

Airfix Guide to getting started with BECCS



Phase 0: Opportunity screening [optional]

1–3 months

- Identify candidate emitters or sites with biogenic CO₂ potential
- Assess nearby transport and storage infrastructure
- Review policy and demand context per site

Key outputs

- Opportunity shortlist
- CO₂ potential ranking



Phase 1: Opportunity framing

3–6 months

Feedstock & CO₂ source assessment

- What type of facility and CO₂ volume?
- What share is biogenic and capturable?
- Is feedstock sustainable and long-term?

Market & monetisation options

- What are CAPEX/OPEX estimates?
- What is the break-even CO₂ price?
- Are grants or subsidies available?

Policy & regulatory environment

- Which national/EU schemes apply?
- What permitting or legal barriers exist?
- Eligible CDR standards (CRCF, Puro, Isometric, GS, Verra, national)?

Key outputs

- Opportunity brief
- Market study
- Policy memo



Decision gate: Viable opportunity with market & policy fit?



Phase 2: Feasibility & design

6–12 months

Technical feasibility

- Which capture tech fits the site?
- What transport and storage routes exist?
- Are utilities and space sufficient?

Economic & financial viability

- What are CAPEX/OPEX estimates?
- What is the break-even CO₂ price?
- Are grants or subsidies available?

Regulatory pathway & compliance

- What permits are required?
- Which standards ensure compliance?
- Who are the relevant authorities?

Key outputs

- Pre-FEED
- Financial model
- Permitting roadmap



Decision gate: Technically, financially & regulatorily feasible?



Phase 3: Structuring & development

6–12 months

Commercial structuring

- How are risks and revenues allocated?
- What offtake structures fit best?
- How is CO₂ traceability ensured?

Financing & bankability

- Who are potential investors?
- What returns and guarantees are needed?
- What de-risking mechanisms apply?

Stakeholder engagement & communication

- Who must be aligned (emitters, storage)?
- How to manage community & regulator relations?
- Who champions the project?

Key outputs

- Term sheets
- Financing plan
- Engagement materials



Decision gate: Offtakes, financing & partnerships ready for FID?

Project FID

Guide to getting started with BECCS

Supplementary details

Acknowledgement:

This research was funded by CETPartnership, the Clean Energy Transition Partnership under the 2022 CETPartnership joint call for research proposals, co-funded by the European Commission (GA N°101069750) and with the funding organizations detailed on

<https://cetpartnership.eu/funding-agencies-and-call-modules>.

The project is supported by the French Environment and Energy Management Agency ADEME and the Swiss Federal Office of Energy SFOE.

Purpose:

Bioenergy with carbon capture and storage (BECCS) is a viable pathway for delivering durable carbon removals and long-term decarbonisation. Yet for many emitters, authorities and regional stakeholders, the early steps toward evaluating or developing a BECCS project remain fragmented and difficult to navigate.

This *Guide to Getting Started with BECCS* provides a practical, non-prescriptive onboarding toolkit to clarify what is involved in identifying and maturing BECCS opportunities. It outlines the typical stages from initial screening to feasibility assessment and pre-FID structuring, highlighting the decisions, information and partnerships required along the way. Its aim is not to provide detailed engineering guidance, but to give a clear sense of the breadth of activities teams should expect when exploring BECCS and to support early coordination among emitters, policymakers, transport-storage developers and market actors.

How to use this guide:

The guide is organised into three core phases, each concluding with a decision gate.

- **Phase 0: Screening** [*optional*] – Identifying high-potential sites or emitters based on biogenic CO₂ volumes, infrastructure proximity and policy context.
- **Phase 1: Opportunity framing** – Assessing feedstocks, CO₂ sources, market pathways and policy environments to determine whether a BECCS opportunity is worth pursuing.
- **Phase 2: Feasibility & design** – Conducting technical, economic and regulatory assessments to understand the viability of the concept.
- **Phase 3: Structuring & development** – Preparing commercial, financial and stakeholder arrangements that enable progression toward FID.

Each phase outlines the key questions to ask, the information required and the outputs typically developed by project teams. Users may adapt the structure to their own organisational processes or integrate the steps into existing decarbonisation or investment frameworks.



Phase 0: Opportunity screening [*optional, if multiple opportunities*]

Goal: Identify high-potential BECCS sites or emitters efficiently

Timeline: 1–3 months

1. Opportunity screening

- What sites or emitters have the highest biogenic CO₂ potential?
- What transport and storage infrastructure is nearby?
- What is the policy and demand context for the site?

Key outputs:

- Opportunity shortlist
 - CO₂ potential ranking
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Phase 1: Opportunity framing

Goal: Identify whether a BECCS opportunity is worth pursuing (plausible feedstock-market-policy fit)

Timeline: 3–6 months

1. Feedstock & CO₂ source assessment

- What type of facility is it (e.g. WtE, biomass, ethanol, biomethane)?
- How much CO₂ is emitted annually and what share is biogenic?
- What is the expected capturable fraction (technical + spatial constraints)?
- Are feedstocks available long term and are they sustainably sourced (e.g. RED III)?
- Are plant operations expected to continue for at least 10–15 years?

Key outputs:

- Opportunity brief / plant factsheet
- CO₂ emission and feedstock assessment
- Sustainability and certification pre-check

2. Market & monetisation options

- Who are the potential buyers of CDRs (e.g. voluntary, compliance, internal offset)?
 - What quality attributes (e.g. MRV, permanence, additionality) do they require?
 - Are there risks of double counting or lack of eligibility under standards?
 - What CDR or ETS price levels are realistic?
- Are there existing demand signals, tenders or bilateral interest?

Key outputs:

- Market & buyer landscape
- Preliminary revenue model (CDR or ETS)
- Risk and eligibility screening

3. Policy & regulatory environment

- What national or EU schemes apply (e.g. funding, contracts-for-difference, ETS)?
- What CDR standards could be used (e.g. CRCF, Puro, Isometric, GS, Verra)?
- What permitting or legal barriers could exist for CO₂ capture and storage?
- Are there specific incentives for biogenic CO₂ capture?

Key outputs:

- Policy and regulation summary
- Incentive overview and gaps
- Permitting pre-check memo

Decision gate 1:

→ *Is there a technically and politically supported opportunity with a viable market pathway?*

If yes → move to **Phase 2 – Feasibility & design.**

If not → stop or re-scope.

Phase 2: Feasibility & design

Goal: Determine whether the concept is technically, economically and regulatorily feasible.

Timeline: 6–12 months

1. Technical feasibility

- Which capture technologies are suitable (e.g. amine, membrane, oxyfuel)?
- Is there space and utility availability on-site?
- What are the possible CO₂ transport routes (e.g. pipeline, truck, ship)?
- Are there compatible storage partners and capacities available?
- What is the preliminary energy demand and integration concept?

Key outputs:

- Technical screening / pre-FEED summary
- CO₂ transport & storage options report
- Site integration and utility requirements memo

2. Economic & financial viability

- What are indicative CAPEX and OPEX estimates for capture and logistics?
- What subsidies, grants or tax incentives could reduce costs?
- What price per tCO₂ is needed for profitability?
- How sensitive is the project to energy price and OpEx assumptions?
- What financing structure could work (e.g. equity, debt, blended finance)?

Key outputs:

- Preliminary financial model and sensitivity analysis
- Financing structure concept
- Cost and revenue benchmark summary

3. Regulatory pathway & compliance

- What permits are required for capture, transport and storage?
- Which authorities must be engaged early?
- What standards (e.g. CRCF, Puro, Isometric, GS, Verra, ISO 14064) govern CDR certification and MRV?
- How can data and monitoring systems ensure compliance?
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Key outputs:

- Permitting roadmap
- Certification & MRV requirements summary
- Regulatory engagement plan

Decision gate 2:

→ *Is the project technically feasible, financially sound and regulatorily viable?*



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If yes → move to **Phase 3 – Structuring & development.**
If not → iterate or seek partnerships to fill gaps.

Phase 3: Structuring & development

Goal: Secure offtake, financing and stakeholder alignment toward FID.

Timeline: 6–12 months

1. Commercial structuring

- What is the structure of offtake (e.g. spot, forward, long-term contracts)?
- How are risks and revenues shared among capture, transport and storage partners
- Which contracting models (e.g. BOO, JV, consortium) are suitable?
- How to ensure traceability of captured CO₂ to sold CDRs?

Key outputs:

- Offtake and risk allocation term sheets
- Draft commercial framework (e.g. MoU, JV outline)
- Traceability and registry plan

2. Financing & bankability

- Who are the potential investors or lenders (public, private, infrastructure funds)?
- What are their requirements (e.g. IRR, tenor, ESG alignment)?
- Are guarantees, grants or CCfDs available?
- What due diligence will they expect (e.g. technical, legal, ESG)?

Key outputs:

- Investor landscape and engagement tracker
- Draft financing plan
- Updated financial model and de-risking summary

3. Stakeholder engagement & communication

- Which key stakeholders must be aligned (e.g. operators, authorities, communities)?
- How can concerns about safety, storage or additionality be addressed?
- How to coordinate between emitter, transport and storage partners?
- Who champions the project internally and externally?

Key outputs:

- Stakeholder map and engagement plan
- Meeting summaries / letters of intent
- Communication and outreach materials

Decision gate 3:

→ Are offtake, financing and partnerships sufficiently mature for FID preparation?

If yes → **move to FID & execution.**

If not → address outstanding gaps.