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Centre for
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Globally networked carbon markets: *Assessment of mechanisms*

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Outline

- Mechanisms studied
- Multi-criteria analysis
- ICAR-R and ICAR-MP: possible architectures
- Preliminary results & outstanding issues

Mechanisms studied

Linking

- Linking enlarges the portfolio of mitigation instruments, ultimately enhancing cost-effectiveness and market liquidity;
- Barriers to linking
 - Differences in market design reflect different preferences (hard to reconcile);
 - Joining a linked system means accepting current and future choices by other jurisdictions about their future ambition;
 - Joining a linked system may imply some loss of regulatory flexibility over design choices;
 - An integrated market may also be more vulnerable if integration means exposing every market to flaws in the weakest program;
- How “to link” and how to facilitate increased mitigation efforts.

Linking mechanisms

- Direct linking
 - Allowances or fungible credits from another jurisdiction are allowed to be used for compliance in the local jurisdiction;
 - Need to distinguish the effects of unrestricted and restricted (type, volume, discounting).
- Indirect linking via ICAR
 - ICAR inter-connects ETSs using a multi-tiered rating system and operates in line with the principle of national sovereignty;
 - Participation is voluntary (opt-in);
 - ICAR is a service provider and its service is rule-based (i.e. access is only provided once specific triggers have been activated) and occurs on both the permit buy and sell sides;
 - As part of the sell-side service provided by ICAR, International Units (IUs) are issued against local emissions allowances and are mainly used to ease tracking of transfer of the underlying allowances.

ICAR in our study

- The scope of mitigation instruments in ICAR's services:
 - We look primarily at the inter-connection of *ETSs* – thus the pooling of *emissions allowances* only has been analysed in detail at this stage;
- One of the *specific* objectives of ICAR thus is:
 - To promote environmental integrity by supporting ETSs to meet their emission reduction targets; and
 - To support the orderly functioning of ETSs;
- Key assumption
 - The mechanism for establishing the exchange rate is already in place
- Two possible architectures
 - ICAR – R: interface with the regulator;
 - ICAR – MP: interface with the market participants.

Multi-criteria analysis

AND SCENARIO INDICATORS

Multi-criteria description

Criteria	Description
Environmental performance	The overall performance of the mechanism in terms of preserving and improving the environmental integrity of member jurisdictions.
Market performance	The overall contribution of the mechanism towards improving the orderly functioning of the constituent markets.
Political acceptability	The extent to which the mechanism's existence and design is acceptable to the regulators of member jurisdiction.
Implementation costs	Overall costs – including administrative, regulatory and financing – required to implement and operate the mechanism.

Sub-criteria

Criteria	Sub-criteria	Weight
Environmental performance	Contribution to GHG reduction	0.244
Market performance	Market liquidity	0.197
	Price shocks	0.197
Political acceptability	Pre-conditions relating to mechanism design	0.128
	Compliance cost saving	0.043
	Competitiveness	0.012
	Discretionary policy adjustment	0.023
	Stringency for non-compliance	0.023
Implementation costs	Implementation capacity	0.011
	Operational costs	0.018
	Financing	0.122

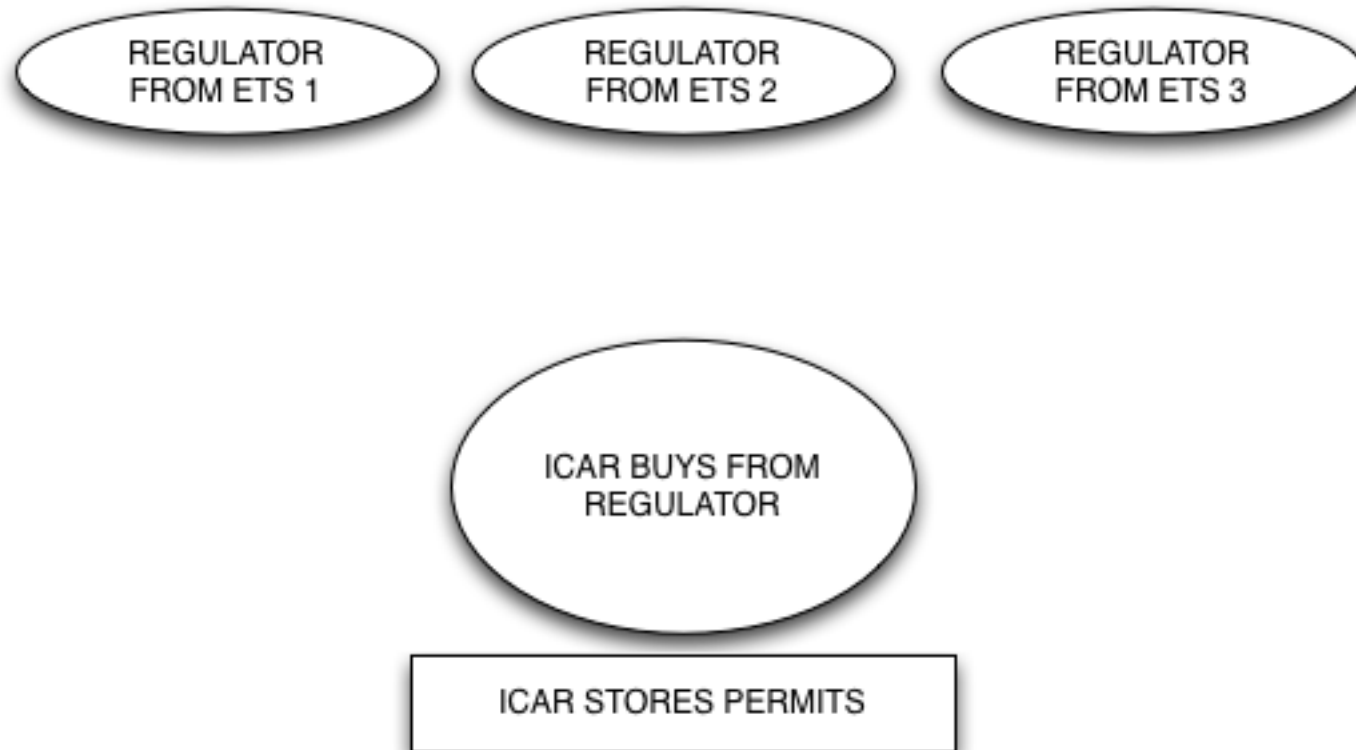
Scenario indicators

- The relative size of member ETSs:
 - Large, medium and small;
- The number of co-existing ETSs:
 - 2, 3 and greater than 3;
- Whether the evolutions of the jurisdictions' ETSs are synchronously or non-synchronously:
 - We define two ETSs to be synchronous when their overall industry-weighted exposure to systemic risks is similar;
- Whether ETSs have different design elements.

ICAR-R and ICAR- MP

POSSIBLE ARCHITECTURE AND DESIGN

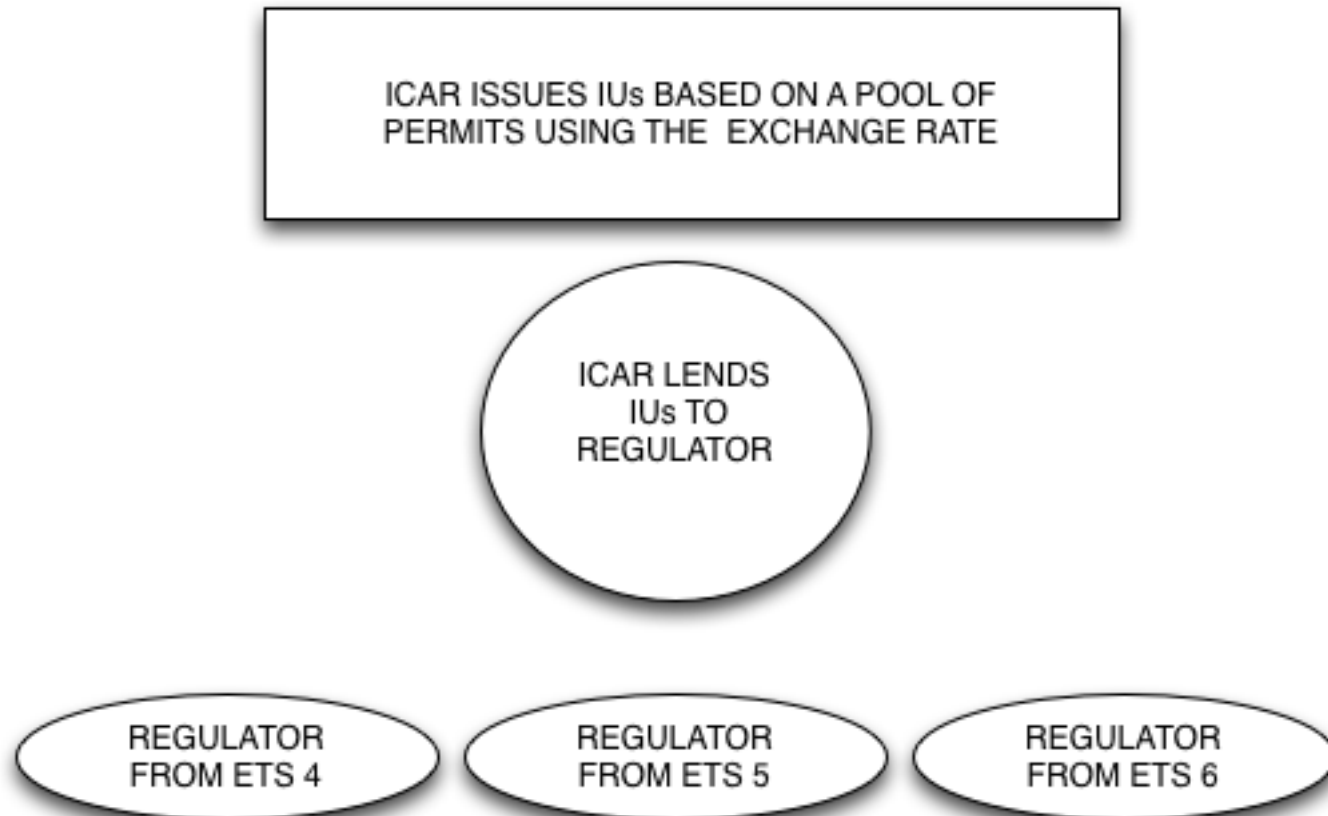
Buy-side: ICAR-R



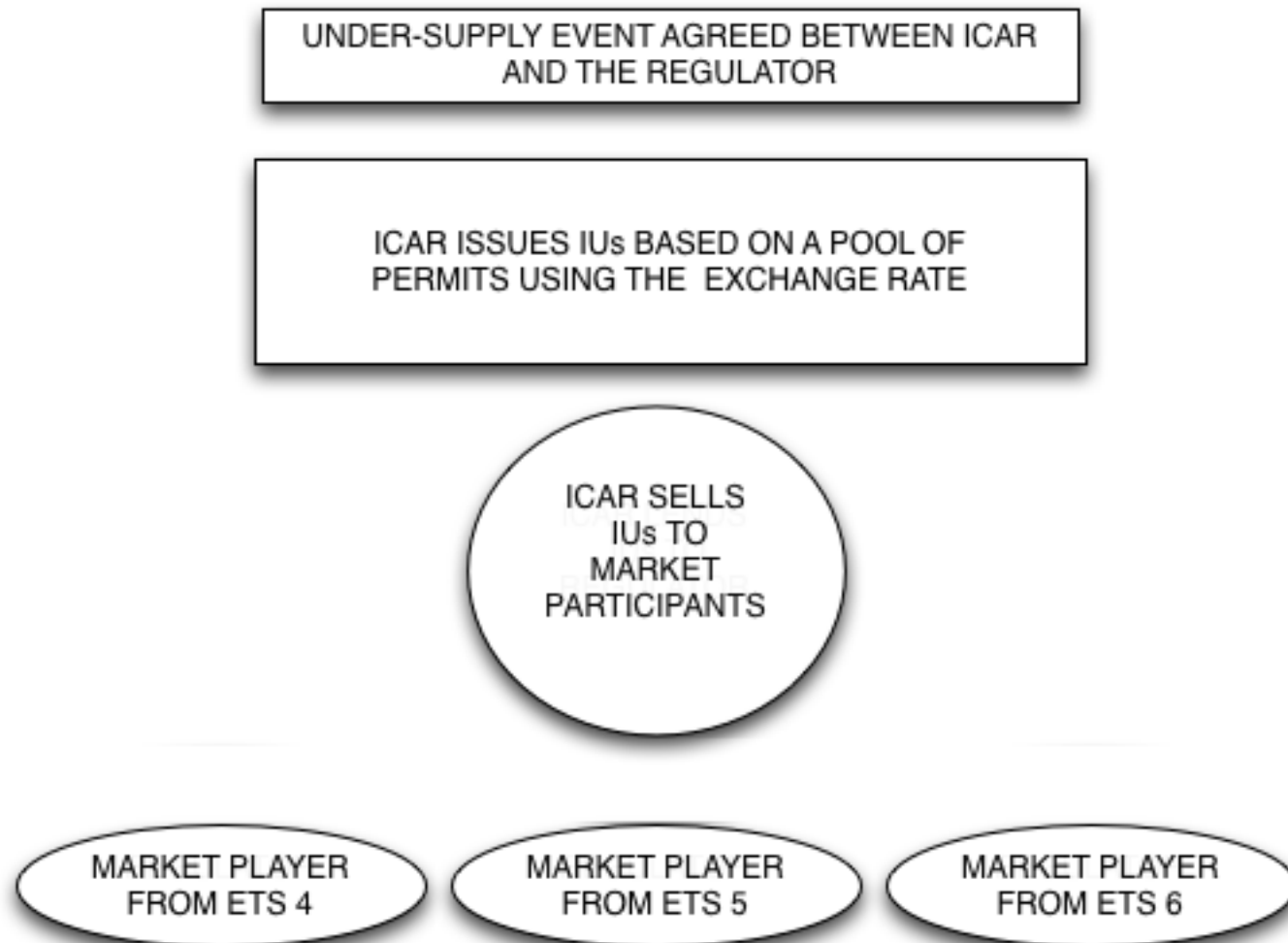
Buy-side: ICAR-MP



Sell-side: ICAR-R



Sell-side: ICAR-MP



ICAR: general architecture and design principles

Membership	<ul style="list-style-type: none">• Membership is open to any ETS;• When an ETS is accepted by ICAR, its permits are attributed an exchange rate in terms of IUs.
Membership fee	TBD
Other membership criteria	<ul style="list-style-type: none">• Minimum MRV standards;• Minimum market oversight rules, as applicable;• Some principles on commonly accepted projects generating carbon offsets.

ICAR: general architecture and design principles

ICAR instruments	<p>As part of its mandate to provide supply-side services, ICAR will issue international units (IUs). An IU is issued against a basket of permits previously bought from member ETSSs, and which, after having the exchange rate applied, sum up to 1 unit of IU in total. In this way, IUs retain their intrinsic mitigation value regardless of where the underlying permits originate from. Once an IU is issued, the underlying permit(s) is (are) cancelled and removed from the ICAR permits reserve.</p>
IU tracking system	<p>Each IU will be assigned a unique ID that will reflect the origin of the underlying permit(s). This is done primarily in order to be able to identify IUs that were issued against permits from a currently downgraded or exiting jurisdictions.</p>

ICAR: general architecture and design principles

ICAR resource replenishment	<ul style="list-style-type: none">• Permit purchased through ICAR's buy-side services;• Membership and annual fees paid in the form of local permits (TBD).
ICAR cash financing	<ul style="list-style-type: none">• Membership fees;• Other options:<ul style="list-style-type: none">• Possible margin requirements proportional to the volume of local permits underlying the issued IUs (mainly to cover the costs of potential 'contamination');• ICAR could potentially charge fees for the services it provides;• All above TBD.

Services provided by ICAR-R

- **On the buy side**
 - ICAR has the obligation to buy permits from the regulator, once the trigger has been activated for the regulator to be able to exercise the option of recourse to ICAR's buy-side service;
 - The price at which ICAR purchases the permits is the minimum between the market price and ICAR's rating-based price;
- **On the sell side**
 - ICAR has the obligation to lend IUs to the regulator, once the eligibility criteria for borrowing by the regulator have been satisfied. This effectively creates a carbon debt borne by the regulator;
 - Because borrowing of IUs effectively implies that the jurisdiction allows a higher level of emission to take place in its ETS than before the loan, it must commit to returning its debt in order to preserve its environmental integrity, and thus its rating.

Triggers for ICAR-R services

- **On the buy side**
 - Market over-supply, as determined by the regulator (e.g. volume triggers as currently used in the EU ETS);
 - The trigger does not need to also be agreed with ICAR.
- **On the sell side**
 - Excessive market under-supply, as signaled by the regulator;
 - Because this service effectively creates a carbon debt held by the borrowing jurisdiction, it is important that the recourse to this service is strictly limited to cases of under-supply;
 - The trigger is agreed with ICAR upon the jurisdictions' membership acceptance.

Services provided by ICAR-MP

- **On the buy side**

- ICAR has the obligation to hold an ascending permit-buy auction, once the buy-side trigger has been activated;
- The total number of permits that ICAR should stand ready to buy from local market participants is first agreed with the regulator;
- ICAR communicates to market participants that its permit purchase auctions will be carried out in several tiers (at best ascending offer prices).

- **On the sell side**

- ICAR has the obligation to hold a descending IUs sell auction, once the sell-side trigger has been activate;
- The maximum number of IUs that ICAR can sell to local market participants is first agreed with the regulator (due to carbon debt considerations);
- ICAR communicates to market participants that the sale of IUs will be carried out in several tiers (at best descending bid prices).

Triggers or ICAR-MP services

- **On the buy side**
 - Same as ICAR-R, except
 - The trigger is agreed with ICAR upon the jurisdictions' membership acceptance.
- **On the sell side**
 - Same as ICAR-R, with the caveat that the trigger affects the *MP's* ability to interact with ICAR

Other design features

- Banking provisions
 - Permits purchased by ICAR through its buy-side service will retain the banking properties from their originating ETS.
 - The bankability of IUs issued against a pool of permits can be determined as follows:
 - Can be equal to the minimum of the banking periods retained by the permits underlying the IU;
 - ICAR-R: Can inherit all the different banking periods retained by the underlying permits. In this case, the loan contract would be structured so that the repayment is done in tranches aligned to these different permit expiries;
 - ICAR-MP: can decide to cancel the bankability of purchased permits and restrict the expiry of IUSs to a fixed term.
- System ‘contamination’ control – in the event of an exit or downgrade
 - In the event of a jurisdiction downgrade, the value of ‘contaminated’ permits held by ICAR is reduced in proportion to the exchange rate downgrade as well as in proportion to the ‘contaminated’ instruments already in circulation;
 - In the event of an exit, the same principle as above is applied, with the caveat that the exchange rate is now zero.

Summary of key common and differing design features

Objective and mandate
A passive role
Membership provisions
IU issuance provisions
Buy-side service
Sell-side service
Buy-side trigger
Sell-side trigger
Banking provisions
System contamination control

Common features
Some differing elements

Preliminary results

AND THOUGHTS FOR FUTURE WORK

Preliminary results - summary

- Both ICAR architectures score better than the direct linking mechanisms mainly due to:
 - Limited price shock transmission effect;
 - Regulators retaining flexibility over market design;
 - Pre-conditions not requiring to have reached a compromise / agreement among members;
 - Existence of penalty for non-compliance with targets in the form of downgrade;
 - Integration of new members not requiring extensive adjustment of the existing system once ICAR has been set up;
 - Greater scale-up potential and thus greater opportunities for reducing abatement costs.

Preliminary results - summary

- ICAR-MP scores better than ICAR-R mainly due to the fact that the former's buy-side service has immediate impact on the market liquidity;
- Direct linking scores better at:
 - Improving market liquidity in non-extreme situations;
 - Reducing incentives for carbon leakage within the mechanism;
 - Requiring no financing costs for the provision of a service;
 - Having some experience in theory and practice.

Outstanding issues & possible future work

- ICAR sources of financing:
 - What is the optimal size of the reserve?
 - How much should each jurisdiction contribute?
 - What form: cash / mitigation instruments?
 - Timing: membership fee; annual contributions etc?
- Triggers for ICAR services:
 - How to determine when an ETS is under- / over-supplied? (e.g. EU ETS reserve)
- How to determine the sustainability of a jurisdiction's carbon debt?
- How much compliance cost saving can be achieved through direct linking vs ICAR?
- What are the criteria determining whether different ETSs are best matches for linking to occur?
- How does the ICAR architecture need to be expanded / adjusted in order to accommodate other mitigation instruments in the reserve?

Thank you!