDFARM 48 MW PROJECT 7 (2009) [hereinafter TÜV NORD, VALIDATION REPORT 2865], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 2865, go to Validation report link); DET NORSKE VERITAS, VALIDATION REPORT: RIO GRANDE DO NORTE AND CEARÁ WIND ENERGY COMPLEX PROJECT ACTIVITY IN BRAZIL 3 (2012) [hereinafter DNV, VALIDATION REPORT 7682], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 7682, go to Validation report link).

139. DET NORSKE VERITAS, DALMIA SUGARS LIMITED JAWAHARPUR RE PROJECT IN INDIA 1–5 (2007) [hereinafter DNV, VALIDATION REPORT 0990], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 0990, go to Validation report link); DET NORSKE VERITAS, VALIDATION REPORT: "KUNAK JAYA BIO ENERGY PLANT, MALAYSIA" PROJECT 1 (2007) [hereinafter DNV, VALIDATION REPORT 1016], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 1016, go to Validation report link); DET NORSKE VERITAS, VALIDATION REPORT: BHL PALIA KALAN PROJECT IN INDIA 1–2 (2006) [hereinafter DNV, VALIDATION REPORT 1184], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 1184, go to Validation report link); BUREAU VERITAS CERTIFICATION, VALIDATION OF THE SAN CARLOS 18 MW BIOPOWER POWER PLANT 20 (2012) [hereinafter BVC, VALIDATION REPORT 9493], *available at* http://cdm.unfccc.int/Projects/projsearch.html (search reference number 9493, go to Validation report link).

140. *See supra* notes 137–39.

141. *Id.*

activities are not necessarily representative of the full range of CDM project activities, other than the relative prevalence of projects in China and India.[142]

Table 1. Projects Selected for Analysis

Host Country ***Project Name***	**Project Type**	**Ref. No.**	**Date 1st Validated**	**Countries Involved**	**Project Description**
India *Dalmia Sugars Project*	Biomass	0990	2007[143]	United Kingdom[144]	Construction of a 27 MW, bagasse-combusting power plant adjacent to a sugar factory[145]
Malaysia *Kunak Jaya Bio Energy Plant*	Biomass	1016	2007[146]	Switzerland [147]	Construction of a co-generating power plant fueled by waste from palm oil and saw mills[148]
India *KPR Mills in Tamil Nadu*	Wind	1042	2007[149]	N/A[150]	Installation of wind farm with generation capacity of 19.27 MW[151]

142. Of the 7,765 project activities submitted for registration, 3,850 (49.6%) were located in China and 1,548 (19.9%) were in India. *Project Search*, *supra* note 16.

143. DNV, VALIDATION REPORT 0990, *supra* note 139 (information is on the page that precedes numbering).

144. *Id.* at 5.

145. *Id.*

146. DNV, VALIDATION REPORT 1016, *supra* note 139 (information is on the page that precedes numbering).

147. *Id.* at 5.

148. *Id.* at 5–6.

149. BVC, VALIDATION REPORT 1042, *supra* note 138 (information is on the page that precedes numbering).

150. *Project 1042: 19:27 MW Grid Connected Wind Electricity Generation Project by KPR Mills in Tamil Nadu*, UNFCCC, http://cdm.unfccc.int/Projects/DB/BVQI1175154167.18/view (last visited Dec. 5, 2014).

151. BVC, VALIDATION REPORT 1042, *supra* note 138, at 3.

Host Country ***Project Name***	**Project Type**	**Ref. No.**	**Date 1st Validated**	**Countries Involved**	**Project Description**
India *BHL Palia Kalan*	Biomass	1184	2006[152]	United Kingdom[153]	Construction of a 12 MW, bagasse-combusting power plant adjacent to a sugar factory[154]
China *Heilongjiang Fuyuan Wind Power*	Wind	2775	2009[155]	Austria[156]	Installation of 21 wind turbines with a total capacity of 31.5 MW[157]
China *Heilongjiang Dabaishan Wind Power*	Wind	2776	2009[158]	Austria[159]	Installation of 33 wind turbines with a total capacity of 49.5 MW[160]
China *Liaoning Beipiao Beitazi I Wind Farm*	Wind	2830	2009[161]	Germany[162]	Installation of 33 wind turbines with total capacity of 49.5 MW[163]
China *Hebei Chengde Yudaokou Windfarm*	Wind	2865	2009[164]	Switzerland[165]	Installation of 64 wind turbines with total capacity of 48 MW[166]

152. DNV, VALIDATION REPORT 1184, *supra* note 139 (information is on the page that precedes numbering).
153. *Id.* at 5.
154. *Id.* at 2, 5.
155. BVC, VALIDATION REPORT 2775, *supra* note 138, at 2.
156. *Id.* at 8.
157. *Id.* at 9.
158. BVC, VALIDATION REPORT 2776, *supra* note 138, at 2.
159. *Id.* at 8.
160. *Id.* at 9.
161. TÜV RHEINLAND, VALIDATION REPORT 2830, *supra* note 138, at 2.
162. *Id.* at 5.
163. *Id.* at 18–19.
164. TÜV NORD, VALIDATION REPORT 2865, *supra* note 138, at 2.
165. *Id.* at 6.
166. *Id.* at 7.

Host Country ***Project Name***	**Project Type**	**Ref. No.**	**Date 1st Validated**	**Countries Involved**	**Project Description**
China *Yunnan Diqing Jisha Hydropower Project*	Hydro	2869	2009[167]	Austria[168]	Construction of a 120 MW hydropower plant on the Shuoduo River[169]
China *Yunnan Youganggou Hydropower*	Hydro	3082	2009[170]	United Kingdom[171]	Construction of a 68 MW hydropower plant on the Sayu River[172]
Brazil *Monjolinho Energetic S.A. Hydroelectric Project*	Hydro	3261	2009[173]	N/A[174]	Construction of a 74 MW hydropower plant on the Passo Fundo River[175]
Vietnam *Bac Ha Hyrdropower Project*	Hydro	4921	2011[176]	Switzerland[177]	Construction of a 90 MW hydropower plant on the Chay River[178]
Brazil *Passos Maia Project*	Hydro	6331	2011[179]	N/A[180]	Construction of a 25 MW hydropower plant on the Chapecó River[181]

167. TÜV SÜD, VALIDATION REPORT 2869, *supra* note 137, at 2.

168. *Id.* at 10.

169. *Id.* at 11.

170. KOREAN FOUND., VALIDATION REPORT 3082, *supra* note 137 (info is on page that precedes numbering).

171. *Id.* at 8.

172. *Id.* at 9.

173. BVC, VALIDATION REPORT 3261, *supra* note 137, at 2.

174. *Project 3261: Monjolinho Energética S.A.'s CDM Project*, UNFCCC, http://cdm.unfccc.int/Projects/DB/BVQI1263124424.48/view (last visited Dec. 10, 2014).

175. BVC, VALIDATION REPORT 3261, *supra* note 137, at 9.

176. SWISS ASS'N, VALIDATION REPORT 4921, *supra* note 137, at 1.

177. *Id.* at 8.

178. *Id.* at 3.

179. BVC, VALIDATION REPORT 6331, *supra* note 137, at 1.

180. *Project 6331: Passos Maia CDM Project*, UNFCCC, http://cdm.unfccc.int/Projects/DB/BVQI1338743075.56/view (last visited Nov. 17, 2014).

181. BVC, VALIDATION REPORT 6331, *supra* note 137, at 10, 56.

Host Country ***Project Name***	**Project Type**	**Ref. No.**	**Date 1st Validated**	**Countries Involved**	**Project Description**
Brazil *Rio Grande do Norte & Ceara Wind Energy*	Wind	7682	2012[182]	N/A[183]	Installation of four wind farms with a combined capacity of 94.5 MW[184]
Mexico *Hydraulic Power Plant Chicoasen II*	Hydro	7684	2012[185]	N/A[186]	Construction of a 240 MW hydropower plant on the Grijalva River[187]
Panama *Bonyic Hydroelectric*	Hydro	7822	2011[188]	N/A[189]	Construction of a 32.64 MW hydropower plant on the Bonyic River[190]
Ecuador *OCAÑA Hydropower Project*	Hydro	9377	2012[191]	The Netherlands [192]	Construction of a 26 MW hydropower plant on the Cañar River[193]
Philippines *San Carlos Biopower Plant*	Biomass	9493	2012[194]	N/A[195]	Construction of a 18 NW, bagasse and dedicated energy crop-combusting power plant[196]

182. DNV, VALIDATION REPORT 7682, *supra* note 138, at 3.

183. *Project 7682: Rio Grande do Norte and Ceará Wind Energy Complex Project Activity*, UNFCCC, http://cdm.unfccc.int/Projects/DB/DNV-CUK1349944903.67/view (last visited Dec. 10, 2014).

184. DNV, VALIDATION REPORT 7682, *supra* note 138, at 3.

185. APPLUS+, VALIDATION REPORT 7684, *supra* note 137, at 2.

186. *Project 7684: Construction and Operation of the Hydraulic Power Plant Chicoasén II*, UNFCCC, http://cdm.unfccc.int/Projects/DB/Applus1349950243.38/view (last visited Dec. 10, 2014).

187. APPLUS+, VALIDATION REPORT 7684, *supra* note 137, at 7.

188. ICONTEC, VALIDATION REPORT 7822, *supra* note 137, at 2.

189. *Project 7822: Bonyic Hydroelectric Project*, UNFCCC, http://cdm.unfccc.int/Projects/DB/ICONTEC1350921218.31/view (last visited Dec. 10, 2014).

190. ICONTEC, VALIDATION REPORT 7822, *supra* note 137, at 8–9.

191. BVC, VALIDATION REPORT 9377, *supra* note 137, at 1.

192. *Id.* at 8.

193. *Id.* at 9.

194. BVC, VALIDATION REPORT 9493, *supra* note 139, at 2.

195. *Project 9493: San Carlos 18 MW Biopower Power Plant*, UNFCCC, http://cdm.unfccc.int/Projects/DB/BVQI1356965919.26/view (last visited Dec. 10, 2014).

196. BVC, VALIDATION REPORT 9493, *supra* note 139, at 20–21.

One objective of this analysis is to determine under what factual circumstances the Board determines that a proposed CDM project is not additional. This paper sets forth some general rules for why proposed projects fail the additionality tests by examining a sample of the Board's decisions. The Board does not always specify how or why a proposed CDM project activity failed to demonstrate its additionality.[197] However, the Board's rationale is discernible from three publicly available documents associated with each rejected project activity.[198] First, the Board summarizes its reasons for rejecting each proposed project activity.[199] Second, each project's validation report contains detailed information on the additionality analyses, including an explanation of the equations, values, and assumptions used at each step of the Additionality Tool.[200] Third, the DOE's response to the Board's review often includes a question-and-answer exchange concerning the additionality analysis.[201] The Board's questions and the DOE's answers target the specific points in the project participant's additionality analysis with which the Board was concerned.

B. Additionality of Proposed Renewable Energy Project Activities

Twelve of the eighteen rejected project activities used an investment analysis to demonstrate additionality;[202] eleven of the twelve used a

197. *See, e.g.*, CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY "HEILONGJIANG DABAISHAN WIND POWER PROJECT" (2776), *available at* https://cdm.unfccc.int/Projects/DB/BVQI1248250799.96/Rejection/VS0OPG8ARW95QDXDVR317GV4P7PKJ6 (last visited Dec. 10, 2014) (stating only that the Board did not consider the project documentation satisfactory and therefore rejected the project).

198. *See, e.g.*, *Project 1016: Kunak Jaya Bio Energy Plant*, UNFCCC, https://cdm.unfccc.int/Projects/DB/DNV-CUK1174646628.13/view (last visited Dec. 10, 2014) (providing digital access to the three documents showing the Board's rationale).

199. *See Rejected*, UNFCCC, https://cdm.unfccc.int/Projects/rejected.html (last visited Dec. 10, 2014) (linking viewers to final rulings for rejected cases).

200. *See* sources cited *supra* notes 137–39 (describing DOEs' assessments of projects' additionality analyses).

201. *See, e.g.*, BUREAU VERITAS CERTIFICATION, RESPONSE TO POINTS RAISED DURING REQUEST FOR REVIEW 1, 3, *available at* http://cdm.unfccc.int/UserManagement/FileStorage/WSZ4FY9X5KP1DUJEG2C67QIVNARTB3 (last visited Dec. 10, 2014) (explaining the Board's concerns regarding the proposed project activity's additionality analysis and requesting clarification from the DOE and/or project participants).

202. BVC, VALIDATION REPORT 1042, *supra* note 138, at 12; DNV, VALIDATION REPORT 7682, *supra* note 138, at 30; BVC, VALIDATION REPORT 2775, *supra* note 138, at 13; BVC, VALIDATION REPORT 2776, *supra* note 138, at 13; TÜV RHEINLAND, VALIDATION REPORT 2830, *supra* note 138, at 25; TÜV NORD, VALIDATION REPORT 2865, *supra* note 138, at 35; TÜV SÜD, VALIDATION REPORT 2869, *supra* note 137, at 16; KOREAN FOUND., VALIDATION REPORT 3082, *supra* note 137, at App. A.; BVC, VALIDATION REPORT 3261, *supra* note 137, at 25; SWISS ASS'N, VALIDATION REPORT 4921, *supra* note 137, at 10; BVC, VALIDATION REPORT 6331, *supra* note 137, at 20; APPLUS+, VALIDATION REPORT 7684, *supra* note 137, at 12.

benchmark analysis,[203] and one project activity used an investment comparison.[204] Four project activities used a barrier analysis (step three),[205] and two project activities used both a barrier analysis and an investment analysis.[206] None of the rejected project activities was the first of its kind.[207]

1. Non-Additional Based on Prior Consideration

In general, the Board rejected project activities because participants could not adequately demonstrate, and DOEs therefore could not validate, information required to complete one or more of the additionality analyses.[208] The Board rejected six project activities because the project participants failed to satisfy the prior consideration test.[209] The CDM

---

203. BVC, VALIDATION REPORT 1042, *supra* note 138, at 12; BVC, VALIDATION REPORT 2775, *supra* note 138, at 13; BVC, VALIDATION REPORT 2776, *supra* note 138, at 13; TÜV RHEINLAND, VALIDATION REPORT 2830, *supra* note 138, at 26; TÜV NORD, VALIDATION REPORT 2865, *supra* note 138, at 35; TÜV SÜD, VALIDATION REPORT 2869, *supra* note 137, at A-12; KOREAN FOUND., VALIDATION REPORT 3082, *supra* note 137, at 13; BVC, VALIDATION REPORT 3261, *supra* note 137, at 26; SWISS ASS'N, VALIDATION REPORT 4921, *supra* note 137, at 16; BVC, VALIDATION REPORT 6331, *supra* note 137, at 23; DNV, VALIDATION REPORT 7682, *supra* note 138, at A-19.

204. APPLUS+, VALIDATION REPORT 7684, *supra* note 137.

205. BVC, VALIDATION REPORT 9493, *supra* note 139, at 47; DNV, VALIDATION REPORT 1184, *supra* note 139, at 7; DNV, VALIDATION REPORT 1016, *supra* note 139, at A-10; DNV, VALIDATION REPORT 0990, *supra* note 139, at A-11.

206. DNV, VALIDATION REPORT 1016, *supra* note 139, at 4, A-9, A-10; BVC, VALIDATION REPORT 9493, *supra* note 139, at 43, 57.

207. *See*, *supra* notes 137–39 (citing to a variety of renewable energy projects, including wind and hydropower, none of which was the first renewable energy project of its kind).

208. Additionally, the Board rejected three proposed project activities based in part on the participants' use of an inappropriate analysis; for example, for using a benchmark investment analysis when they should have used an investment comparison analysis. *See, e.g.*, DET NORSKE VERITAS, RESPONSE TO REQUEST FOR REVIEW (2007) [hereinafter DNV, REVIEW RESPONSE 1016], *available at* http://cdm.unfccc.int/Projects/DB/DNV-CUK1174646628.13/ReviewInitialComments/CRT06HVHCRWY7LO5NPOW7AMB83H31N; BVC, RESPONSE TO REQUESTS FOR REVIEW (2007) [hereinafter BVC, REVIEW RESPONSE 1042], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1175154167.18/ReviewInitialComments/VFNE1A30WJ5TJL3WEYGXIQB3UIHUWH; APPLUS+ LGAI, REQUEST FOR REGISTRATION 7684 CONSTRUCTION AND OPERATION OF THE HYDRAULIC POWER PLANT CHICOASÉN II (2013) [hereinafter APPLUS+, REVIEW RESPONSE 7684], *available at* http://cdm.unfccc.int/Projects/DB/Applus1349950243.38/history (select "DOE's Clarifications"). The number of rejected project activities in the following analysis exceeds eighteen because, in some instances the Board requested review based on more than one issue regarding additionality.

209. TÜV SÜD INDUSTRIE SERVICES GMBH, RESPONSE TO THE CDM EXEC. BD. 15 (2010) [hereinafter TÜV SÜD, REVIEW RESPONSE 2869], *available at* http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249391925.06/history (select "Joint Response"); *see also* CDM Exec. Bd., *Review of the Project Activity: "Yunnan Diqing Jisha Hydropower Project" (2869)*, UNFCCC, http://cdm.unfccc.int/Projects/DB/TUEV-SUED1249391925.06/Rejection/FETYW26G572Y8QU7Y8PAF7QM6REYSI (last visited Dec. 10, 2014) [hereinafter *Review of the Project Activity 2869*] (showing that the CDM Executive Board could not ultimately register the Yunnan Diqing Jisha Hydropower Project because "the project participant and the DOE (TÜV SÜD) . . . failed

Project Standard requires participants to "provide evidence of their awareness of the CDM prior to the start date of the proposed project activity, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project."[210] In two of the six cases, project participants were unable to sufficiently document that they approved the relevant project activities based on at least partial reliance on the CDM.[211] The Board rejected the other four projects because participants could not demonstrate that the data used in the financial analyses underlying the additionality assessments were available at the time they decided to implement the project activity.[212] Essentially, projects failed the prior consideration test when participants could not prove that they believed, in good faith, that CDM registration was necessary in order to successfully implement the proposed activity.

2. Non-Additional Based on Investment (Benchmark) Analysis

The Board rejected ten project activities that failed the Additionality Tool's investment benchmark analysis. Under the benchmark analysis, the project participant chooses a relevant financial benchmark, usually the internal rate of return (IRR), against which to assess the anticipated performance of the proposed activity.[213] If the IRR of the activity exceeds the benchmark value, the project activity is financially attractive and

---

to substantiate the additionality of the project activity, in particular . . . [t]he continuing and real actions taken to secure the CDM status in parallel with its implementation"); BUREAU VERITAS HOLDING SAS, RESPONSE TO THE REQUEST FOR REVIEW (2010) [hereinafter BVH, REVIEW RESPONSE 3261], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1263124424.48/history (select "DOE's Response to Request for Review"); SWISS ASS'N FOR QUALITY AND MGMT. SYS., ANSWERS TO UNFCCC REQUEST FOR REVIEW (2011) [hereinafter SWISS ASS'N, REVIEW RESPONSE 4921], *available at* http://cdm.unfccc.int/Projects/DB/SQS1308664964.36/history (select "Answers to Request from DOE"); BUREAU VERITAS HOLDING SAS, RESPONSE TO REQUEST FOR REVIEW (2013) [hereinafter BVH HOLDING, REVIEW RESPONSE 6331], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1338743075.56/history (select "BVC Holding SAS response to corrections requested – CDM 6331"); DET NORSKE VERITAS, REQUEST FOR REVIEW SUMMARY (2012) [hereinafter DNV, REVIEW RESPONSE 7682], *available at* http://cdm.unfccc.int/Projects/DB/DNV-CUK1349944903.67/history (select "7682_RfR Summary"); APPLUS+, REVIEW RESPONSE 7684, *supra* note 208; CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "CONSTRUCTION AND OPERATION OF THE HYDRAULIC POWER PLANT CHICOASÉN II" 2 (2013) [hereinafter CDM, RULING NOTE 7684], *available at* http://cdm.unfccc.int/Reference/Rulings/index.html (select "CDM-PA7684-RULE01").

210. CDM PROJECT STANDARD, *supra* note 92, at 10.

211. *See* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 15 (responding to the CDM Executive Board's request for more information about the three-year gap "between the project starting date and the CDM consultancy contract"); SWISS ASS'N, REVIEW RESPONSE 4921, *supra* note 209.

212. BVC, REVIEW RESPONSE 3261, *supra* note 209, at 1; BVH HOLDING, REVIEW RESPONSE 6331, *supra* note 209, at 1; CDM, RULING NOTE 7684, *supra* note 209, at 2.

213. ADDITIONALITY TOOL, *supra* note 98, at 9–11.

therefore not additional;[214] in this way, the choice of the benchmark value may be dispositive of a project's additionality. In four cases, the project participants could not justify their choice of benchmark values.[215] For three of the rejected proposals, the Board's comments indicate a concern that the benchmark was set artificially high to ensure that the project's IRR would fall below the required value.[216]

The Board expressed particular concern with regard to the values used to calculate the costs of several wind and hydropower project activities in China. The Additionality Tool requires project participants to "[r]efer to all critical techno-economic parameters and assumptions," and to "[j]ustify and/or cite assumptions in a manner that can be validated by the DOE."[217] The Board's requests for review of five Chinese projects (four wind and one hydropower) focus on the relatively low tariff rates (rates charged per unit of energy) the project participants used to assess the financial attractiveness of the proposed projects.[218] In each case, the project participants assumed a tariff value at the low end of the reported range for similar energy projects in the relevant regions.[219] However, for four of the five proposed activities, using a tariff value at the upper end of the range would have resulted in the activity crossing the benchmark value and thus

---

214. *Id.* at 10–11.

215. DNV, REVIEW RESPONSE 1016, *supra* note 208; CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY 1042 (2007) [hereinafter CDM EXEC. BD. 1042], *available at* https://cdm.unfccc.int/Projects/DB/BVQI1175154167.18/Rejection/C324F6ZTJJCE3SFR319JVMB5ROW5CN; DET NORSKE VERITAS, RESPONSE TO REQUEST FOR REVIEW (2007) [hereinafter DNV, REVIEW RESPONSE 1184], *available at* http://cdm.unfccc.int/Projects/DB/DNV-CUK1182235542.94/history (select "DOE Initial comment); BUREAU VERITAS CERTIFICATION, RESPONSE TO POINTS RAISED DURING REQUEST FOR REVIEW [hereinafter BVC, REVIEW RESPONSE 9493], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1356965919.26/history (select "Response to RFR - San Carlos - Ver 2").

216. DNV, REVIEW RESPONSE 1016, *supra* note 208; DNV, REVIEW RESPONSE 1184, *supra* note 215; BVC, REVIEW RESPONSE 9493, *supra* note 215.

217. ADDITIONALITY TOOL, *supra* note 98, at 10.

218. BUREAU VERITAS CERTIFICATION, RESPONSE TO THE REVIEW REQUEST (2010) [hereinafter BVC, REVIEW RESPONSE 2775], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1248250776.0/history (select "Joint Response"); BUREAU VERITAS CERTIFICATION, RESPONSE TO THE REVIEW REQUEST (2009) [hereinafter BVC, REVIEW RESPONSE 2776], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1248250799.96/history (select "response of request to review"); TÜV RHEINLAND, RESPONSE TO THE REQUEST FOR REVIEW (2009) [hereinafter TÜV RHEINLAND, REVIEW RESPONSE 2830], *available at* http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1249104515.98/history (select "DOE Initial Response"); TÜV NORD CERT GMBH, REQUEST FOR REVIEW (2010) [hereinafter TÜV NORD, REVIEW RESPONSE 2865], *available at* http://cdm.unfccc.int/Projects/DB/RWTUV1249387859.68/history (select "Response DOE"); *see also* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 11 (showing that the CDM Executive Board requested the DOE "to further explain how the proposed tariff for the project activity has been determined"). Each of these projects was rejected based on the low tariff rates assumed in the investment benchmark additionality analysis.

219. *See* sources cited *supra* note 218.

becoming financially viable, that is, non-additional.[220] The Board noted that project participants had not adequately justified their decisions to use the lower tariff rates and therefore could not demonstrate the additionality of the proposed activities.[221]

Additionally, each of the wind-power project participants cited a systematic decrease in tariffs for wind-based energy since 2002 that made their proposed projects financially unattractive.[222] The Board noted that participants had not substantiated this claim, but that if there was a downward trend in tariff rates resulting from national or provincial policies, participants would need to consider these policies in their additionality analysis.[223]

The Board rejected four project activities based on project participants' unjustified use of relatively high cost estimates in their financial analysis;[224] again, this reflects concern that participants were using artificially high

---

220. BVC, REVIEW RESPONSE 2775, *supra* note 218, at 3; BVC, REVIEW RESPONSE 2776, *supra* note 218, at 7; TÜV NORD, REVIEW RESPONSE 2865, *supra* note 218; *see also* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 15 ("[T]he tariffs will produce acceptable IRR results which are below the benchmark but for the dry season tariff which gives an IRR of 8.18% which is clearly above the 8% benchmark. . . . With these results the DOE has to decide whether this project is additional and therefore should be registered as a CDM project activity . . . . ").

221. *See* sources cited *supra* note 220.

222. BVC, REVIEW RESPONSE 2775, *supra* note 218, at 10–11; BVC, REVIEW RESPONSE 2776, *supra* note 218, at 6–7; TÜV RHEINLAND, REVIEW RESPONSE 2830, *supra* note 218, at 1; TÜV NORD, REVIEW RESPONSE 2865, *supra* note 218.

223. *See, e.g.*, CDM EXEC. BD., ANNEX 25 TO EB 52 REPORT, SCOPE OF THE REVIEW ON "HEILONGJIANG FUYUAN WIND POWER PROJECT" (2775) (2010) [hereinafter CDM EXEC. BD., ANNEX 25 TO EB 52 REPORT], *available at* https://cdm.unfccc.int/EB/052/eb52_repan25.pdf ("[T]he Board's concerns regarding the suitability of the tariff . . . has [sic] not been adequately addressed by the DOE, i.e. the DOE has not confirmed that there was a reduction in applicable tariffs between 2002 and the start date of the project activity and if so whether a higher tariff could be considered an E- policy [a policy designed to decrease emissions] or whether any such reductions could be a comparative advantage for more emissions intensive technology."). The Project Standard requires that "[n]ational and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels" be taken into account when establishing the baseline scenario. Conversely, polices or regulations that give comparative advantage to less emissions-intensive technologies (E- policies) do not need to be taken into account when establishing a baseline. CDM PROJECT STANDARD, *supra* note 92, at 13. The baseline scenario is closely linked to additionality; the baseline scenario answers the question, "additional to *what*?" *See* discussion *supra* Part I.B.1.

224. *See* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 2; *see also Review of the Project Activity 2869*, *supra* note 209 (showing that the CDM Executive Board was ultimately unable to register the Yunnan Diqing Jisha Hydropower Project because of the DOE's failure to demonstrate "[t]he suitability of the input values applied to calculate the IRR"); 3082, KOREAN FOUND. FOR QUALITY, RESPONSE TO REQUEST FOR REVIEW 5–6 (2010) [hereinafter KOREAN FOUND., REVIEW RESPONSE 3082], *available at* http://cdm.unfccc.int/Projects/DB/KFQ1256541792.01/history (select "Response to Request for Review"); BVH, REVIEW RESPONSE 3261, *supra* note 209, at 1; BVC, REVIEW RESPONSE 9493, *supra* note 215.

values to make their projects seem financially unattractive. As cited above, the Additionality Tool states that project participants must "[j]ustify and/or cite" "all critical techno-economic parameters and assumptions," including capital costs, fuel prices, project lifetimes, and investment costs.[225] The Board cited three reasons for rejecting these four projects under the investment analysis. First, the Board cited project participants' unsupported assumptions regarding high investment[226] and operations and maintenance costs[227] as compared to similar projects in the region. Second, the Board pointed to low plant load factors used in the investment analysis.[228] Third, the Board cited project participants' assumptions of short operational lifetimes.[229]

3. Non-Additional Based on Barrier Analysis

The Board rejected four proposed project activities based on project participants' failure to demonstrate that the identified barriers would (1) "[p]revent the implementation of this type of proposed project activity," and (2) "not prevent the implementation of at least one of the alternatives."[230] One proposed project activity identified investment and technological barriers to implementation, including the participants' inability to secure financing without the security provided by CDM revenues; these project participants argued that CERs functioned as bonds that provided certainty to prospective funders.[231] The Board rejected this argument, stating that participants must further substantiate their argument that the purported difficulty securing financing was an impediment to the project's implementation.[232]

---

225. ADDITIONALITY TOOL, *supra* note 98, at 10.

226. *See* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 2, 11 (showing that the CDM Executive Board requested that the DOE provide more information regarding investment costs); *Review of the Project Activity 2869*, *supra* note 209; BVH, REVIEW RESPONSE 3261, *supra* note 209, at 1; BVC, REVIEW RESPONSE 9493, *supra* note 215.

227. *See* BVC, REVIEW RESPONSE 9493, *supra* note 215 (showing that the values used to calculate the IRR were not sufficiently substantiated).

228. TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209; KOREAN FOUND., REVIEW RESPONSE 3082, *supra* note 224, at 1–5.

229. KOREAN FOUND., REVIEW RESPONSE 3082, *supra* note 224, at 5.

230. ADDITIONALITY TOOL, *supra* note 98, at 11.

231. BVC, VALIDATION REPORT 9377, *supra* note 137, at 23–24.

232. *See* BUREAU VERITAS CERTIFICATION, RESPONSE TO REQUESTS FOR REVIEW (2012) [hereinafter BVC, REVIEW RESPONSE 9377], *available at* http://cdm.unfccc.int/Projects/DB/BVQI1356710190.36/history (select "Response to Request for Review") (requesting the DOE "to further substantiate how it validated that the financing of the project was assured only due to the benefit of the CDM . . . and how the lender has assessed the CDM revenue before issuing the loan," and how

Participants in another rejected project identified barriers to implementation based on the project's location adjacent to an indigenous community; the project participants claimed they were able to gain the support of the local community only when they promised to share a portion of the CDM revenue.[233] However, the Board rejected the project because the participants did not clarify how the location was a barrier to implementation only for the proposed project and not for alternatives. In addition, the Board rejected the project because the participants did not clarify whether they would need to register the activity under the CDM to alleviate the barrier.[234]

Lastly, the Board rejected two proposed biomass-based combined heat and power projects that claimed several policy and institutional barriers to project implementation. Ostensible barriers included low tariffs and tariff uncertainty, the need to purchase supplemental feed stocks at a higher price, and the need to train project implementers to use new technology.[235] The Board's comments indicated that these arguments failed both parts of the barrier test: the participants had not adequately demonstrated that the institutional barriers would prevent the projects from moving forward without the CDM; and at least one of the cited barriers, the need to import feedstocks, would also apply to the baseline scenario.[236]

4. Non-Additional Based on Common Practice Analysis

Finally, the Board rejected one proposed project activity based in part on the project participants' failure to identify essential distinctions between the proposed project activity and similar activities currently underway.[237] The Additionality Tool defines "[s]imilar activities" as those "that are of similar scale, take place in a comparable environment, inter alia, with

---

the identified barrier has prevented the project activity "from occurring considering that the [project participant] has successfully obtained capital of US$ 14 million and a loan of US$ 22.7 million").

233. ICONTEC, VALIDATION REPORT 7822, *supra* note 137, at 39–40.

234. ICONTEC INT'L, RESPONSE TO REQUEST FOR REVIEW–REQUEST FOR REGISTRATION 7822 BONYIC HYDROELECTRIC PROJECT 2 (2013) [hereinafter ICONTEC, REVIEW RESPONSE 7822], *available at* http://cdm.unfccc.int/Projects/DB/ICONTEC1350921218.31/history (select "Response to request for review Bonyic").

235. DNV, VALIDATION REPORT 0990, *supra* note 139, at 7; DNV, VALIDATION REPORT 1184, *supra* note 139, at 7.

236. DET NORSKE VERITAS CERTIFICATION AS, RESPONSE TO REQUEST FOR REVIEW–DALMIA SUGARS LIMITED JAWAHARPUR PROJECT (0990) 1 (2007) [hereinafter DNV, REVIEW RESPONSE 0990], *available at* https://cdm.unfccc.int/Projects/DB/DNV-CUK1174646628.13/ReviewInitialComments/CRT06HVHCRWY7LO5NPOW7AMB83H31N; DNV, REVIEW RESPONSE 1184, *supra* note 215, at 1–2.

237. ADDITIONALITY TOOL, *supra* note 98, at 14.

respect to the regulatory framework and are undertaken in the applicable geographical area."[238] "Essential distinctions," according to the Board, "may include a serious change in circumstances under which the proposed CDM project activity will be implemented when compared to circumstances under which similar projects were carried out."[239] In this case, the project participants attempted to differentiate the proposed hydropower plant from existing plants on the basis of plant load factors.[240] The project participants argued that because the proposed plant had a lower load factor, it could not generate as much electricity and would thus be less profitable than its counterparts.[241] The participants also argued that the investment climate had changed prior to the implementation of the proposed project activity, making it more difficult to finance hydropower projects.[242] However, the Board rejected the proposed project, likely based in part on the project participants' inability to "essentially distinguish" the proposed hydropower plant from existing plants based on plant load factors and interest rates.

Table 2. Reasons for Rejecting Proposed Project Activities

Host Country	Project Type	Ref. No.	Year Rejected[243]	Reason for Rejection
India	Biomass	990	2007	Failure to demonstrate additionality based on barrier analysis[244]
Malaysia	Biomass	1016	2007	Failure to provide investment comparison to determine if project activity more or less financially attractive than baseline;[245] failure to justify benchmark used in investment analysis[246]

238. *Id.*

239. *Id.*

240. A plant's load factor is the ratio of "average load to peak load during a specified time interval." *Glossary*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/tools/glossary/index.cfm?id=l (last visited Dec. 10, 2014). "Load" is "[a]n end-use device or customer that receives power from the electric system." *Id.*

241. UNFCCC, PROJECT PARTICIPANTS' RESPONSE TO EB REQUEST TO BAC HA HYDROPOWER PROJECT, VIETNAM (4921) 3–4 (2011), *available at* http://cdm.unfccc.int/Projects/DB/SQS1308664964.36/history (select "Answers to Request from Ecotawa").

242. *Id.*

243. *Rejected*, *supra* note 199.

244. DNV, REVIEW RESPONSE 0990, *supra* note 236, at 1.

245. DNV, REVIEW RESPONSE 1016, *supra* note 208, at 1.

246. *Id.*

Host Country	Project Type	Ref. No.	Year Rejected	Reason for Rejection
India	Wind	1042	2008	Failure to justify benchmark used in investment analysis and incomplete investment analysis[247]
India	Biomass	1184	2008	Failure of both barrier and investment analyses to demonstrate that project activity would be additional[248]
China	Wind	2775	2010	Concern regarding suitability of values used in investment analysis, failure to consider possible policy-driven changes to wind tariffs[249]
China	Wind	2776	2010	Concern regarding suitability of values used in investment analysis, failure to consider possible policy-driven changes to wind tariffs[250]
China	Wind	2830	2010	Failure to justify values used in investment analysis and to provide quantitative assessment of impacts of possible policy-driven changes to wind tariffs[251]
China	Wind	2865	2010	Failure to justify values used in investment analysis and to provide quantitative assessment of impacts of possible policy-driven changes to wind tariffs[252]

247. CDM EXEC. BD. 1042, *supra* note 215.

248. CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY 1184 (2008), http://cdm.unfccc.int/Projects/DB/DNV-CUK1182235542.94/Rejection/ED7ZTMB2J3G28EMMVW1C3AOS9Z6EBP; *see* DNV, REVIEW RESPONSE 1184, *supra* note 215, at 1–2 (explaining that the Board requires further demonstration of additionality, and that the project's barrier analysis is not sufficiently supported).

249. *See* BVC, REVIEW RESPONSE 2775, *supra* note 218, at 3–4 (requesting the DOE to explain how it determined the tariff value used in the investment analysis).

250. *See* BVC, REVIEW RESPONSE 2776, *supra* note 218, at 1 (requesting the DOE to explain how it determined the tariff value and requesting the DOE to assess the reasons for recent decreases in return to investors).

251. CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY "LIAONING BEIPIAO BEITAZI I WIND POWER PROJECT" 2830 (2010), *available at* http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1249104515.98/Rejection/7JS4L64A6ND9T9B8GPDV6I395QXLD7.

252. CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY 2865 (2010), *available at* http://cdm.unfccc.int/Projects/DB/RWTUV1249387859.68/Rejection/BODPTFIP0YJZGAHUMK3XNNMI6TUGI2.

Host Country	Project Type	Ref. No.	Year Rejected	Reason for Rejection
China	Hydro	2869	2010	Failure to demonstrate prior consideration;[253] failure to justify values used in investment benchmark analysis[254]
China	Hydro	3082	2010	Failure to demonstrate appropriateness of values used in the investment benchmark analysis[255]
Brazil	Hydro	3261	2010	Failure to demonstrate prior consideration;[256] failure to justify values used in the investment analysis[257]
Vietnam	Hydro	4921	2011	Failure to demonstrate prior consideration;[258] failure to demonstrate that project activity was not common practice[259]
Brazil	Hydro	6331	2013	Failure to demonstrate prior consideration[260]
Brazil	Wind	7682	2013	Failure to demonstrate prior consideration[261]

253. *See* TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209, at 15 (requesting the DOE to validate prior consideration of the proposed project activity).

254. *See id.* at 11 (requesting the DOE to explain how it determined the values used in the investment analysis).

255. CDM EXEC. BD., REVIEW OF THE PROJECT ACTIVITY: "YUNNAN YOUFANGGOU HYDROPOWER PROJECT" (3082) 1 (2010), *available at* http://cdm.unfccc.int/Projects/DB/KFQ1256541792.01/Rejection/RZT06J3JTUXUT6W6YCORXD1OOTEWTT.

256. *See* CDM EXEC. BD., FINAL RULING REGARDING THE REQUEST FOR REGISTRATION OF "MONJOLINHO ENERGÉTICA S.A.'S CDM PROJECT" (3261) 1 (2010), http://cdm.unfccc.int/Reference/Notes/reg/reg_note09.pdf (stating that the DOE had not validated that the investment costs used were applicable at the time of the investment decision).

257. *Id.*

258. CDM EXEC. BD., FINAL RULING REGARDING THE REQUEST FOR REGISTRATION OF "BAC HA HYDROPOWER PROJECT, VIETNAM" (4921) 1 (2011), *available at* http://cdm.unfccc.int/Reference/Notes/reg/reg_note50.pdf.

259. *Id.*

260. *See* BVH HOLDING, REVIEW RESPONSE 6331, *supra* note 209, at 1 (requesting the DOE to justify how inputs to investment analysis were valid at the time of the investment decision); CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "PASSOS MAIA CDM PROJECT" (2013), http://cdm.unfccc.int/Reference/Rulings/index.html (select "CDM-PA6331-RULE01") (stating that the DOE failed to substantiate that the plant load factors were available when the project developers were considering the project activity).

261. CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "RIO GRANDE DO NORTE AND CEARÁ WIND ENERGY COMPLEX PROJECT ACTIVITY" 2 (2013), *available at* http://cdm.unfccc.int/Reference/Rulings/index.html (select "CDM-PA7682-RULE01").

Host Country	Project Type	Ref. No.	Year Rejected	Reason for Rejection
Mexico	Hydro	7684	2013	Failure to demonstrate prior consideration;[262] project participants should have used benchmark investment analysis, rather than investment comparison[263]
Panama	Hydro	7822	2013	Failure to demonstrate barrier due to project location and investment barrier[264]
Ecuador	Hydro	9377	2013	Failure to demonstrate investment barrier[265]
Philippines	Biomass	9493	2013	Failure to justify benchmark used in investment analysis;[266] failure to demonstrate investment and technological barriers[267]

C. The "Rules" of Additionality

1. All Additionality Analyses Must Be Fully Documented and Justified

This analysis shows that the Board will not register a proposed CDM project if the project participants cannot provide thorough and complete documentation of each step of the additionality analysis, including justification of all parameters, equations, and assumptions used.[268] Once the Board has chosen to review a proposal for registration, it essentially reviews the PDD *de novo* and critically examines the factual record supporting the additionality analysis.[269] The Board rejected the majority of

262. *See* CDM, RULING NOTE 7684, *supra* note 209, at 2.

263. *Id.*

264. CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "BONYIC HYDROELECTRIC PROJECT" 3 (2013), *available at* https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20131209122855766/Reg_rule37.pdf.

265. CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "OCAÑA HYDROPOWER PROJECT" 3 (2013), *available at* https://cdm.unfccc.int/Reference/Rulings/index.html (select "CDM-PA9377-RULE01").

266. CDM EXEC. BD., RULING NOTE: REQUEST FOR REGISTRATION FOR "SAN CARLOS 18 MW BIOPOWER POWER PLANT" 2 (2013), *available at* http://cdm.unfccc.int/Reference/Rulings/index.html (select "CDM-PA9493-RULE01").

267. *Id.* at 2–3.

268. CDM PROJECT STANDARD, *supra* note 92, at 9; CDM Modalities and Procedures, *supra* note 35, app. B, ¶ 2.

269. *See, e.g.*, KOREAN FOUND., REVIEW RESPONSE 3082, *supra* note 224, at 1 (showing that the Board closely reviewed the DOE's factual findings regarding the additionality of proposed project activities. For example, the Board asked the DOE to explain why the project participants used a co-efficient of effective electricity production of 0.9, rather than 1.0).

projects examined here not necessarily because it disagreed with the project participants' analyses, but because the participants had not adequately explained their assumptions or justified their choices of parameters or values, for example, benchmark IRR values and tariff rates.[270]

2. Project Participants Must Demonstrate that CDM Registration Was a Necessary Condition of Implementing the Project Activity

Project participants should provide evidence that they analyzed the financial viability of a proposed project *before* approving a project for implementation. Furthermore, the analysis should indicate that CDM registration was required to make the project financially viable, rather than merely beneficial. The Board rejected four projects at least in part because the project participants could not prove that they had conducted the relevant additionality analysis prior to deciding to implement the project activity.[271] The prior consideration assessment is a critical component of determining additionality—if the project participants did not consider registering their project under the CDM before implementing the project, it is all but impossible to say that the associated emission reductions would have occurred "in the absence of the certified project activity."[272]

However, even when participants can reliably document prior consideration, they must also demonstrate that registration as a CDM project was a necessary condition of implementing the project, rather than simply being beneficial to the bottom line. This rule is most clearly demonstrated with regard to project activities the Board rejected on the basis of insufficient barrier analyses—the rejected projects' validation reports indicate that the project activities would have been financially difficult, but not impossible, to implement in the absence of CDM revenues.[273]

---

270. *See, e.g.*, CDM EXEC. BD., ANNEX 25 TO EB 52 REPORT, *supra* note 223 (stating that the review would include, *inter alia*, "an assessment of the suitability of the tariff applied in the investment analysis"); BVC, REVIEW RESPONSE 9493, *supra* note 215, at 1 (requesting the DOE to "further substantiate the suitability of chosen benchmark").

271. *See, e.g.*, BVH HOLDING, REVIEW RESPONSE 6331, *supra* note 209, at 1. ("The DOE should justify how the input values used in the investment analysis were valid and applicable at the time of the investment decision . . . given the fact that the sources for the total investment . . . the electricity tariff . . . and the PLF . . . were not available at the time of investment decision.").

272. Kyoto Protocol, *supra* note 19, art. 12.

273. *See, e.g.,* BVC, REVIEW RESPONSE 9377, *supra* note 232, at 1–2 (stating that the Board requested the DOE "to further substantiate how it has validated that the financing of the project was assured only due to the benefit of the CDM," and "to further explain what is the identified barrier for the [project participant] and how it has prevent [sic] from occurring considering that the [project participant] has successfully obtained capital of US$ 14 million and a loan of US$ 22.7 million").

3. Project Participants Should Substantiate Assumptions and Parameters with Official Statistics Whenever Possible

Under the Additionality Tool's investment analysis, a proposed project activity may become additional based on minute changes in any one of numerous parameters, including tariff rates, plant load factors, investment costs, and operations and maintenance costs.[274] Where assumptions regarding the value of a particular parameter are dispositive of a proposed project's additionality, project participants should substantiate their chosen value with official sources or statistics. This rule holds with regard to both benchmark values and for variables used in investment comparison and benchmark investment additionality analyses.

This analysis clearly demonstrates the importance of using justifiable assumptions in investment analyses that skirt the line between additional and non-additional. Ten projects were rejected on the basis of unsubstantiated assumptions regarding benchmark IRR values, tariff rates, investment costs, operations and maintenance costs, and/or plant load factors.[275] For seven of the ten rejected projects, the Board explicitly said that adjusting the value of a specific parameter would move the proposed project from being additional to non-additional.[276]

The Additionality Tool states that benchmark values, in particular, shall be derived from one of five sources: (1) government bond rates; (2) "[e]stimates of the cost of financing and required return on capital . . . based on bankers [sic] views and private equity investors/funds' required return on comparable projects;" (3) an internal company benchmark that has been consistently used for project activities under similar conditions, if that benchmark was developed by the same company that intends to use it; (4) government or official approved benchmarks; or (5) other indicators "if the project participants can demonstrate that the above Options are not applicable and their indicator is appropriately justified."[277] Project participants and DOEs should source and substantiate *all* variables and parameters used in the investment analysis, not just the benchmark values, in order to survive the Board's review, especially when the values of such variables are dispositive of a project's additionality.

---

274. ADDITIONALITY TOOL, *supra* note 98, at 10.

275. *See* discussion *supra* Part II.B.1–3 (explaining the reasons the Board rejected proposed projects, including the ten cited here).

276. BVC, REVIEW RESPONSE 2775, *supra* note 218, at 11; BVC, REVIEW RESPONSE 2776, *supra* note 218; TÜV RHEINLAND, REVIEW RESPONSE 2830, *supra* note 218; TÜV NORD, REVIEW RESPONSE 2865, *supra* note 218; TÜV SÜD, REVIEW RESPONSE 2869, *supra* note 209; KOREAN FOUND., REVIEW RESPONSE 3082, *supra* note 224; BVC, REVIEW RESPONSE 9493, *supra* note 215.

277. ADDITIONALITY TOOL, *supra* note 98, at 10.

III. CONSISTENCY WITH INTERNATIONAL LAW OF ADDITIONALITY UNDER THE CONVENTION AND ITS KYOTO PROTOCOL

A. Shortcomings of a Finance-Based Additionality Assessment

The preceding analysis indicates that the Board's methods of assessing additionality, coupled with provisions for the review of proposed projects, successfully weed out projects that are financially viable absent CDM registration.[278] However, while registered projects likely comply with the Board's additionality requirements, it is less clear that CDM projects, individually and as a whole, contribute to achieving the ultimate objective of the Convention and its Kyoto Protocol. That is, it may be possible for a proposed project to satisfy all the relevant steps of the Board's Additionality Tool, yet still not generate emission reductions that go above and beyond what would have occurred in the absence of a registered CDM project.

The eighteen rejected projects included in this analysis reveal a critical weakness of the Board's finance-based additionality analyses. Renewable energy technologies are increasingly competitive in developing countries due to technological advancements, economic trends, national policies and incentives, and foreign investment,[279] all of which drive down the costs of constructing and deploying alternatives to fossil fuel-based generation.[280] While these trends are consistent with the CDM's objective of incentivizing mitigation in developing countries, they also undermine the Mechanism's fundamental premise—that project-based mitigation in these countries is

278. It is not possible, from the sample of eighteen rejected projects considered here, to state definitively that the Board's standards and tools for the assessment of additionality ensure the financial additionality of project activities. However, given the Board's extremely detailed assessment of each rejected project, it is possible to infer that the provisions provide an effective check on the financial assessment of proposed project activities.

279. *See* INT'L RENEWABLE ENERGY AGENCY, EVALUATING POLICIES IN SUPPORT OF THE DEPLOYMENT OF RENEWABLE POWER 5 (2012), *available at* http://www.irena.org/DocumentDownloads/Publications/Evaluating_policies_in_support_of_the_deployment_of_renewable_power.pdf (stating that global spending on renewable power is projected to increase from US $44 billion in 2010 to US $175 billion between 2010 and 2030); INT'L RENEWABLE ENERGY AGENCY, RENEWABLE ENERGY AUCTIONS IN DEVELOPING COUNTRIES 6 (2013), *available at* http://www.irena.org/DocumentDownloads/Publications/IRENA_Renewable_energy_auctions_in_developing_countries.pdf (citing rapidly falling costs of renewable energy technology and an increase in the number of renewable energy auctions in recent years, particularly in developing countries).

280. *See* INT'L RENEWABLE ENERGY AGENCY, RENEWABLE ENERGY AUCTIONS IN DEVELOPING COUNTRIES, *supra* note 279, at 9 (explaining policies that have been used to mitigate economic and non-economic barriers to renewable energy deployment).

capable of providing additional emission reductions.[281] Essentially, the Board's insistence on financial additionality may have the perverse effect of incentivizing project developers and/or CDM host countries to keep energy tariffs associated with renewable energy projects artificially low and costs artificially high.

The additionality assessment requires project participants to demonstrate that their proposed activities are not viable in the absence of CDM registration due to high costs, low tariffs, or other financial considerations.[282] If, however, renewable energy technologies *are* viable due to improvements in technologies, policies, or financial or institutional structures, CDM-based mitigation can only be "additional" if participants introduce more burdensome barriers or costs into their analysis. Thus, reliance on a financial standard of additionality may have the unintended consequence of incentivizing participants to keep the costs of renewable energy projects high and/or to discourage investment and technological and policy innovation that could result in more widespread renewable energy deployment.[283]

The Board speaks to this possibility by insisting that project participants fully justify their choices of all tariff rates, costs, and benchmarks used in the investment and barrier analyses.[284] Furthermore, the Board specifically addressed the interaction of national policies with the

---

281. *See* Kyoto Protocol, *supra* note 19, art. 12, ¶ 3(b) (stating that developed-country Parties may use project-based emission reductions to contribute to compliance with their emission reduction commitments).

282. ADDITIONALITY TOOL, *supra* note 98, at 6. Although the Additionality Tool does not prescribe a strictly financial analysis, fourteen out of the eighteen proposed projects analyzed here employed an investment analysis, and three out of the four remaining projects that used a barrier analysis based their assessments on financial considerations.

283. It is certainly true that developing countries may have non-financial incentives that drive them to adopt renewable energy technologies on a larger (provincial, national, or regional) scale, such as energy security, climate change mitigation, and human health and environmental benefits compared to fossil fuel-based generation. INT'L RENEWABLE ENERGY AGENCY, INTRODUCTION TO THE INTERNATIONAL RENEWABLE ENERGY AGENCY 4 (2013), *available at* http://www.irena.org/DocumentDownloads/Publications/IRENA_Brochure2013.pdf. However, it is also difficult to deny that the CDM has the capacity to generate significant financial benefits from CERs. From the time CERs were first issued in 2005 though March 31, 2014, the nine host countries investigated here generated 1,201,421,276 CERs. *See CDM Registry*, UNFCCC, http://cdm.unfccc.int/Registry/index.html (last visited Dec. 10, 2014) (select "Units issued" report under "Public Reports" on the right side of the page) (totaling the CERs issued to project activities in Brazil, China, Ecuador, India, Malaysia, Mexico, Panama, Philippines, and Vietnam). Although the value of CERs is currently quite depressed, it is easy to see how even a modest increase in the price of carbon could generate significant income for certain developing countries. Angus McCrone, *Value of the World's Carbon Markets to Rise Again in 2014*, BLOOMBERG NEW ENERGY FIN. (Jan. 8, 2014), http://about.bnef.com/press-releases/value-of-the-worlds-carbon-markets-to-rise-again-in-2014/.

284. *See* discussion *supra* Part II.B.1–2.

financial additionality analysis in the context of four rejected wind projects in China.[285] For each of these four projects, the Board noted inconsistencies in the tariff rates used to calculate the project's IRR, and speculated about the existence of a government policy of reducing wind power tariffs and whether "any such reductions could be a comparative advantage for more emissions intensive technology."[286] As noted by one DOE, "[t]he determination of tariffs in China is a result of sovereign government decision-making,"[287] which raised the question of whether the government has been manipulating wind power tariff rates to continue to qualify projects under the CDM. Under these circumstances, emission reductions from CDM projects may be additional because they would not occur without CDM registration, but their additionality may come at the expense of potentially greater emission reductions that would result from the larger-scale adoption of wind energy in the country if tariffs were set at a more competitive rate.

Technological advances, economic trends, and policy initiatives may each serve to drive down the cost of renewable energy projects relative to fossil fuel-based generation.[288] To continue to qualify for CDM registration, it is possible that project participants will either engage in creative financial analyses or put pressure on host-country governments to create or maintain conditions unfavorable to large-scale deployment of renewable energy. The Board's requests for review indicate that, at least to some extent, such manipulations already may be occurring. Thus, it is possible that registered CDM projects comply with the letter of the additionality rule, but do not comport with the larger objectives of the CDM and the Convention and its Kyoto Protocol—to stabilize global emissions and prevent dangerous anthropogenic climate change.[289]

---

285. BVC, REVIEW RESPONSE 2775, *supra* note 218, at 9; BVC, REVIEW RESPONSE 2776, *supra* note 218; TÜV RHEINLAND, REVIEW RESPONSE 2830, *supra* note 218; TÜV NORD, REVIEW RESPONSE 2865, *supra* note 218, at 10. This discussion does not imply that the possibility of using national policies to create the necessary conditions for additionality is a uniquely Chinese problem—the focus on China here is due to the relative prevalence of China-based projects in this analysis.

286. *E.g.*, CDM EXEC. BD., ANNEX 25 TO EB 52 REPORT, *supra* note 223. ("[T]he Board's concerns regarding the suitability of the tariff . . . has [sic] not been adequately addressed by the DOE, i.e. the DOE has not confirmed that there was a reduction in applicable tariffs between 2002 and the start date of the project activity and if so whether a higher tariff could be considered an E-policy [a policy designed to decrease emissions] or whether any such reductions could be a comparative advantage for more emissions intensive technology.").

287. BVC, REVIEW RESPONSE 2775, *supra* note 218, at 9.

288. INT'L RENEWABLE ENERGY AGENCY, EVALUATING POLICIES IN SUPPORT OF THE DEPLOYMENT OF RENEWABLE POWER, *supra* note 279, at 5; INT'L RENEWABLE ENERGY AGENCY, RENEWABLE ENERGY AUCTIONS IN DEVELOPING COUNTRIES, *supra* note 279, at 6.

289. UNFCCC, *supra* note 25, art. 2.

B. The Effect of Evolving Policy Structures on the Continued Utility of the CDM

The CMP is well aware of the potential of the additionality analysis to stifle the development of climate mitigation policies—the Board is currently engaged in discussions regarding so-called E-policies, defined as "national and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies or fuels over more emissions-intensive technologies or fuels." [290] The Project Standard currently states that project participants may exclude the impacts of E-policies implemented after November 11, 2001, from a proposed project's baseline, [291] and the Board currently has before it draft guidance that specifically addresses the treatment of E-policies with regard to additionality.[292] This guidance would allow project developers to disregard the effects of policies designed to stimulate clean development projects when demonstrating the additionality of proposed projects, thus removing a country's incentive to avoid enacting such policies to qualify projects under the CDM. [293] However, this exemption essentially would sanction non-additional emission reductions and thus erode the very basis of the CDM's effectiveness as a tool to mitigate climate change.

As countries continue to develop their technological, policy, and investment frameworks for climate change mitigation, it will be increasingly difficult to sustain the fiction that emission reductions from renewable energy projects would not have occurred without the CDM. This tension leads to an inevitable conclusion of this analysis—the CDM is no longer an effective tool for achieving the objectives of the Convention and its Kyoto Protocol. The further developing countries move towards enacting nationally-applicable policies and measures, the more tortured the CDM rules and methodologies must become in order to carve out deeper and deeper exceptions and loopholes to accommodate the continued use of project-based mechanisms. The conclusion is that an incentive program for project-based climate mitigation is fundamentally incompatible with the

---

290. *Type E- Policies*, CDM RULEBOOK, http://cdmrulebook.org/4963.html (last visited Dec. 10, 2014); CDM Exec. Bd., Warsaw, Nov. 4–8, 2013, *Seventy-Sixth Meeting Report*, at 11, U.N. Doc. CDM-EB76 (Nov. 8, 2013).

291. CDM PROJECT STANDARD, *supra* note 92, at 13.

292. CDM Exec. Bd., *Seventy-Sixth Meeting Report*, *supra* note 290, at 11.

293. This exemption applies only for the first seven years after the relevant E-policy becomes effective. CDM Exec. Bd., Bonn, May 27–31, 2013, *Seventy-Third Meeting Report*, at 18, U.N. Doc. CDM-EB73 (May 31, 2013).

movement of developing countries towards sector-wide climate change mitigation and sustainable development strategies.[294]

Parties to the UNFCCC are currently negotiating a successor agreement to the Kyoto Protocol intended to enter into force in 2020.[295] The post-2020 agreement will take the form of a "protocol, [another] legal instrument or [an agreed] outcome with legal force" applicable to all Parties under the Convention.[296] This represents a step in the direction of treating all Parties—developing and developed—alike. Under this framework, all Parties will submit their intended policies or mitigation contributions to a designated body under the Convention; while the exact form of contributions will vary by Party, they will very likely encompass an entire category of activities and facilities, rather than discrete projects.[297] For example, rather than focusing on the construction of a single wind power project (the CDM approach), a contribution under the post-2020 agreement might be a national policy of subsidizing wind-based generation with the goal of increasing the share of wind power in the electricity supply by 20%. In essence, the international community is moving toward sector-based and economy-wide mitigation actions for a post-2020 framework. Under this scenario, the continued use of a project-based mechanism will only continue to stymy the development of national-scale frameworks and policies.[298]

In summary, the CDM was premised on the assumption that developing countries would focus their actions to mitigate climate change predominantly at the project level, and that individual projects could thus produce emission reductions additional to what would have occurred in the absence of those projects. However, this assumption no longer holds true. Evidence of a new paradigm in which all Parties agree to take unilateral

---

294. *See* Subsidiary Body for Implementation, *Compilation of Info. on Nationally Appropriate Mitigation Actions to be Implemented by Developing Country Parties*, Bonn, June 3–14, 2013, U.N. Doc. FCCC/SBI/2013/INF.12/Rev.2 (May 28, 2013) (indicating that the majority of the fifty-seven developing-country Parties that submitted nationally appropriate mitigation actions intend to undertake or have undertaken policy-driven mitigation initiatives).

295. *Durban: Towards Full Implementation of the UN Climate Change Convention*, UNFCCC, http://unfccc.int/key_steps/durban_outcomes/items/6825.php (last visited Dec. 10, 2014).

296. *Id.*

297. *See* Subsidiary Body for Implementation, *Compilation of Info. on Nationally Appropriate Mitigation Actions to be Implemented by Developing Country Parties*, *supra* note 294 (demonstrating how categories of activities and facilities can be submitted for review by a designated body under the Convention).

298. There are some circumstances under which a project-based mechanism could continue to effectively incentivize additional emission reductions under the post-2020 agreement. For example, a mechanism may allow least developed countries, which may not be prepared to enact national or sectoral climate mitigation strategies in the near term, to continue to use the CDM for a specified period of time.

domestic actions to mitigate climate change is apparent from negotiations under the UNFCCC generally,[299] as well as from the pledges of individual countries to take specific domestic mitigation actions.[300] The results of this analysis show the Board is fully aware that continuing to operate the CDM creates an increasing risk of funding non-additional emission reductions, especially in those developing countries with advanced domestic mitigation policies and technologies. As developing countries take meaningful climate mitigation actions, emission reductions from project-based mechanisms are less likely to be additional. Because additionality is the cornerstone of an international offset regime,[301] one must question the continued viability of the CDM as a mitigation tool under the UNFCCC.

C. What Comes Next? The Shift to Sectoral Mitigation Strategies

As the CDM's utility as a tool for funding additional mitigation in developing countries wanes, the need to develop frameworks to support sectoral and national mitigation strategies rises. While the current project-based focus of the CDM is inappropriate for incentivizing broader-scale climate mitigation, it is possible to transpose the CDM's well-developed and extremely detailed methodologies, guidance, and processes into a mechanism designed to support sectoral mitigation policies and activities in developing countries. Such an approach could nest the CDM's project-based methodologies in a sectoral framework that could utilize the Mechanism's existing guidance to calculate deviations from business-as-usual and then aggregate emission reductions from all covered entities and activities within the country. The funding or incentive structure of this strategy would be the biggest departure from the current CDM, as finance would likely support both capacity development and performance-based funding, and would be from a mix of domestic and international public and private sources.

IV. COMPARISON TO COMPLIANCE OFFSET PROTOCOLS UNDER CALIFORNIA'S CAP-AND-TRADE PROGRAM

California's Global Warming Solutions Act of 2006 (AB32) includes a cap-and-trade program designed to reduce GHG emissions from electric

---

299. *Durban: Towards Full Implementation of the UN Climate Change Convention*, UNFCCC, *supra* note 295.

300. Subsidiary Body for Implementation, *Compilation of Info. on Nationally Appropriate Mitigation Actions to be Implemented by Developing Country Parties*, *supra* note 294.

301. *See* discussion *supra* Part I.B.3.a.

utilities, large industrial facilities, and fuel use, including transportation, natural gas, and other fuels.[302] The cap-and-trade system also provides for compliance offset protocols that covered entities may use to reach their emission reduction targets, a system analogous to the Kyoto Protocol's CDM.[303] California's system currently permits five types of offset projects: U.S. forest projects, urban forest projects, livestock projects, projects to destroy ozone-depleting substances, and mine methane capture projects.[304] As California's regulations do not provide for compliance offsets from renewable energy projects (because electricity facilities are covered entities under AB32), a direct comparison of project methodologies between this system and the CDM is not possible. However, juxtaposing the basic guidance of the two frameworks' implementation of additionality at the project level can provide valuable input for consideration under the CDM.

Emission reductions under the CDM must be real, measurable, verifiable, and additional.[305] The CMP defined additional emission reductions as those "below the level that would have occurred in the absence of the CDM project activity."[306] The Board operationalized the CMP's standard with a predominantly financial analysis of projects' viability in the absence of CDM-derived revenues.[307] AB32 also requires that emission reductions used for compliance offsets are "real, permanent, quantifiable, verifiable, . . . enforceable," and additional.[308] California's regulations define "additional" as "GHG emission reductions . . . that exceed any GHG reduction . . . otherwise required by law, regulation, or legally binding mandate, and that exceed any GHG reductions . . . that would otherwise occur in a conservative business-as-usual scenario."[309]

This last phrase, "that would otherwise occur in a conservative business-as-usual scenario," is a significant departure from the CDM's guidance. California defines "business-as-usual" in the context of compliance offsets as the "conditions reasonably expected to occur within

---

302. Electric utilities and large industrial facilities are covered starting in 2013; fuel distributors are covered starting in 2015. AIR RES. BD., CAL. ENVTL. PROT. AGENCY, OVERVIEW OF ARB EMISSIONS TRADING PROGRAM 1 (2011), *available at* http://www.arb.ca.gov/newsrel/2011/cap_trade_overview.pdf.

303. Air Res. Bd., *Compliance Offset Program*, CAL. ENVTL. PROT. AGENCY, http://www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm (last visited Dec. 10, 2014).

304. *Id.* Rice cultivation projects are also under consideration. *Id*.

305. *See* discussion *supra* Part I.B.3.a; CDM Modalities and Procedures, *supra* note 35, ¶ 37.

306. UNFCCC, GLOSSARY OF CDM TERMS, *supra* note 49, at 5.

307. *See* discussion *supra* Part I.B.3.b.

308. CAL. HEALTH & SAFETY CODE § 38562(d)(1), (2) (West 2006).

309. AIR RES. BD., CAL. ENVTL. PROT. AGENCY, WHAT ARE THE REQUIREMENTS FOR OFFSET CREDITS AND HOW ARE THEY ISSUED? 4 (2012), *available at* http://www.arb.ca.gov/cc/capandtrade/offsets/chapter6.pdf.

the offset project boundary in the absence of the financial incentives provided by offset credits, taking into account all current laws and regulations, *as well as current economic and technological trends*."[310] Here, California explicitly addresses the weakness in the CDM's additionality analysis described in the previous section. Rather than relying on a predominantly financial measure of additionality, AB32 requires that emission reductions be measured against a dynamic baseline that includes ongoing technological and economic developments. Furthermore, California's additionality standard seems to demand consideration not only of economic and technological conditions as they currently exist, but of current *trends* that are likely to affect emissions moving forward.

California's additionality guidance thus allows evaluators to critically assess a proposed project's additionality within rapidly evolving frameworks for climate mitigation technologies. Under California's compliance offset program, the additionality of emission reductions must be measured not only against what *would* have occurred in the absence of a particular project, but also against what *could* occur in the absence of that project. The CDM could greatly improve its assessment of proposed projects' additionality by incorporating a similar framing of business-as-usual into its project guidance. While this adjustment is likely not sufficient to cure the Mechanism of its fundamental obsolescence in a post-2020 world, it could certainly improve the additionality of projects applying for registration under the Kyoto Protocol's second commitment period. The Board should thus consider amending its existing standards and tools to incorporate a forward-looking additionality analysis. Such an analysis could maximize the likelihood that CDM projects registered between now and 2020 will produce real emission reductions that actually help steer global emissions away from their current runaway trajectory.

CONCLUSION

The Parties to the Kyoto Protocol created the CDM to fulfill three objectives: to assist developing countries in achieving sustainable development, to provide a way for developing countries to contribute to the ultimate objective of the UNFCCC, and to assist developed countries in complying with their emission reduction targets under the Kyoto Protocol.[311] While this analysis does not evaluate the CDM's impact on sustainable development, it does indicate an increasing likelihood of non-

310. *Id.* at 6 (emphasis added).

311. Kyoto Protocol, *supra* note 19, art. 12, ¶ 2.

additional emission reductions under the Mechanism, which would undermine the CDM's ability both to contribute to the ultimate objective of the Convention and to assist developed countries in meeting their targets. While the Board's guidance and methodologies appear to be effective in weeding out proposed projects that fail to comply with its finance-based additionality analyses, the discussion above indicates the Board may fail to see the larger additionality forest for the project-based trees.

The eighteen decisions analyzed here reveal a fundamental tension between the CDM's project-based framework and the international community's movement toward sectoral-based and national climate change mitigation strategies. As developing countries continue to take advantage of rapid technological development and the improving economic competitiveness of renewable energy, the likelihood of securing additional emission reductions under the CDM declines. Although this analysis addresses renewable energy projects in particular, its result likely applies to projects in any sector currently undergoing similar advances in the technological and economic feasibility of climate mitigation. The viability and utility of the CDM will thus continue to diminish as developing countries join the ranks of Parties taking concrete steps to mitigate climate change, and the Mechanism may even create perverse incentives for developing countries to refrain from moving forward with aggressive mitigation strategies. Having outlived its usefulness, it is now time for countries to move beyond the CDM to a more cohesive, purposeful strategy of climate change mitigation under the UNFCCC.

—Nora Greenglass[*†]

* Juris Doctor/Master of Environmental Law and Policy Candidate 2015, Vermont Law School.

† I would like to thank Professor Doug Ruley for his input and guidance on this project. Also, profound thanks to Angélica Valderrama, Ashlee Stetser, Charlie Becker, and all of the staff and editors of Vermont Law Review for their diligence and expertise throughout the production process.

LIST OF ACRONYMS

AB32—California's Global Warming Solutions Act of 2006
Board—The CDM's Executive Board
CDM/Mechanism—The Clean Development Mechanism
CER—Certified Emission Reduction, unit issued for verified and certified emission reductions
COP—Conference of the Parties to the United Nations Framework Convention on Climate Change, the supreme decision-making body of the Convention
CMP—Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, the decision-making body of the Kyoto Protocol
DOE—Designated Operational Entity, an entity designated by the Board and approved by the CMP to validate, verify, and certify emission reductions from CDM project Activities
GHG—Greenhouse gas
$GtCO_2e$—Gigatonnes carbon dioxide equivalent, a measure of GHG emissions to the atmosphere
IPCC—Intergovernmental Panel on Climate Change
IRR—Internal Rate of Return, a commonly used benchmark in the Additionality Tool's investment analysis
PDD—Project Design Document, a project participant's comprehensive plan for a proposed project activity under the CDM
Protocol—Kyoto Protocol
UNEP—United Nations Environment Programme
UNFCCC/Convention—United Nations Framework Convention on Climate Change