

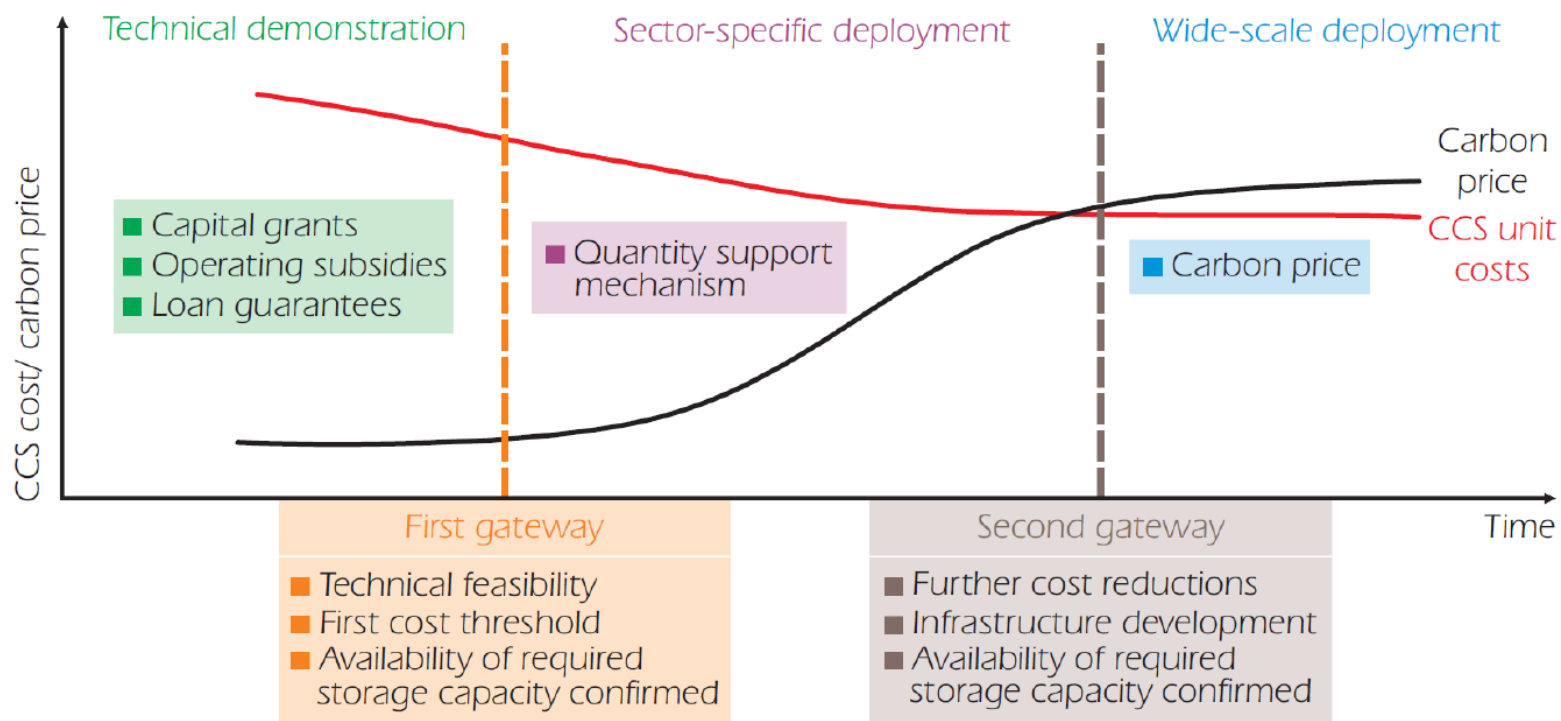
High level objectives for policy and regulation of CCS

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IEA-SENER Module IV

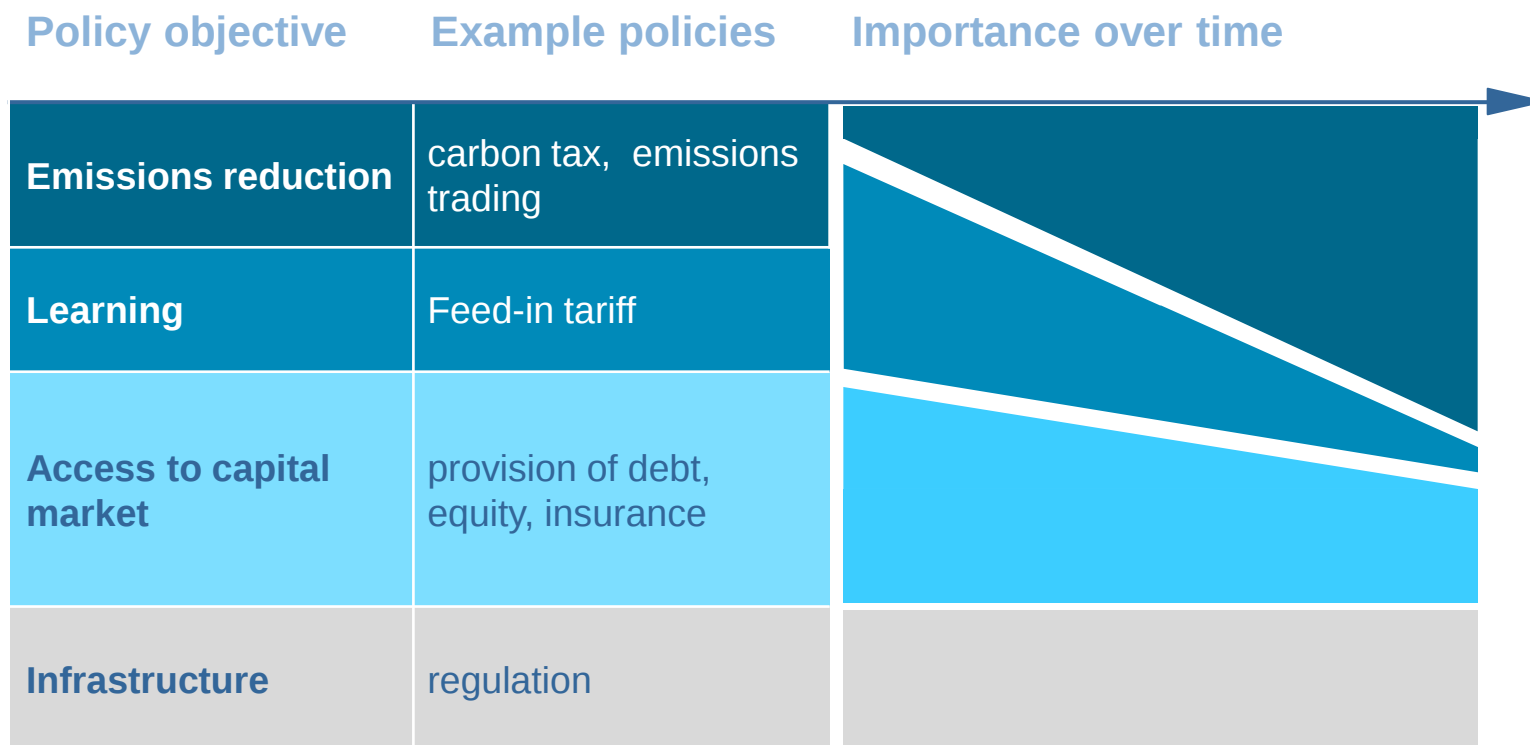
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POLICY ARCHITECTURE AND GATEWAYS



- **expected change in the characteristics of CCS, and associated focus of incentive policy, creates a challenge for policy-making**
 - on the one hand, want to be able to adapt and modify policy as technology changes or new information comes to light
 - on the other hand, the (perception of) changing policy may damage investment
- **‘policy gateways’ might help overcome this challenge**
- **gateways would consist of three components**
 - policies that will be used in each stage
 - criteria that will define when or if policy will move to the next stage
 - an outline of the reaction if gateways are missed
- **Protects government from overstretching resources, from imposing poor value for money, and lowers policy risk for investors**

The evolution of policy largely reflects a change in the relative balance of market failures holding back CCS investment



Incentivising CCS in the emerging world

- IEA Roadmap anticipates 55% of CCS investment to 2050 to be outside of the OECD
- Incentivizing investment
 - carbon price may come through baseline and credit scheme (CDM and/or others)
 - most of public-sector support to come from developed countries through Nationally Appropriate Mitigation Actions (NAMAs)
 - public support justified for longer, to reflect the specific learning benefits from using CCS in these contexts
 - important role for IFIs in
 - ◆ providing concessional funds,
 - ◆ risk mitigation instruments (possibly tailored to risks unique to CCS i.e. environmental stewardship of storage sites),
 - ◆ supporting development of market in carbon credits from CCS,
 - ◆ technical assistance

Key CCS policy and regulatory issues

Classification of CO ₂	Engaging the public in decision-making	Corrective measures and remediation measures
Property rights	CO ₂ capture	Liability during the project period
Competition with other users and preferential rights issue	CO ₂ transportation	Authorisation for storage site closure
Transboundary movement of CO ₂	Scope of framework and prohibitions	Liability during the post-closure period
International laws on protection of the marine environment	Definitions and terminology applicable to regulating CO ₂ storage	Financial contributions to post-closure stewardship
Incentivising CCS as part of climate change mitigation strategies	Authorisation of storage site exploration activities	Sharing knowledge and experience through the demonstration phase
Protecting human health	Regulating site selection and characterisation activities	CCS Ready
Composition of the CO ₂ stream	Authorisation of storage activities	Using CCS for biomass-based sources
The role of environmental impact assessment	Project inspections	Understanding enhanced hydrocarbon recovery with CCS
Third-party access to storage site and transportation infrastructure	Monitoring, reporting and verification requirements	

Three overarching goals for storage-site regulation

1. Protection of the local environment and human health, and safety

Regulation should ensure that the storage site is selected, designed, and operated to avoid or minimize impacts to the local community and those involved in the project

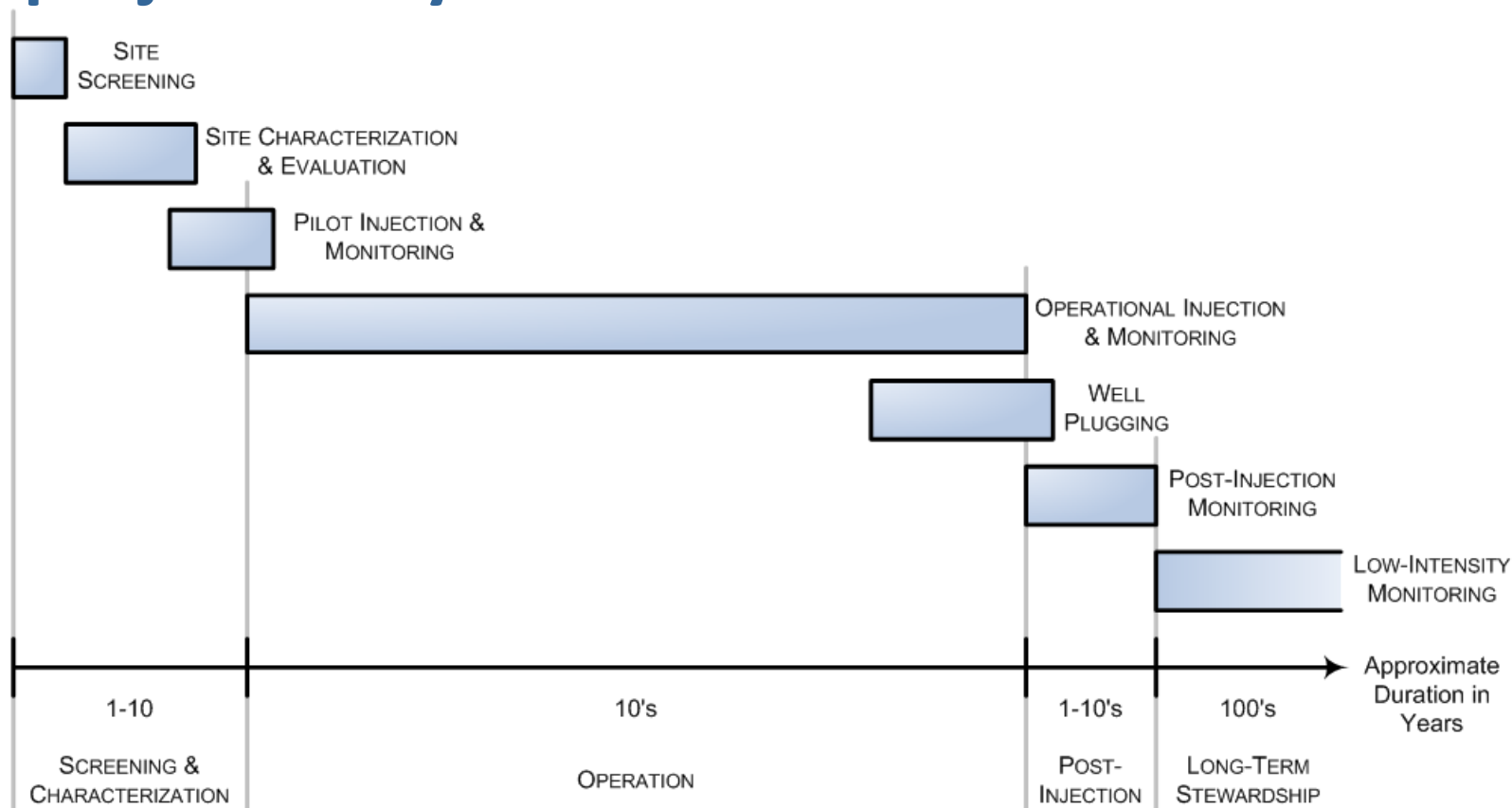
2. Permanent retention of stored CO₂

Regulation should ensure that the storage site is selected, designed, and operated to retain the injected CO₂ indefinitely

3. Effective management of natural resources

Pore space can be considered a finite resource like any other, thus regulation should seek to manage this resource and prevent conflicts with other uses of the subsurface

The regulatory needs also depend on the stage of the project lifecycle



Source: CCSReg Project, 2010

Evolution of storage site specific regulations

- It is very infrequent that there is a blank slate when it comes to storage-site regulation
- Past regulations applicable to other analogous activities can be **adapted so that they are fit-for-purpose**
- Examples of similar regulatory frameworks: oil and gas production; waste disposal; gas storage; solution mining
- However, **some unique aspects of geologic storage require unique treatment**, such as site selection criteria and data collection (i.e., risk assessment)

Numerous issues need to be addressed in regulation:

Exploration	Authorization for storage exploration	Community engagement requirements	Pore space access and use	Management of liability
	Authorizations for use of characterization technologies			
Site Selection	Site selection data requirements and decision criteria			
	Environmental Impact Assessment requirements			
	Duration and renewal conditions for storage activity authorization			
Operation	Requirements for monitoring, reporting and verification activities			
	Regulatory compliance and project inspections			
	Acceptable corrective and remedial measures and decision criteria			
Closure	Data requirements for closure and closure decision criteria			
Post-Closure	Requirements for post-closure monitoring, reporting and verification activities			

Policy and regulation considerations

- **National Climate, energy and economic development objectives and CO₂ emissions targets**
 - Where does CCS fit in and when?
- **Interaction with international mechanisms, IFIs, MRV and standards bodies**
 - What is existing Best Practice? What might CDM (or successor) require for MRV?
- **Environmental, health and safety, impact assessments and guidelines for public engagement**
 - Which existing regulations and regulators are relevant?
- **Long-term monitoring and issues of permanence, site selection, and remediation**

Thank You