

# Aligning development cycles for CCS projects in the CDM

## Background

This flyer considers how various parts of the project development cycle for carbon dioxide capture and storage (CCS) will need to align with the requirements under the Kyoto Protocol's Clean Development Mechanism (CDM), and potentially other forms of climate finance that help fund mitigation activities in developing countries.

The development of a CCS project under the CDM could conceptually involve various elements in the decision-making process across the project lifecycle including:

1. technical design – involving matters such as site characterisation, risk assessment, and planning of the storage site development;
2. investment appraisal – involving key investment decisions for project finance;
3. regulatory permitting – covering dialogue with national regulators, and the permitting of a storage site; and
4. climate finance – funding approvals for a project to gain access to climate finance as a means of investment support.

The project lifecycle includes: identification (concept studies), evaluation (pre-feasibility studies), definition (feasibility studies and final investment decision), execution (construction), operation (commissioning), and closure (decommissioning).

Alignment of project lifecycle milestones with the different elements involved with CDM validation and registration, and national regulatory approvals is critical for project success. However, variations in the timing of different requirements may result in project developers being hindered in reaching the execute phase in an efficient and/or effective manner. In part, this is driven by the novel nature of CCS projects, but it will also be important to ensure project milestones and CDM elements can align to help foster development of the technology.

Amongst Parties to the Kyoto Protocol, there appears some optimism that a model for accessing climate finance for CCS projects in developing countries can be agreed by way of modalities and procedures for CCS under the CDM. Further, while the future of CDM largely rests with the fate of the Kyoto Protocol, the approach taken in modalities and procedures may provide important guidance to project developers and policy-makers alike for how these elements can be structured and applied to other sources of climate finance beyond 2012 (which is conceptually the start of the second commitment period).

Consequently, it is important for policy-makers to have a clear understanding of the different elements involved in the development of a CCS project so that all the phases in the project lifecycle can be harmonised and streamlined.

## Key findings

In this analysis, we review the CCS project lifecycle, and identify the major milestones within each phase. Our findings suggest several essential considerations for policy-makers in designing the right approach for securing climate finance for CCS projects:

**Finding 1** – Sustainable sources of project revenue are essential to drive a project through technical design and investment cycles. Climate finance, such as the CDM, could be the number one factor supporting investment into CCS in developing countries today. Clear guidance on eligibility requirements and coherent milestones for project approvals is essential. The creation of fungible carbon assets linked to structured approaches to the stewardship of stored CO<sub>2</sub> over the long-term is also critical to build investor confidence.

**Finding 2** – Explicit legal and regulatory requirements and transparent permitting of projects by national regulators will be critical for project success in early stage planning. Such requirements must be aligned with eligibility criteria for climate finance. Meeting project requirements such as detailed site characterisation and risk assessments with a high degree of confidence is a costly exercise, and will only be carried out if certainty around the future provision of climate finance is secured.

**Finding 3** – The stages of the CCS project development cycle, key decision points, the time involved in development and the levels of financial commitment necessary to meet requirements must be well understood by policy-makers. Acceptance that projects require considerable effort to identify, evaluate and define must be integrated into considerations for climate finance. The timing of project registration, the level of detail required, as well as related costs (that could impact on the determination of additionality), needs to work around these cycles.

**Finding 4** – The right policy framework is one that is sufficiently flexible and iterative to ensure that all of these factors can be properly synchronised across development planning for CCS. The level of effort involved in characterising a site, assessing risks, and developing an injection strategy means that a continuous process of design, evaluation, assessment and dialogue with regulators is required to ensure appropriate approval of a project will be achieved. Ongoing dialogue with regulators can foster and sustain developer confidence in the eligibility of the project.

# MILESTONES AND STAGE GATES ACROSS THE DEVELOPMENT CYCLE FOR A CCS PROJECT

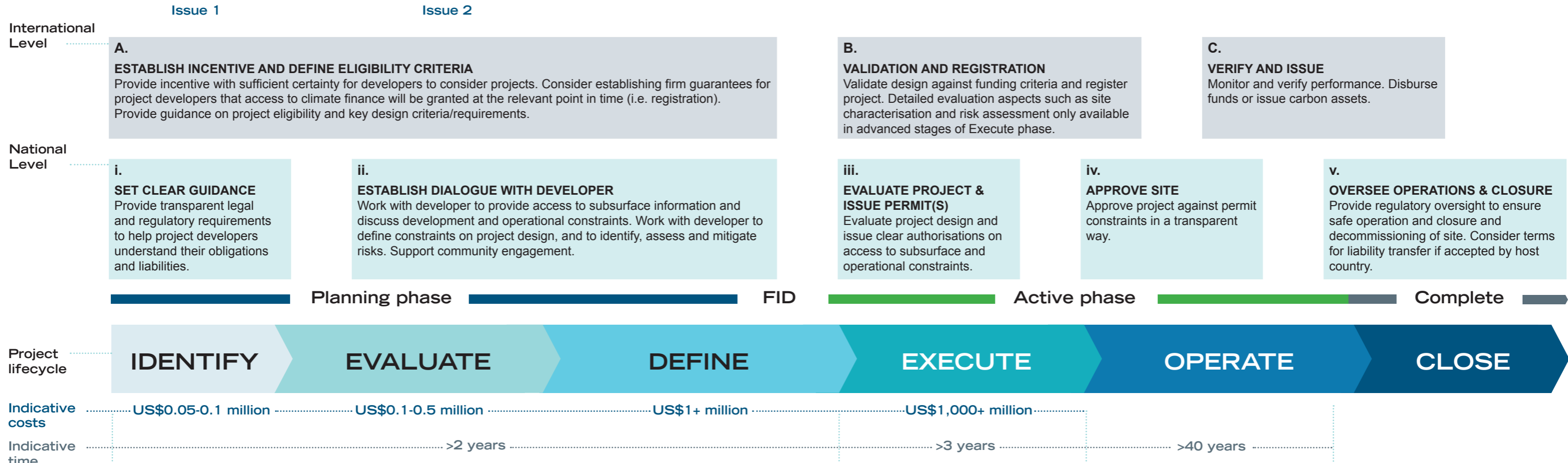
**ISSUE 1:** Project developers will only consider investments in CCS where there is a high degree of confidence in obtaining sustainable sources of revenue for a project, principally climate finance. A clear understanding of the legal and regulatory environments within which the project will be developed and operated is also essential, including clear approaches to addressing long-term liability for stored CO<sub>2</sub>.

**ISSUE 2:** UN policy-makers have requested that detailed technical requirements be set for CCS projects in new CDM modalities and procedures. As a result, host country policy-makers must ensure that national laws and regulatory approvals processes for CCS in their country are aligned to those requirements in order that they can qualify to host projects. The timing of approvals will also need to be aligned.

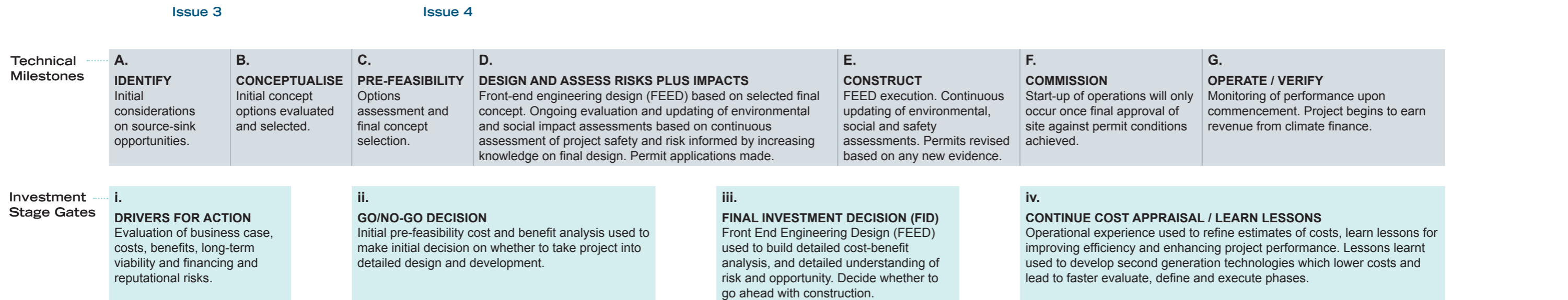
**ISSUE 3:** Project developers will need to mobilise significant amounts of effort and capital to build commercial CO<sub>2</sub> value chains, assess project design, and carry out detailed appraisals to meet regulatory approvals. Developers will only move through each investment stage-gate where the associated risks are minimal and acceptable in regards to accessing climate finance at the point of project commissioning. This gap needs to be addressed.

**ISSUE 4:** The development cycle highlights the need for flexible policy approaches that can work alongside technical design and investment cycles. Increasing levels of knowledge about risks and impacts will be gained through improved resolution of technical design, which only occurs if projects can pass through investment stage-gates. This, in turn, is reliant on developer confidence in project approvals.

## Climate finance and regulatory approvals



## Project development and financial appraisal





## Resolving issues

Based on the CCS project related milestones and stage-gates highlighted, we can identify three key matters that will be important for both the CDM and other future forms of climate finance to support CCS project deployment in developing countries:

**Recommendation 1** – Provision of greater early-stage certainty on the eligibility of a CCS project for climate finance is important in order to pull it through the Evaluate and Define phases. The amount of detailed work needed to meet project validation and registration requirements will not occur unless some degree of certainty is afforded to project developers that their CCS project abatement claims can be justly considered under the eligibility criteria (including any additionality conditions) at the time of registration. A revised form of the current Prior Consideration of CDM application could be used to offer assurances to developers over such matters. This will be essential to build investor confidence at the early stages of project conceptualisation.

**Recommendation 2** – Constructive dialogue between host country regulators and the UNFCCC and CDM Executive Board is essential to ensure alignment of objectives and approvals in CCS project regulation. The requirements for host country regulations should become much clearer when CDM modalities and procedures have been adopted. These will set out the expectations for project evaluation such as risk assessment and sub-surface appraisal, which could also be linked into national level regulations and host country approvals. It will be important that the expectations and linkages are addressed with designated national authorities (DNA) at an early stage; we recommend that the topic of CCS modalities and procedures be added to the agenda of The DNA Forum (for example) in early 2012.

**Recommendation 3** – Provision of assistance to developing country regulators will be important to aid the development of national regulations and approvals of projects that meet the requirements. Whilst the CDM Executive Board will likely be assisted by a CCS Working Group, host country DNAs will also require assistance in identifying relevant national authorities that can assist with CCS project approvals and oversight. They will also need assistance in identifying applicable national laws and regulations and preparing amendments to those laws where necessary. The UNFCCC should consider options for including CCS regulatory support under existing capacity building activities for DNAs.

## The Institute's support to the United Nations Framework Convention on Climate Change

The UNFCCC underpins the global effort to address climate change. The negotiations and related outcomes surrounding the issues of CCS affect and influence all national governments deliberation of support for CCS, as well as the private sectors propensity to invest in clean energy technologies such as CCS. While the global deployment of CCS is still very much in a technology demonstration phase, the Institute takes its role as a principal channel of knowledge sharing and communications on CCS within the UNFCCC and its related communities.

This flyer has been developed by the Institute and one of our Members, Carbon Counts. It reflects analysis undertaken to assess practical implications potentially involved with progressing CCS projects in developing countries under international frameworks such as the CDM. The recommendations expressed are designed to encourage discussion and provide ideas for future work under the UNFCCC on CCS related matters. They do not necessarily represent the views of either the Institute or its Members.

A recent report examining practical aspects of CCS project development under the CDM is available online at: <http://www.globalccsinstitute.com/node/25786>

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