Clean Hydrogen Partnership

Key elements of hydrogen offtake agreements

Hydrogen Valley Facility

2025

Roland Berger

The H2V Facility delivers dedicated support to hydrogen practitioners via PDA services, the H2V Knowledge Centre and the H2V Platform

The Hydrogen Valleys Facility

h2v.eu

Dedicated support via the Hydrogen Valleys Facility by

Clean Hydrogen Partnership

1 Project Development Assistance

Provision of dedicated Project Development Assistance (PDA) for Hydrogen Valleys projects towards Final Investment Decision

2 H2V Knowledge Centre

Sharing & dissemination of knowledge and provision of capacity building for the broader hydrogen community

3 H2V Platform

Maintenance & extension of the Hydrogen Valley Platform to enhance its positioning as the global one-stop-shop for hydrogen flagship projects

Delivery partners

Roland Berger · worley · Inycom

Aspirational target 2030

50 Hydrogen Valleys **operational/under construction**

within the EU

Source: Roland Berger

This document is part of the H2V Knowledge Centre that offers hydrogen practitioners knowledge material in written and interactive formats

The H2V Knowledge Centre

Structure and scope of the H2V Knowledge Centre

	Self-service Knowledge Material	Interactive Formats
Commercial	• Knowledge material specifically developed as part of the H2V Facility project • Links and information to other third-party resources and material	• Webinars with content experts (Roland Berger, Worley and external speakers) • Project Development Assistance experience sessions with Hydrogen Valley practitioners
Technical		
Regulatory		
Valley governance		

Target audience

- Hydrogen Valleys
- Project developers
- National, regional and local authorities
- Investors
- Other hydrogen practitioners

Source: Roland Berger

Disclaimer

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Source: Roland Berger

Key objective of this document is to provide Hydrogen Valley developers with guidance on the key elements of offtake agreements

Key objectives and content of this document

Key objectives

Develop and negotiate **hydrogen offtake agreements** based on a clear and well-structured approach

Key content

A **Overview of offtake agreements**
Description of (pre-)agreements until the binding Hydrogen Offtake Agreement incl. best practices

B **Typical structure and main elements of offtake agreements**
Definition of all key offtake agreements and their main elements

Source: Roland Berger

Contents

A. Overview of offtake agreements

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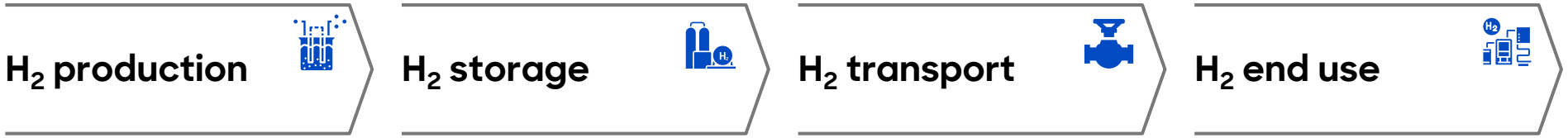
Within a Hydrogen Valley, different contractual relations along the value chain exist with the Hydrogen Offtake Agreement being the most essential one

Schematic overview of contractual relations between Hydrogen Valley players



Hydrogen Offtake Agreement (HOA)

Agreement between producer and offtaker regulating the terms and conditions for hydrogen supply and offtake

Other agree-ments

Transport and/or storage agreement | **Transport agreement** | **Transport agreement**

Agreements between players along the value chain regulating the provision of transport, storage and handling services for hydrogen

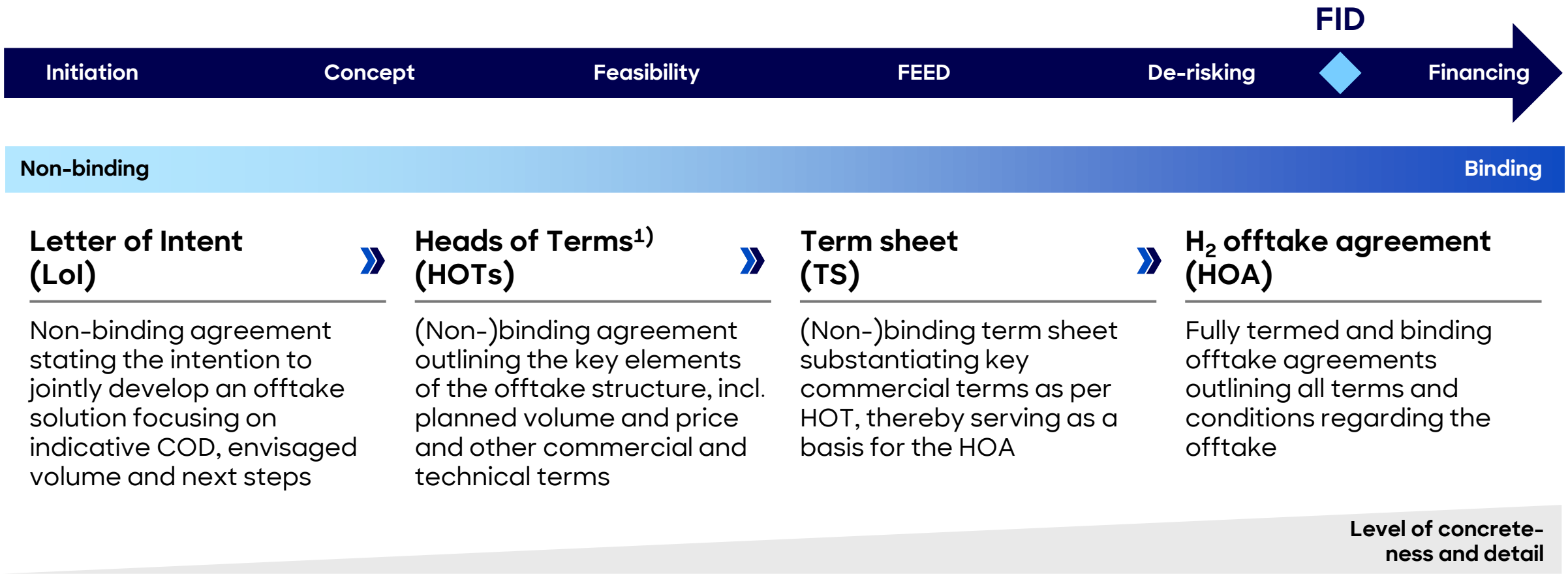
Comments

- A Hydrogen Valley is typically developed across the entire hydrogen value chain from production to end use
- There are various commercial agreements that regulate the terms and conditions of hydrogen supply, storage, transport, handling and offtake with the Hydrogen Offtake Agreement being the most relevant

Source: Roland Berger

Offtake is developed early on in the project, typically with a LoI that is to be matured and detailed until FID to a binding offtake agreement

Typical process of developing offtake agreements until FID



1) Potentially as attachment to a LOI to reduce the number of agreements

Source: Roland Berger

To successfully develop and mature offtake agreements, it is decisive to have a suitable negotiation approach in place and to align on the persons involved

Overarching best practices for the development of offtake agreements

Negotiation approach & process

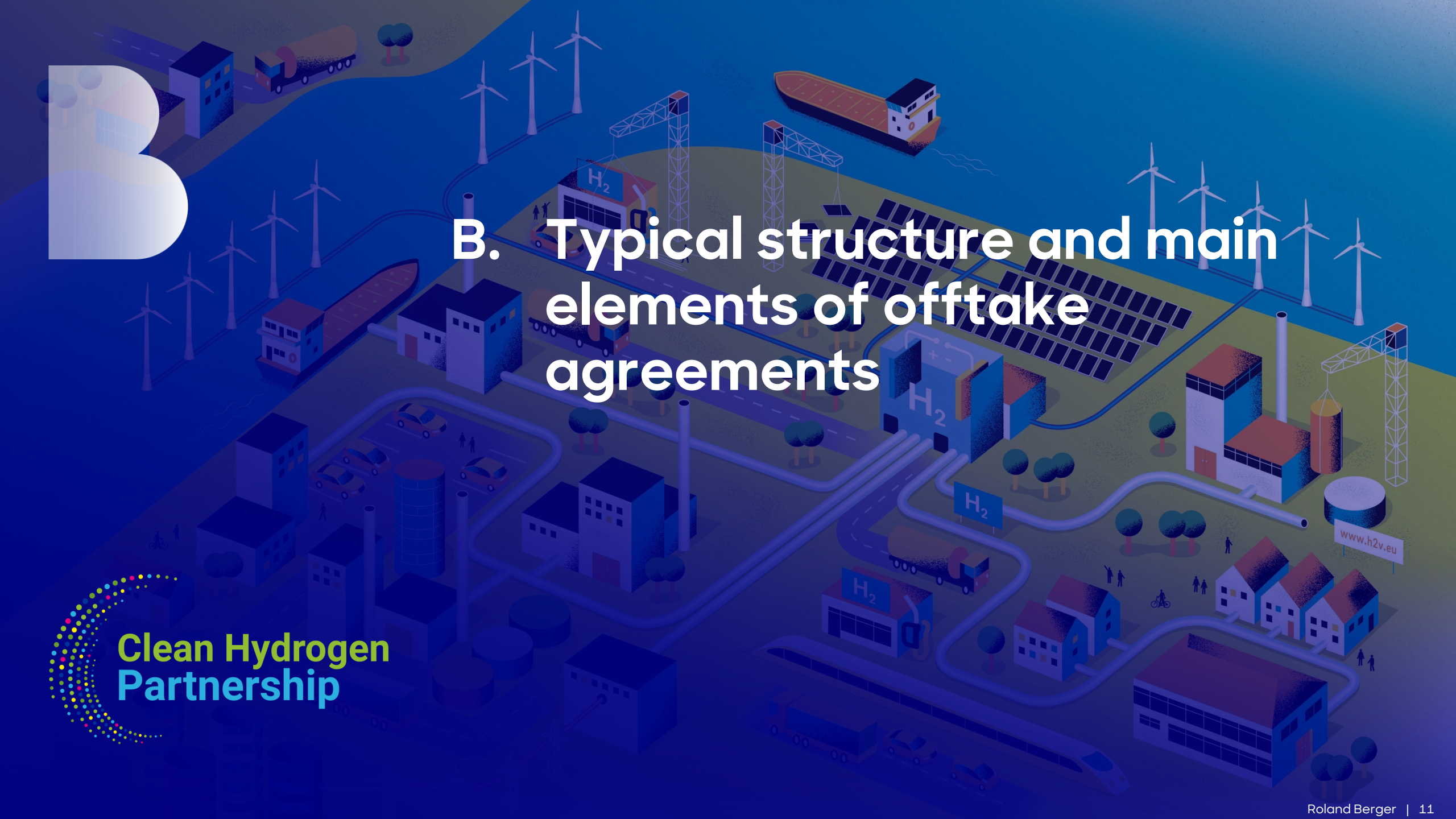
- **Plan commercial discussions** incl. objectives, key milestones and envisaged schedule **early on and well ahead** to avoid delays
- **Ensure a transparent communication** of key objectives and definitions to avoid surprises in later stages
- **Conduct a due diligence of the offtaker company** early in the process to avoid failure in the later process
- **Focus on common objectives** between the producer and the offtaker to enable the grounds for a long-term cooperation
- **Develop a comprehensive risk mitigation strategy**, incl. for market, operational and force majeure events

Involved persons

- **Keep the number of persons involved to the minimum** to reduce complexities
- **Nominate a core person/ team** that accompanies the offtake agreements from the initiation to its closure
- **Involve internal and/or external legal expertise** to ensure compliance with regulatory conditions

Source: Roland Berger

B. Typical structure and main elements of offtake agreements



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The Letter of Intent, Heads of Terms, Term Sheet and the Hydrogen Offtake Agreement can be developed along the following key building blocks

Typical building blocks of offtake agreements

Introduction

- Parties of the agreement
- Objective and scope
- Background and project context

Core elements of the agreement

- Product and volumes
- Delivery & logistics
- Pricing and payment
- Tenor
- Next steps

Any other terms & conditions

- Any other[1)]

Not in scope of this document

Comments

- Offtake agreements typically consist of **three building blocks**, i.e., an introduction, the core content elements and any other terms and conditions
- The **content** of the agreements **depends on the state of negotiations** – i.e., not all core elements need to be regulated in a LoI
- The further the agreements mature, the more provisions and the more substantiation is to be added

1) Incl. data protection and confidentiality, applicable law and jurisdiction, nature of agreement (binding vs. non-binding), risk allocation, liability, force majeure

The non-binding LoI captures the result of initial offtaker discussions and expresses the joint intention to cooperate regarding offtake

Definition and best practices for a Letter of Intent

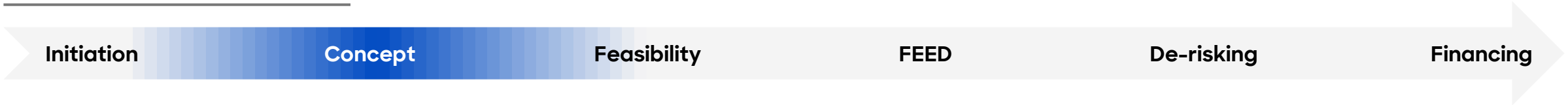
Letter of Intent

- Non-binding document expressing the joint intention of producer and offtaker
- Outlines key elements such as background and scope of the cooperation, planned volume, planned COD and next steps
- Typically the result of successful first discussions between producer and offtaker

Best practices

- **Start commercial discussions** with interested offtakers **early on** – ideally already during the initiation and concept phase
- **Align internally** regarding the joint intention regarding the offtake solution **before starting the discussions about a LoI**
- **Bring a draft LoI to the initial discussions** with the offtaker that serves as a structured basis for further discussions about the scope and objectives of the collaboration

Typical time of initiation



Source: Roland Berger

A Letter of Intent typically specifies the planned offtake volume, the planned COD and the next steps of cooperation

Typical core elements of a Letter of Intent

Topic	Typical key contents	Description
Product & volumes	**Planned offtake volume (range)**	Envisaged indicative offtake volume (range) to be delivered by the producer
Delivery & logistics	**Planned COD**	Envisaged Commercial Date of Operations, i.e., first delivery of offtake product
Pricing & payment	n/a	n/a
Tenor	n/a	n/a
Next steps	**Planned timeline and additional elements of cooperation**	Planned timeline, actions and milestones for further negotiations regarding offtake and additional elements of cooperation

Typically not in scope of a Letter of Intent

Source: Roland Berger

Heads of Terms typically specify in a non-binding or binding form the key commercial and technical principles of offtake

Definition and best practices for Heads of Terms

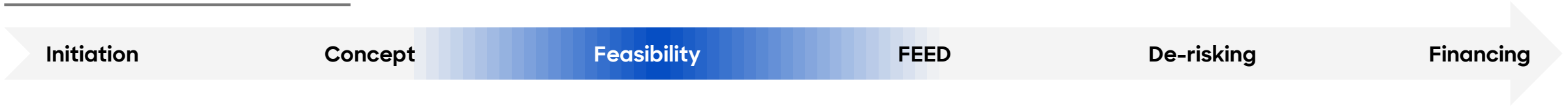
Heads of Terms

- (Non-)binding document outlining the key commercial and technical principles regarding offtake
- Depending on the state of negotiations, may be drafted as a non-binding attachment to the LoI or a (non-)binding term sheet to reduce the overall number of documents

Best practices

- **Develop**, based on the technical concept and the preliminary business case, **key commercial and technical guardrails for offtake**
- **Prepare workshops with the offtaker** to further detail the preferred offtake solution and corresponding terms and conditions
- **Involve internal and external legal advisors** to ensure compliance with key regulatory conditions and other relevant aspects

Typical time of initiation



Source: Roland Berger

Typical core elements of Heads of Terms are details regarding product and volumes, delivery and logistics and pricing

Typical core elements of Heads of Terms

Topic	Typical key contents	Description
Product & volumes	Product description	Detailed description of hydrogen being sold, including purity levels, form, and any other relevant specifications
	Planned volume	Specification of the quantity of hydrogen being delivered (e.g., per month, per year)
Delivery & logistics	COD and planned product delivery schedule	Specification of the COD and of the product delivery schedule, incl. start and end dates, and any provisions for adjustments
	Approach for logistics, incl. point of delivery	Specification of the delivery method (e.g., pipeline, truck or other logistics arrangements), indicative point of delivery (options)
Pricing & payment	Planned pricing structure	Specification of envisaged pricing structure (e.g., fixed pricing, variable pricing, sliding scale pricing, tiered pricing, variable pricing)
	Planned payment terms	Specification of payment terms, incl. due dates, methods of payments, applicable taxes or fees and provisions for price adjustments
Tenor	Planned offtake tenor	Planned length of offtake tenor, i.e., contract length
Next steps	Timeline for finalization of terms	Outline of an actionable timeline incl. key milestones, open terms/terms with need for substantiation

Source: Roland Berger

A Term Sheet is a (non-)binding document outlining all relevant terms and conditions of offtake and typically is the framework for the offtake agreement

Definition and best practices for Term Sheets

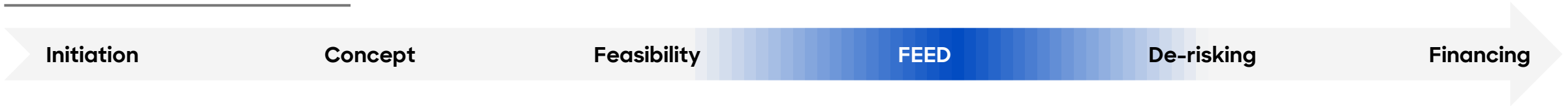
Term Sheet

- Typically binding agreement that outlines the key commercial and technical terms and conditions regarding offtake
- Serves as the preliminary framework for the fully termed and binding Hydrogen Offtake Agreement

Best practices

- **Refine**, based on FEED results, the **technical and commercial specifications** as set out in previous agreements
- **Focus on the most critical terms**, i.e., pricing, delivery schedules and volume commitments
- **Establish a clear plan and process for conditions precedent**

Typical time of initiation



Source: Roland Berger

Term sheets typically specify and detail all key commercial and technical aspects regarding product, delivery, pricing and other

Typical core elements of Term Sheets (1/2)

Topic	Typical key contents	Description
Product & volumes	Product description	Description of hydrogen product type, incl. color, purity levels, form, and any other relevant specifications
	Volume	Specification of the planned quantity of hydrogen being delivered (e.g., per month, per year)
	Volume flexibility mechanism	Specification of the volume flexibility mechanisms (e.g., fixed offtake commitment, price adjustment for volume change, volume swing clause, force majeure adjustment, cumulative volume adjustment, volume adjustment with/without penalty, annual (or more frequent) review, notification period for adjustments, market-based adjustment)
Delivery & logistics	COD and product delivery schedule	Specification of the COD and of the product delivery schedule, incl. start and end dates, and any provisions for adjustments and scheduling
	Logistics details, incl. point of delivery	Specification of the delivery method (e.g., pipeline, truck or other logistics arrangements), indicative point of delivery (options)
Pricing & payment	Contract type	Specification of the contact type for the offtake commitment (e.g., take-or-pay, take-or-cancel, take-and-pay, requirement, consignment, merchant)
	Type and share of pricing mechanism	Specification of pricing structure (e.g., fixed pricing, variable pricing, sliding scale pricing, tiered pricing, variable pricing)
	Payment terms	Specification of payment terms, incl. due dates, methods of payments

Source: Roland Berger

Term sheets typically specify and detail all key commercial and technical aspects regarding product, delivery, pricing and other

Typical core elements of Term Sheets (2/2)

Topic	Typical key contents	Description
Tenor	**Offtake tenor**	Length of offtake tenor, incl. proposed start and end dates and specification of conditions under which offtake tenor may be renewed or terminated
Next steps	**Timeline for signature of HOA**	Outline of an actionable timeline incl. key milestones for the signature of the Hydrogen Offtake Agreement
	Conditions precedent (CPs)	Specification of events and/or requirements to be fulfilled before the parties proceed with the execution of the HOA

Source: Roland Berger

A Hydrogen Offtake Agreement is a binding agreement that regulates all aspects regarding offtake between the producer and offtaker

Definition and best practices for a Hydrogen Offtake Agreement

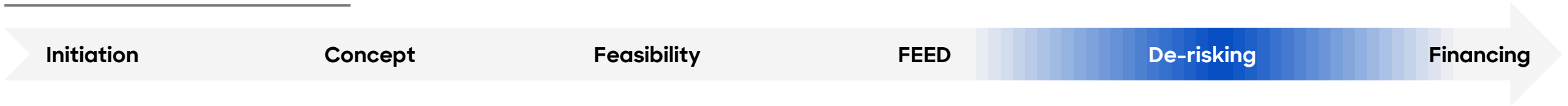
Hydrogen Offtake Agreement

- Fully termed and binding agreement between the hydrogen producer and the offtaker, thereby setting out all commercial and technical terms of offtake
- Typically based on the Term Sheet with further detailing of existing and/or specification of additional clauses

Best practices

- **Clearly define all relevant terms and conditions** regarding the product, volumes and delivery
- **Prepare**, based on the validated business case, **a transparent pricing structure** with provisions for price adjustments based on market conditions
- **Allocate all specified risks**, incl. market fluctuations, transportation risks, **clearly to one party** and include corresponding liability clauses

Typical time of initiation



Source: Roland Berger

A Hydrogen Offtake Agreement specifies, based on the Term Sheet, product, volumes, delivery, logistics, pricing, payment, tenor and any CPs

Typical core elements of Hydrogen Offtake Agreements (1/2)

Topic	Typical key contents	Description
Product & volumes	Product description	Detailed description of hydrogen being sold, including purity levels, form, and any other relevant specifications
	Volume	Specification of the exact quantity of hydrogen being delivered (e.g., per month, per year)
	Volume flexibility mechanism	Specification of the volume flexibility mechanisms (e.g., fixed offtake commitment, price adjustment for volume change, volume swing clause, force majeure adjustment, cumulative volume adjustment, volume adjustment with/without penalty, annual (or more frequent) review, notification period for adjustments, market-based adjustment)
Delivery & logistics	COD and product delivery schedule	Specification of the COD and of the product delivery schedule, incl. start and end dates, and any provisions for adjustments and scheduling
	Logistics details, incl. point of delivery	Specification of the delivery method (e.g., pipeline, truck or other logistics arrangements), indicative point of delivery (options)
Pricing & payment	Contract type	Specification of the contact type for the offtake commitment (e.g., take-or-pay, take-or-cancel, take-and-pay, requirement, consignment, merchant)
	Price and pricing mechanism	Details on the binding offtake price incl. composition of price, specification of any additional fees related to transportation, handling or other services (if applicable), specification of the pricing structure (e.g., fixed pricing, variable pricing, sliding scale pricing, tiered pricing, variable pricing)

Source: Roland Berger

A Hydrogen Offtake Agreement specifies, based on the Term Sheet, product, volumes, delivery, logistics, pricing, payment, tenor and any CPs

Typical core elements of Hydrogen Offtake Agreements (2/2)

Topic	Typical key contents	Description
Pricing & payment	Payment terms	Specification of payment terms, incl. due dates, methods of payments, taxes, invoice requirements, currency, late payment penalties
Tenor	Offtake tenor	Length of offtake tenor, incl. proposed start and end dates and specification of conditions under which offtake tenor may be renewed or terminated
Miscellaneous	Any other rights and obligations	Specification of any other rights and obligations of each party, e.g., regarding performance and delivery
	Conditions precedent (CPs)	Specification of any conditions precedent, incl. regarding regulatory approvals, financing arrangements and construction, as well as timelines and responsibilities for satisfying each CP

Source: Roland Berger

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