



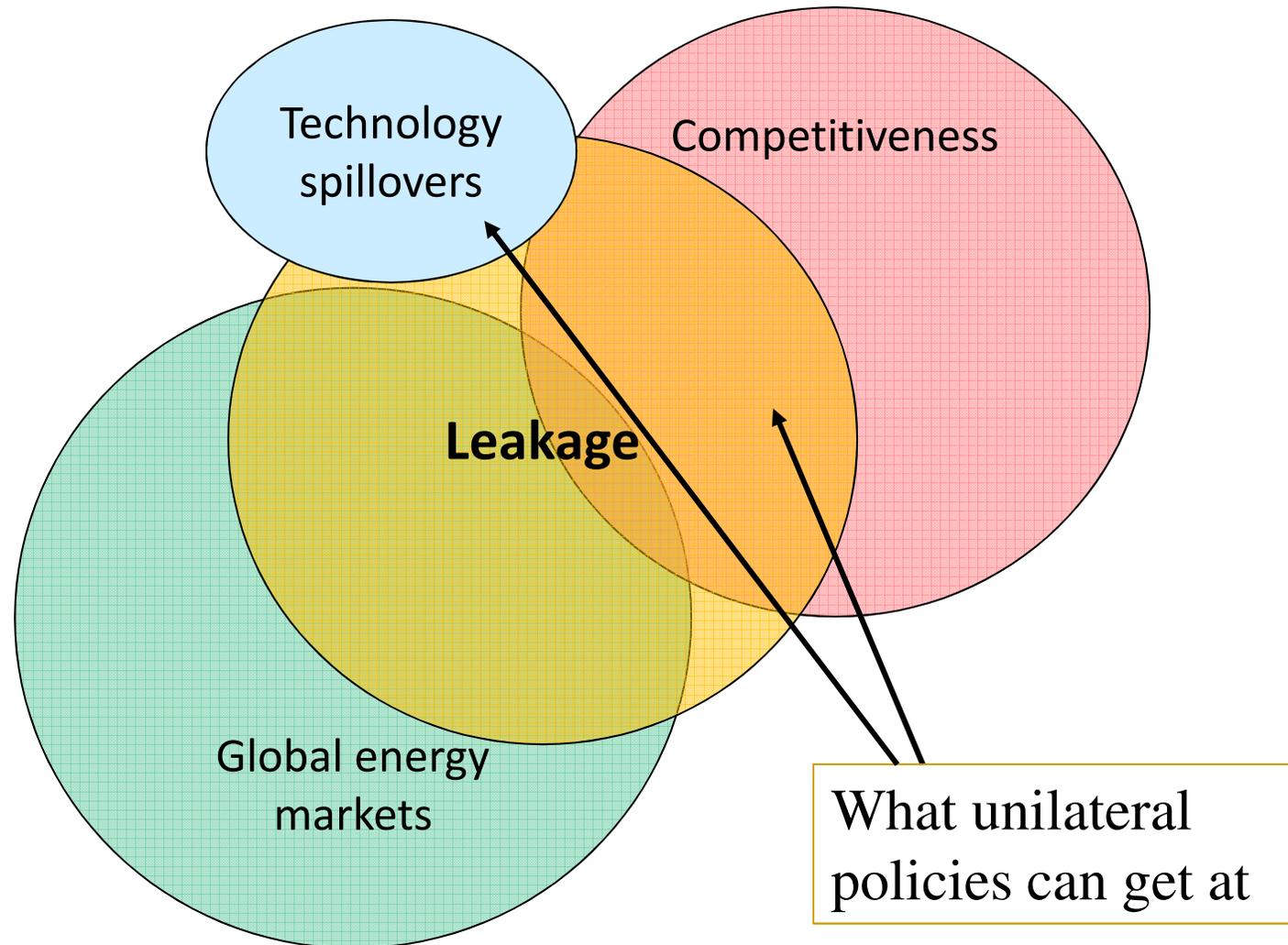
# Options for Addressing Competitiveness-Related Leakage under Climate Action

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# Main carbon leakage channels



# Main carbon leakage channels

## 1. “Competitiveness”

- shifting of economic activity and production (Fischer and Fox 2012) and investment (Zhou et al, 2009)

## 2. Global energy markets

- Reduced demand drives down global fuel prices encouraging more fuel use and emissions abroad (Burniaux and Martins, 2011)
- Intertemporal leakage occurs when resource owners respond to *future* demand reductions by lowering current prices (“Green Paradox”, Fischer and Salant 2014)

## 3. Technology spillovers from induced innovation

- Potential for “negative leakage” (Gerlagh and Kuik 2014; Barker et al., 2007).

# What do most jurisdictions do for industry?

- BC: corporate tax reduction
  - Moving toward tax rebate for low emitters: CleanBC Industrial Incentive Program (CIIP)
- AB, Canada Federal Backstop: Output-based pricing system
  - OBPS is a TPS with the carbon levy/tax as a price ceiling
- NZ: OBA
  - For nearly all traded sectors
- China: TPS for power sector; industry exempt (thus far)
- RGGI: industry exempt
- California: OBA for EITE, BCA for electricity
- EU: free allocation (periodic updating)
  - Moving toward limited CBAM
- US: discussing carbon tax with full BCA

# Summary of unilateral options for addressing competitiveness

- Exempting susceptible sectors
  - Lose all incentives to reduce emissions
  - Doesn't address costs from indirect emissions
- Free allocation / Output-based rebating (OBR)
  - Emissions price signals value of abatement, while rebate functions like production subsidy
  - Lose incentives for consumers to use less or find alternatives
- Border carbon adjustment
  - Domestic consumers pay for embodied carbon, regardless of origin
  - Tricky international politics and WTO compliance
  - Difficulties in combining with export or output rebates
- “Behind the border” adjustment
  - OBR to addresses leakage
  - Carbon consumption charge offsets distortion to consumer price

# More on OBR and efficiency

- Efficiency loss from not sending consumers full carbon pricing signals
  - Less incentive for conservation or finding alternative products
- *However*, can mitigate other market failures
  - Carbon leakage
  - Pre-existing tax and price distortions
  - Distributional concerns
- Inefficient instruments can enhance efficiency when the regulation would otherwise be insufficiently stringent
  - Political feasibility constraints
- As targets get deeper, benchmarks get smaller, so distinction between OBR and pure carbon pricing naturally diminishes

# Improving on OBR

- Better targeting of EITE firms
  - In EU ETS, inclusion of less exposed sectors and declining cap on free allocation means most exposed sectors likely to be insufficiently compensated
  - Trade exposure criteria more important than energy intensity
- Keep benchmarks product, not process, based
  - Fuel-specific benchmarks subsidize carbon-intensive sources more, making clean sources less competitive
- Adding a carbon consumption tax
  - Improves incentives for consumers and levels the playing field for cleaner substitute products
- Support “lumpy” investments in low-carbon production technologies and phase down OBR

# Conclusion

- Addressing competitiveness-related leakage and other challenges can make room for stronger, more comprehensive carbon pricing
- Technology oriented interventions can address additional barriers but are poor substitutes for pricing
  - And overreliance on them further weakens ETS prices...
- OBR is not perfect, but is helpful in the transition
  - Mitigates competitiveness, distributional, and political effects
- As targets get deeper, OBR limited so may need BCA to address large asymmetries in ambition

# Questions?

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