

# Extended Producer Responsibility of Insulating Glass Units in Norway

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1. Rutereturs experience with Extended Producer Responsibility (EPR) for Insulating Glass Units (IGUs) in Norway
2. Challenges related to waste management of discarded IGUs
3. A future solution to reuse or recycle 100 % of glass from discarded IGUs



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- Operates a nationwide EPR for IGUs in Norway
- Owned by five organisations associated with the building industry
- Established in 2002, approved by the Ministry of Climate and Environment
- Ruteretur has collected and taken care of 1 million IGUs containing PCB

Rutereturs owners:



GLASS OG  
FASADEFORENINGEN



NORSKE  
TREVARER

**VIRKE**



NORSK  
EIENDOM



Norges bygg- og  
eiendomsforening

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## IGUs containing Polychlorinated Biphenyls (PCBs)

- PCB is a group of environmental toxic compounds
- Added as a plasticizer in sealants in the 1960s and 1970s
- IGUs containing PCB are hazardous waste



Sealed with  
PCB glue

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## How is Ruteretur financed?

- Ruteretur is a non-profit organisation
- Financed by producers and importers of new IGUs by being participants in Ruteretur
  - Producers and importers pay a fee of NOK 11 (EUR 1) for each IGU sold in Norway
- Norwegian waste regulations require producers and importers to make sure discarded IGUs containing PCB are collected and destroyed



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## Nationwide collection of IGUs containing PCBs



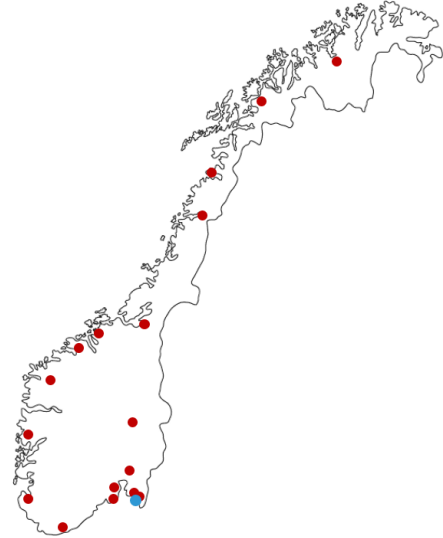
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## Nationwide collection of IGUs containing PCBs

About 350 municipal waste collection points throughout the country

- 16 hubs operated by a private waste company
- Waste handling facility located in Fredrikstad



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## Waste treatment of IGUs containing PCB

Separation of glass and frames



Crushing glass



Recycling to insulation (Glava)

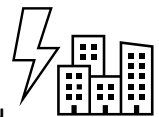


Frames containing PCB-sealants



Incineration at high temperatures:

- PCBs are destroyed
- Metals are recycled



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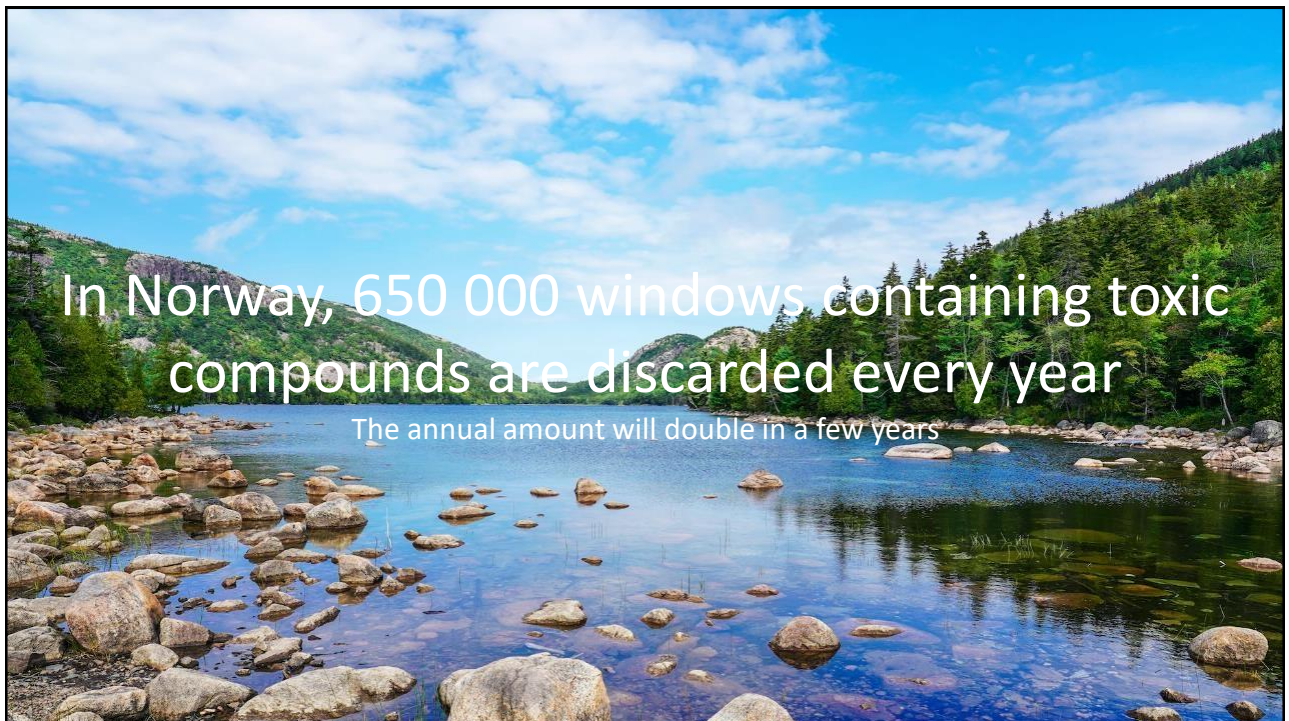
## IGUs with environmental toxic compounds are hazardous waste

- After banning PCBs in 1980, **chlorinated paraffins** and **phthalates** have been added into the sealants
- Today, there is no EPR for such IGUs in Norway

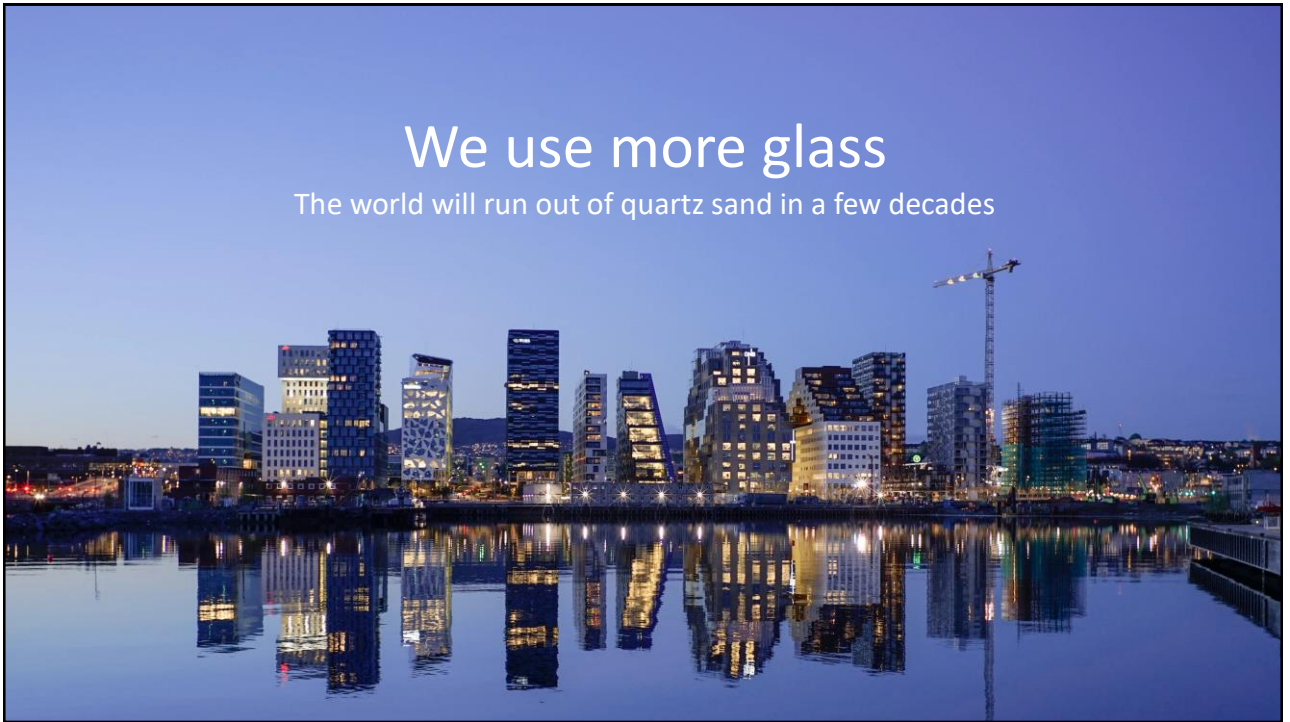


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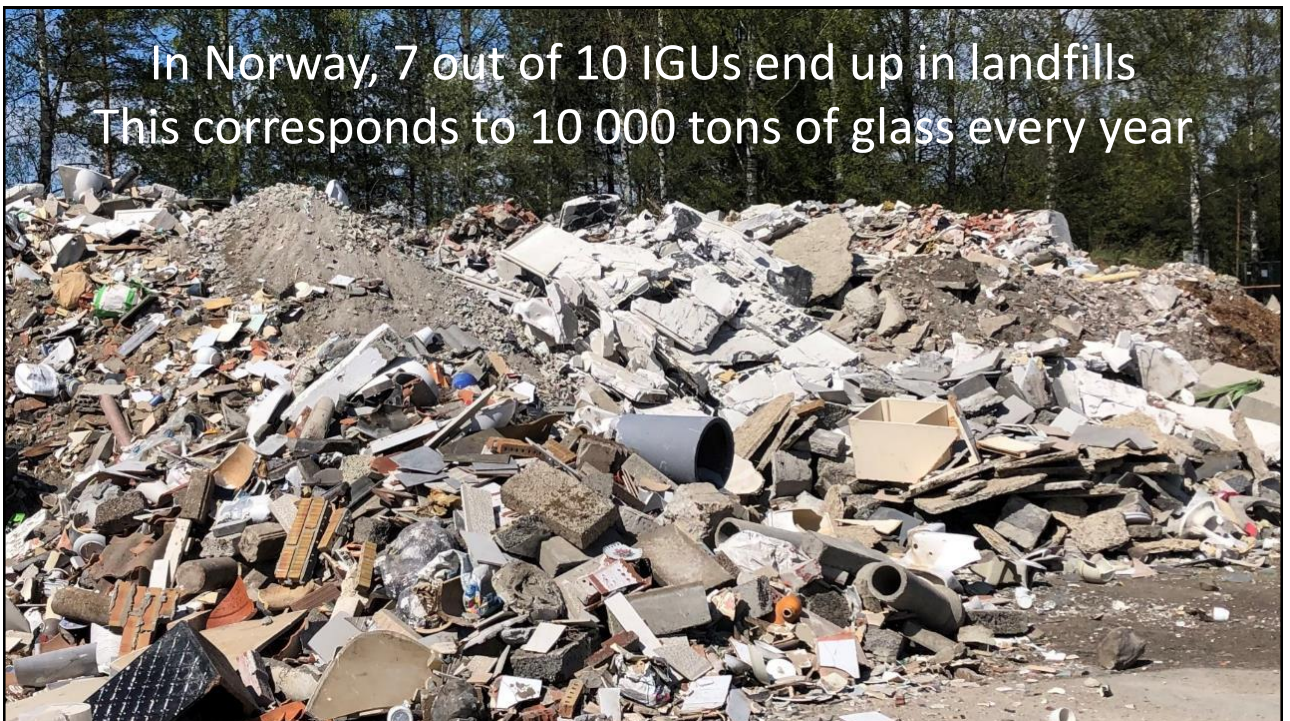
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## EPR for all IGUs

- Reuse or recycle 100 % of glass from all IGUs
- Reduced transport and greenhouse gas emissions
- Safe management of hazardous waste
- Easier for waste producers and waste management facilities
- Reduced costs
- Improves the reputation of the actors in the value chain of IGUs, from production to waste
- Ruteretur has more than 20 years of experience, solid owners and receives positive feedback from actors involved

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