



השפעת מדיניות ניהול הפסולת על הפחתת גזי חממה בתעשיית הצמנט

Waste Management Policy and its Impact on GHG reductions in the Cement Industry

הכנס השנתי החמישי
לטיפול בפסולת ע"ש
דני שטרנברג

חירייה, 6/4/2022

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**Nesher Cement
Plant**



**Production of
Concrete**



**Buildings and
Infrastructure**

Municipal Solid Waste



**Refuse Derived
Fuel (RDF) Plant**



**RDF – Alternative Fuel
for the Cement Industry**



כלכלה מעגלית
Circular Economy
اقتصاد دوري





Cement Production meets Circular Economy

1500°C Kiln
(petcoke +
alternative fuels)



Limestone + Clay + Alt.
Raw Materials (fly ash,
mill scale, cont. soils)



Clinker



milling



Limestone + Alt.
Raw Materials: CFA,
FGD gypsum, slags



Circular Economy at Nesher



Used...

More than 170,000 tons of alternative fuels per year



Spent Solvents



Limestone sludge



GGBFS



More than 700,000 tons of alternative raw materials per year



Spent catalysts



Contaminated Soil



FGD gypsum



Benefits of Alternative Fuels in the Cement Industry

- Reduction in landfilling and transport
- Complete combustion of organic content (high temperatures, long residence time, excess oxygen)
- Direct contact between the fuel and the raw materials in the kiln enables adsorption of inorganic components of the fuel in the clinker
- Economical benefits
- **Reduction in GHG emissions:**
 - **Direct - biomass content of the fuel**
 - **Indirect –methane from landfill, CO₂ from transport**

Israel Considers Emergency Plan as Landfills Approach Capacity

Normal planning processes to expand landfills are lengthy and complicated, and the Environmental Protection Ministry hopes to change that



Zafir Rinat
Nov. 6, 2021

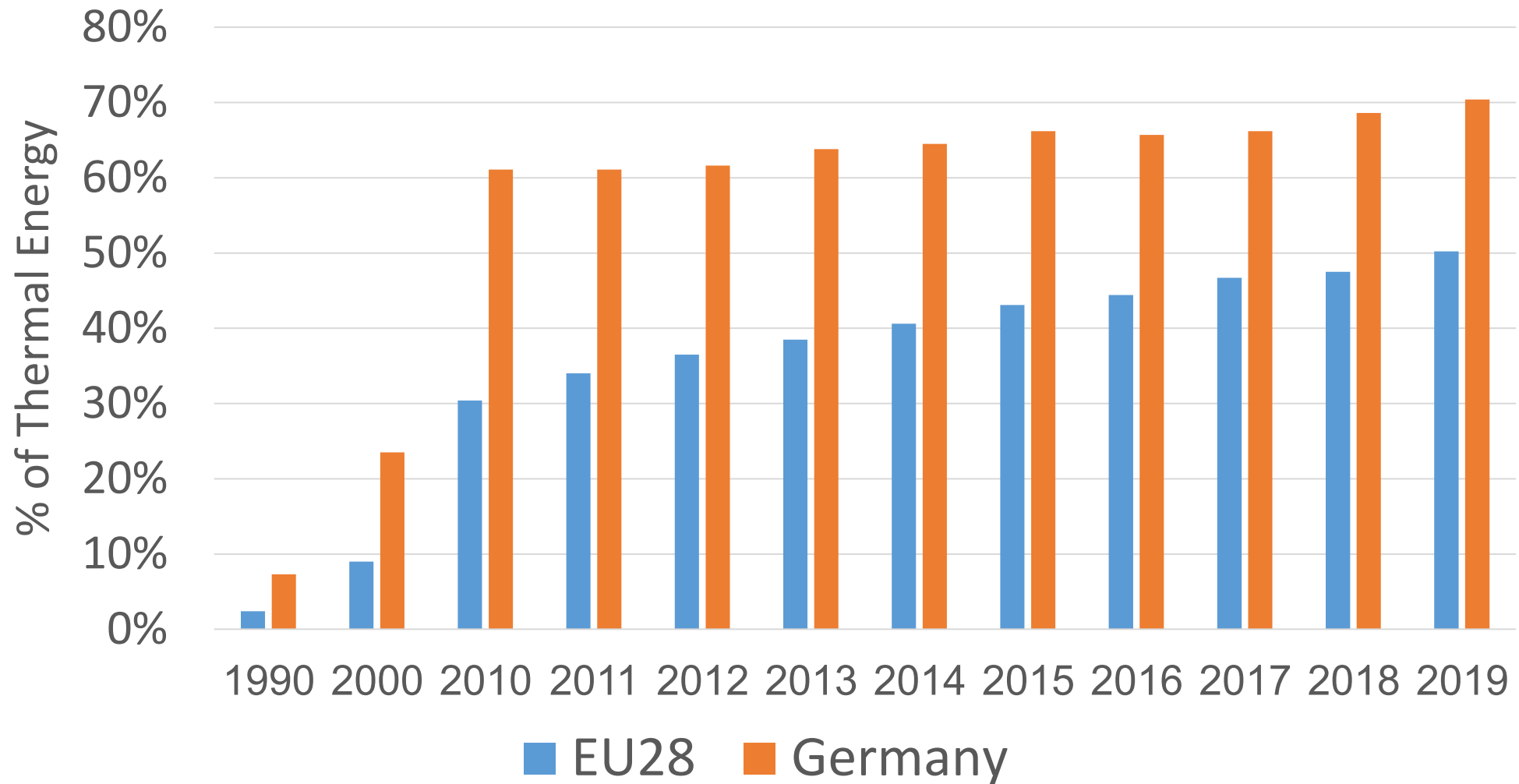


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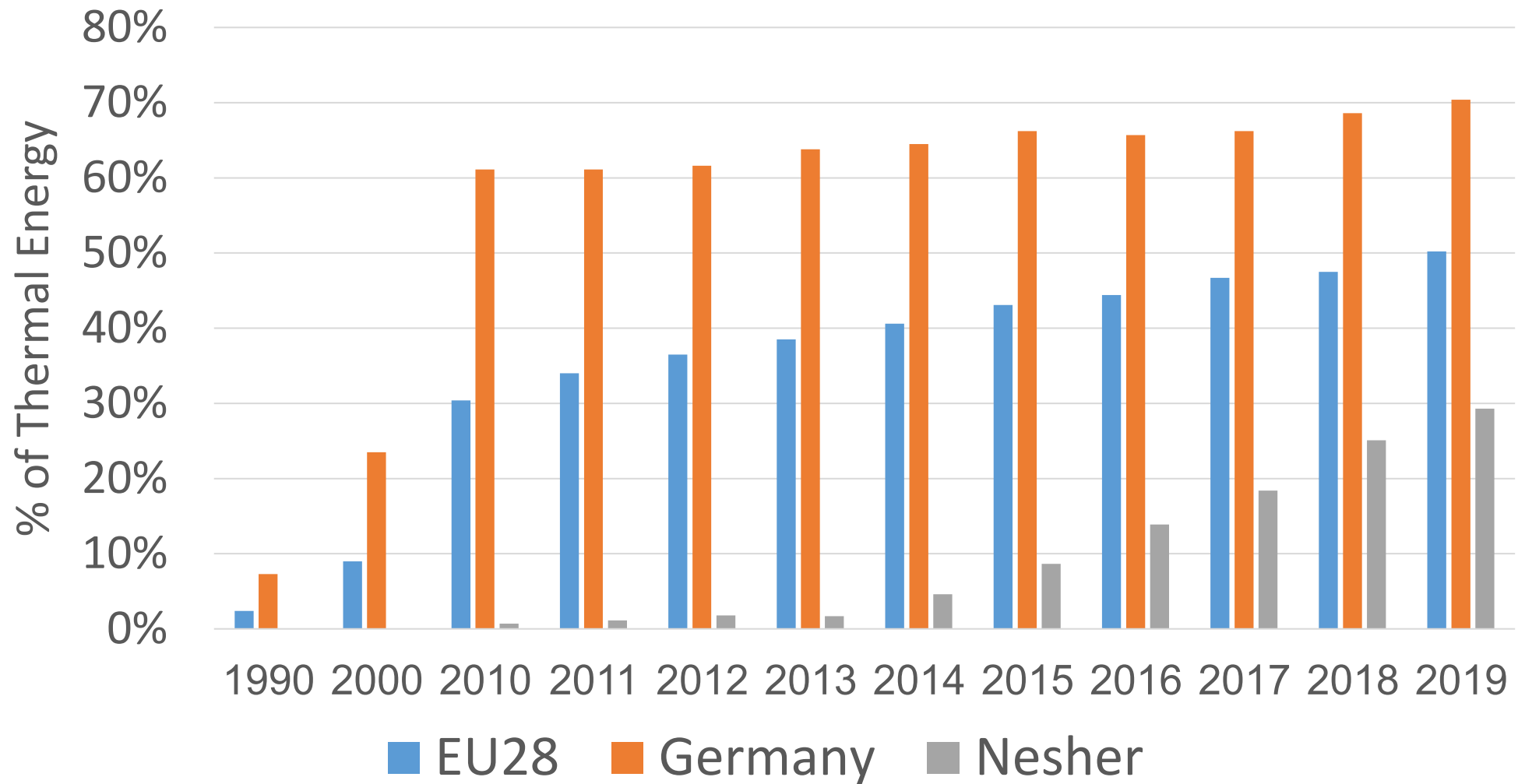


Alternative Fuels in the Cement Industry

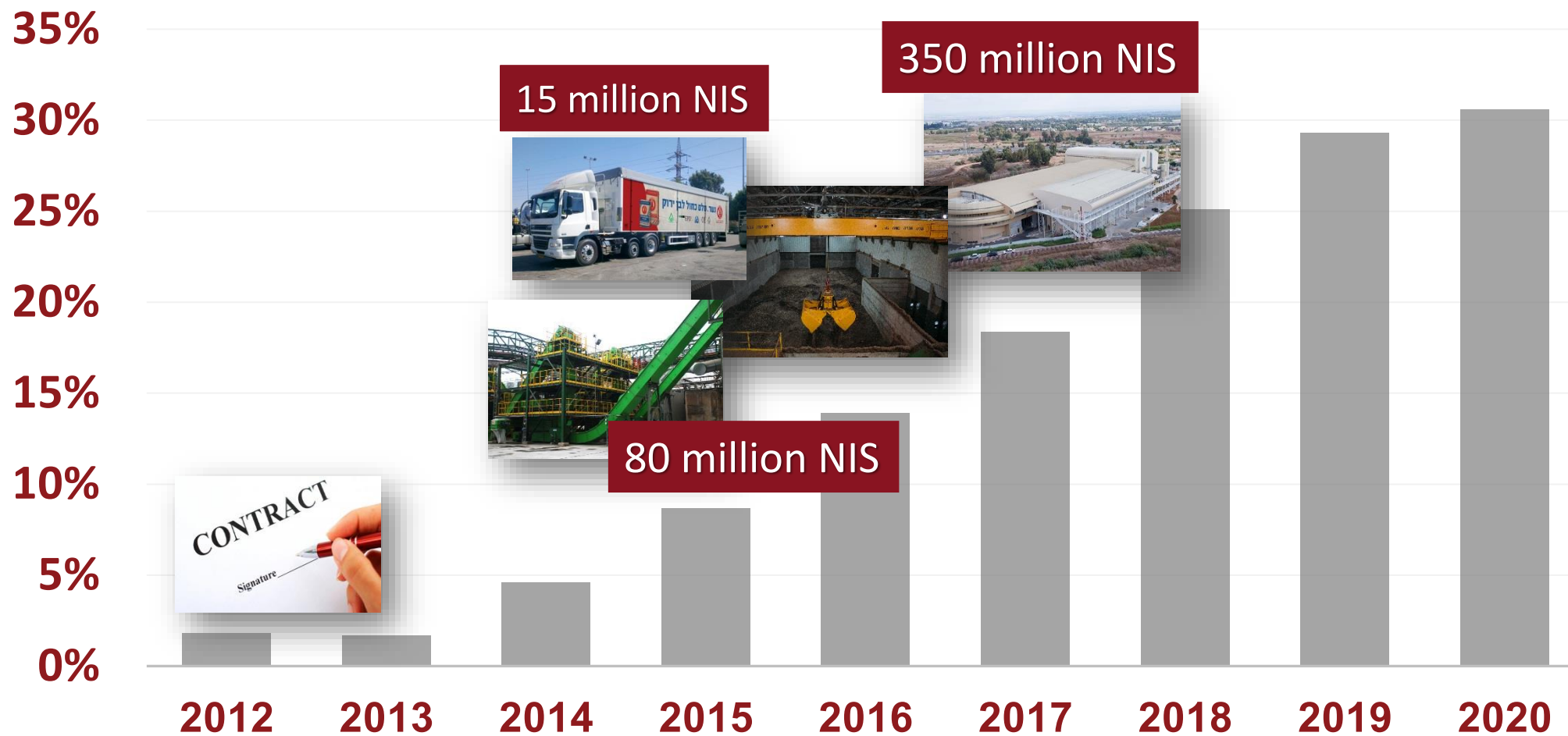




Alternative Fuels in the Cement Industry



Alternative Fuels at Nesher

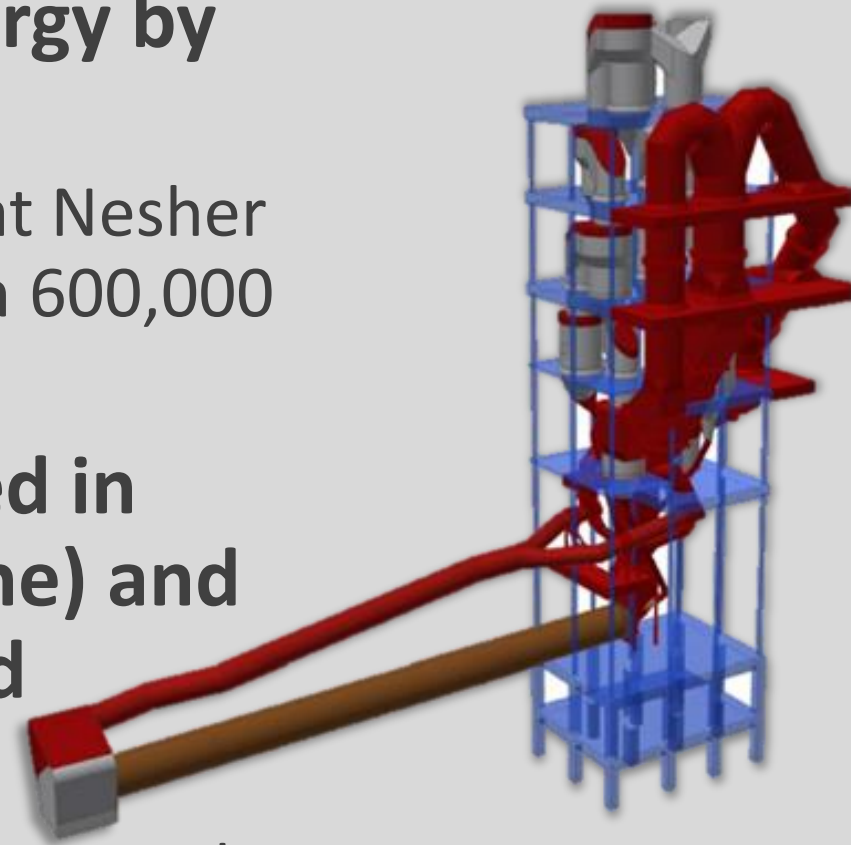


Increase in landfilling fee
 (~10 to ~100 NIS/ton)



The Future of Nesher's Alternative Fuels Program

- Nesher's goal is to expand the use of alternative fuels up to a level of 90% of the thermal energy by 2030
 - This would increase the amount of RDF treated at Nesher by 450,000 tons per year (to a total of more than 600,000 tons/year)
- To fulfill this goal, major upgrades are needed in both the calciners (primary combustion zone) and storage and feeding systems, at an estimated amount of 700-800 million NIS!
 - There is no financial basis for this upgrade at the current landfilling fee...



- **Financial – Subsidies / Increased landfilling fee**
 - Low local landfilling fee does not allow for investments in advanced waste treatment
- **Air Permit allowing increased waste substitution rates**
- **Adequate Time for implementation prior to carbon taxation**





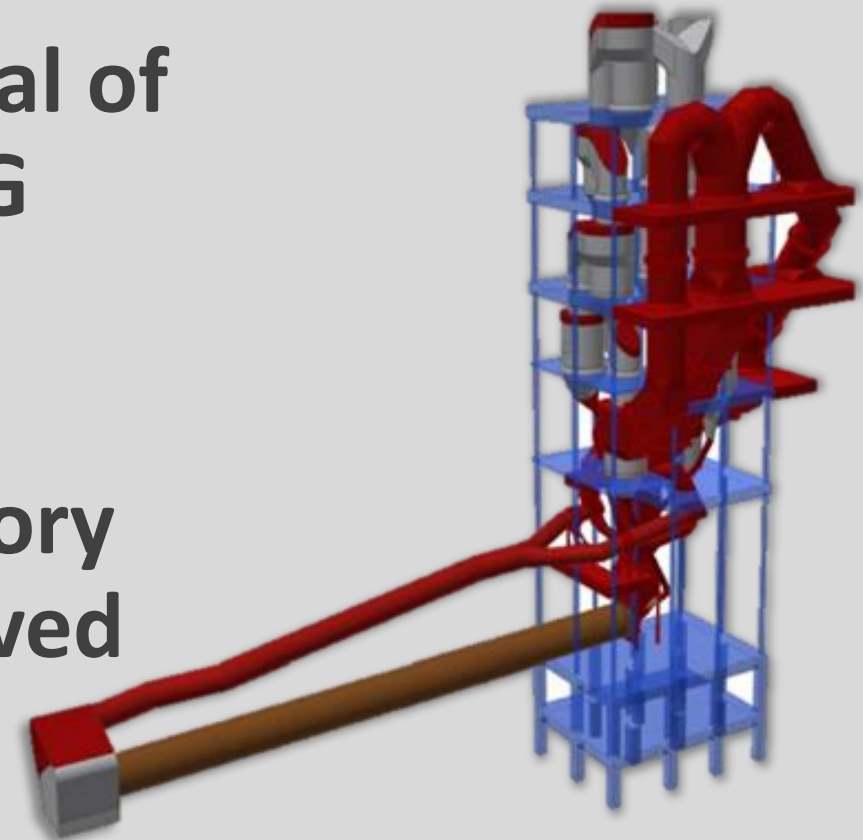
Carbon Taxation

- Carbon taxation can be an efficient means for reducing GHG emissions, **if alternatives are made available and supported by regulation**
- Resolving the regulatory and financial barriers that currently prevent the expansion of Nesher's alternative fuels program, and applying a local CBAM, are **necessary prerequisites to implementing a local fuel carbon tax**
- Otherwise, such taxation would lead to:
 - a full dependency on imported cement (at elevated prices)
 - the loss of local jobs and sources of income
 - **an increase in local waste landfilling**
 - **and an overall increase in carbon emissions (as those leak elsewhere) – counter to the purpose of the tax!**





- Nesher is a cornerstone for implementing circular economy in Israel
- Nesher's RDF program has the potential of major (~400,000 tons/year) direct GHG reductions, and even greater indirect reductions
- To fulfill this potential, several regulatory and financial barriers have to be resolved



Thanks for your
attention!

