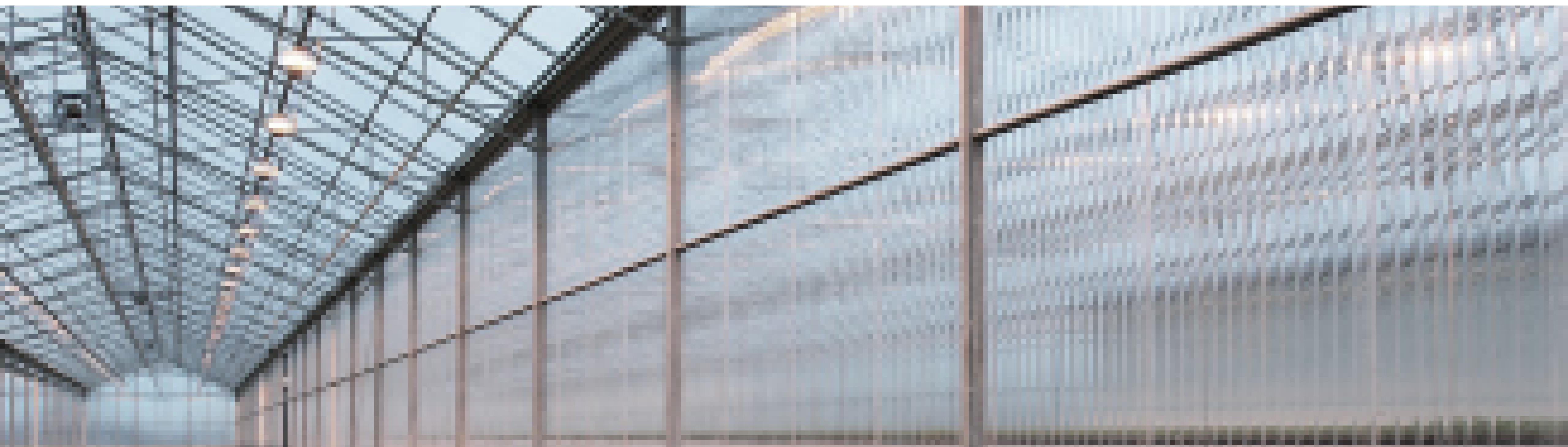


2022 Asian Students Venture Forum
South Korea Team 2

Twin-wall sheet greenhouse solution
COSECANT







99% of horticultural buildings in Korea¹
of products we eat come from¹

Problem

1/
short
replacement cycle

3 years

+55,000 tons
of non-recyclable / non-biodegradable plastic film¹

2/
vulnerability
to load

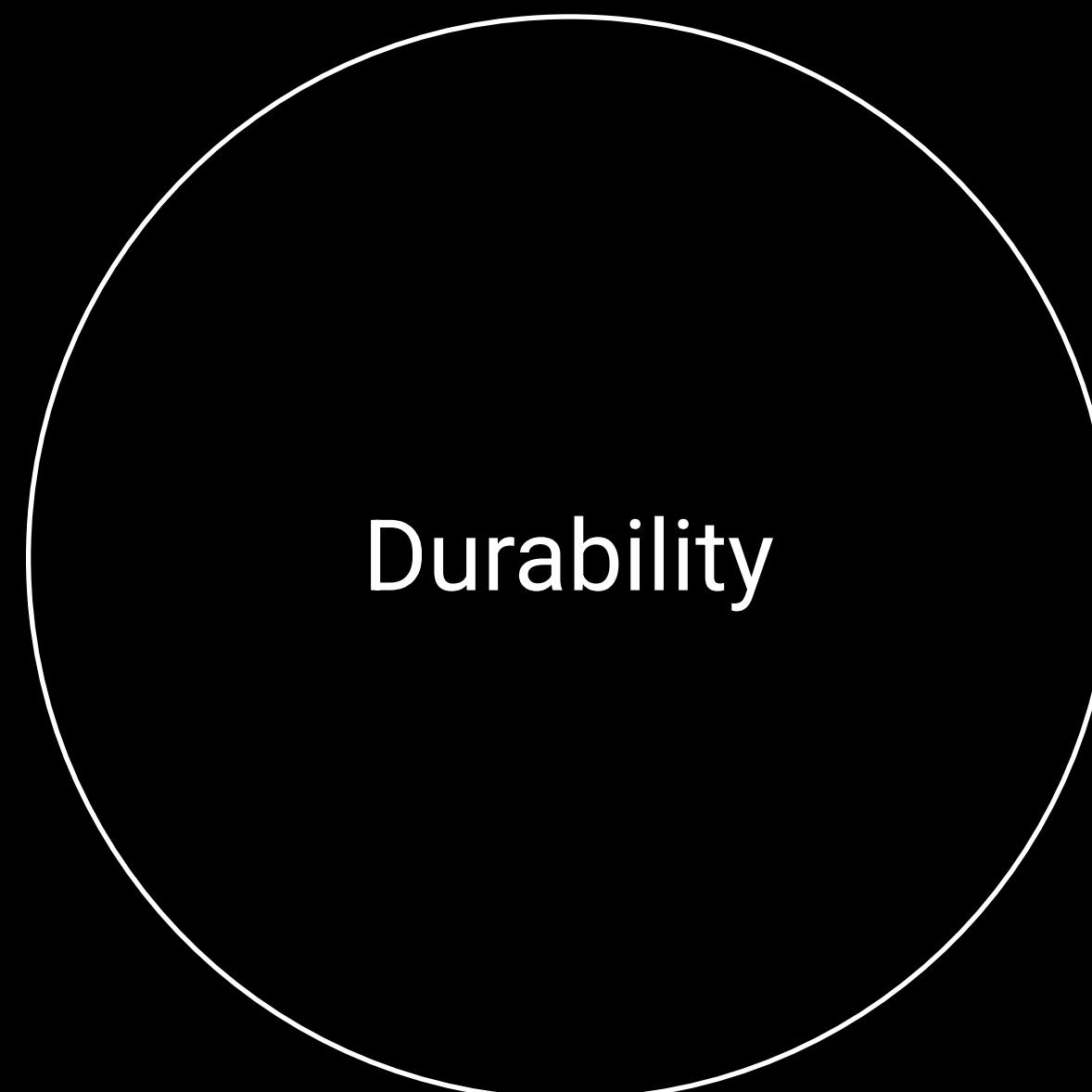
gale/heavy snow

-\$500M
domestic financial damage²

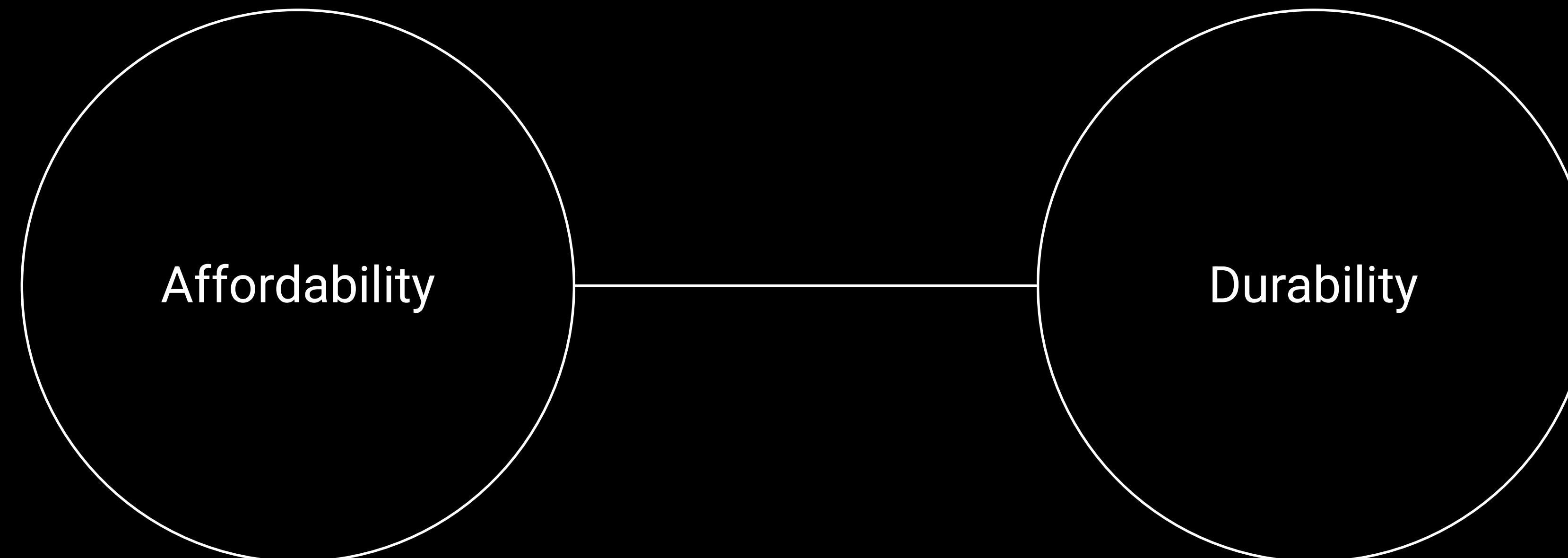
1. Korea Environment Corporation(K-eco), 20202.

2. Ministry of Agriculture, Food, and Rural Affairs, Republic of Korea, 2020

Problem

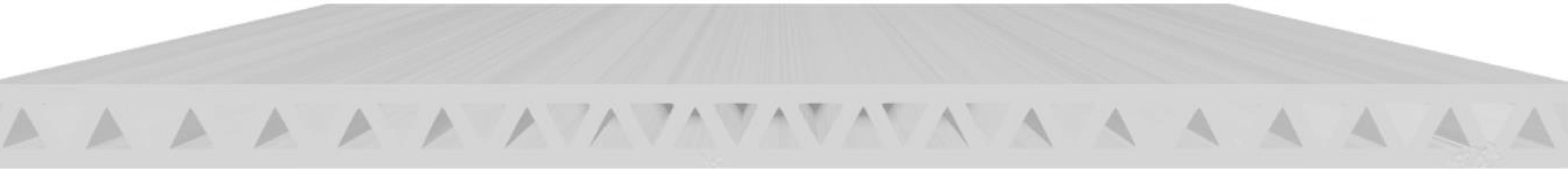


Problem



twin-wall sheet greenhouse solution

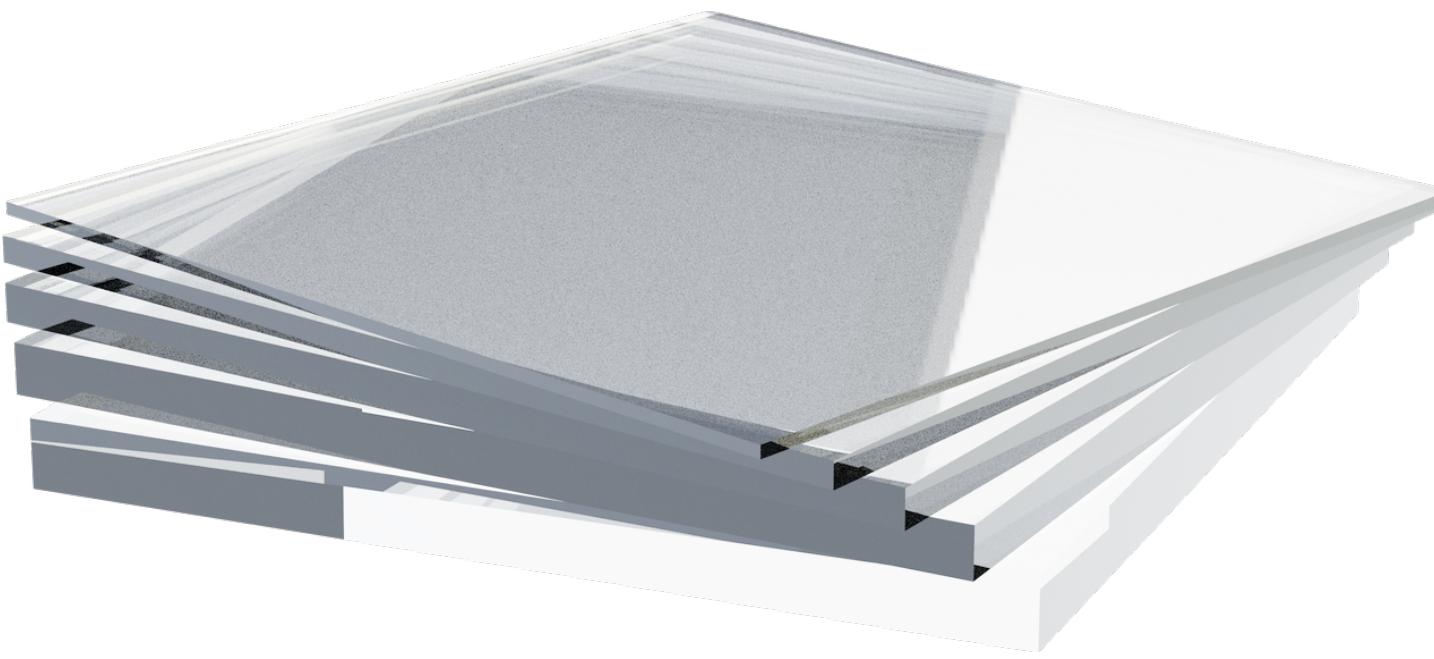
COSECANT



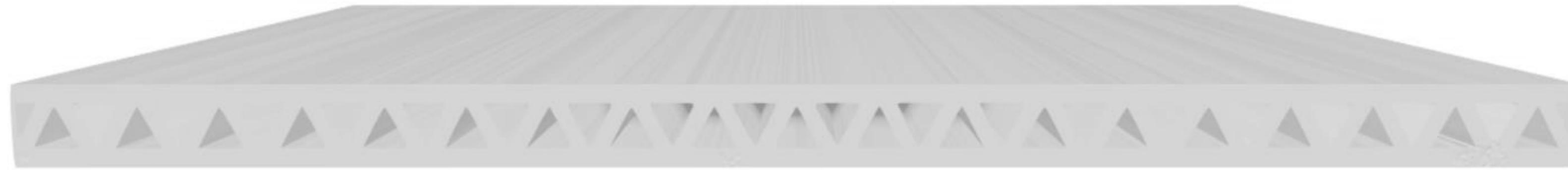
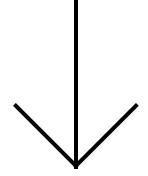
Solution

Eco Friendly

Solution



Cosecant Solution

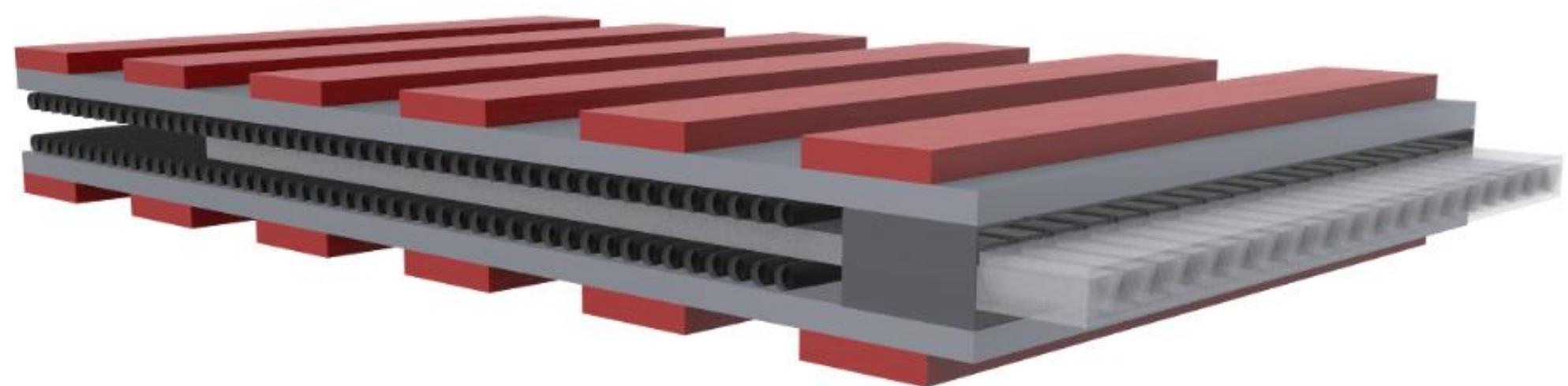


Solution

Cosecant Solution



-2kg of petroleum consumption
-8kg of carbon dioxide emission
per producing 1kg of panel



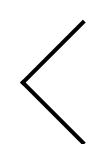
Solution



3 Years



15 Years



Solution

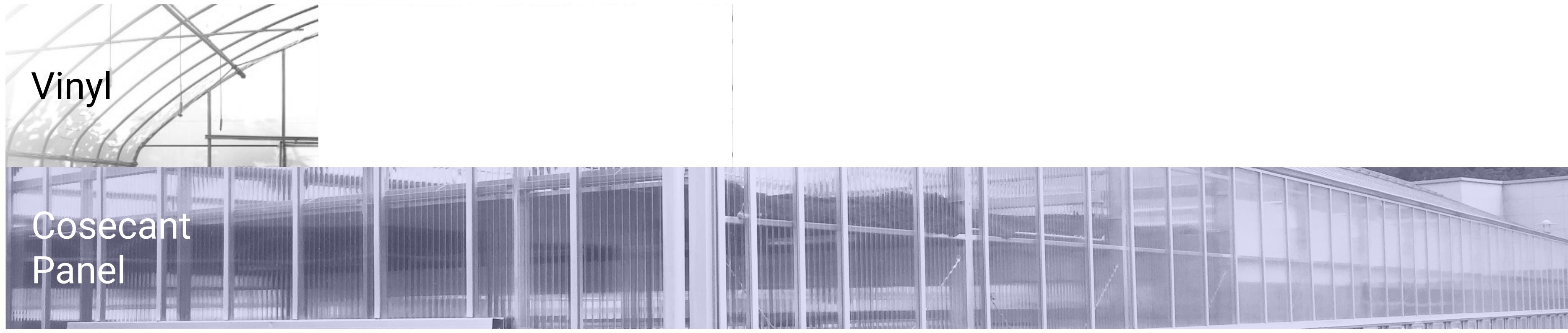
Economical

Solution



1. Installation and maintenance costs are estimated by considering the current costs of vinyl house materials, plastic twin-walled sheets, and depreciation.
2. Heating cost is calculated based on thermodynamic simulation(heat flux method).

Solution



Robustness factor¹

1. Estimated by results of Finite Elements Analysis(FEM) simulations

Solution



Sweetness¹

Quantity¹

↑
Income²
|

+21%

+13%

+30%

1. KY, Choi, et al., 2020

2. Estimated through perfectly competitive market model based on empirical data from JK Kwon, et al., 2017.

Business Model

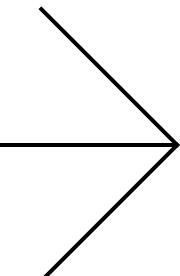
Mustering
Acrylic Debris



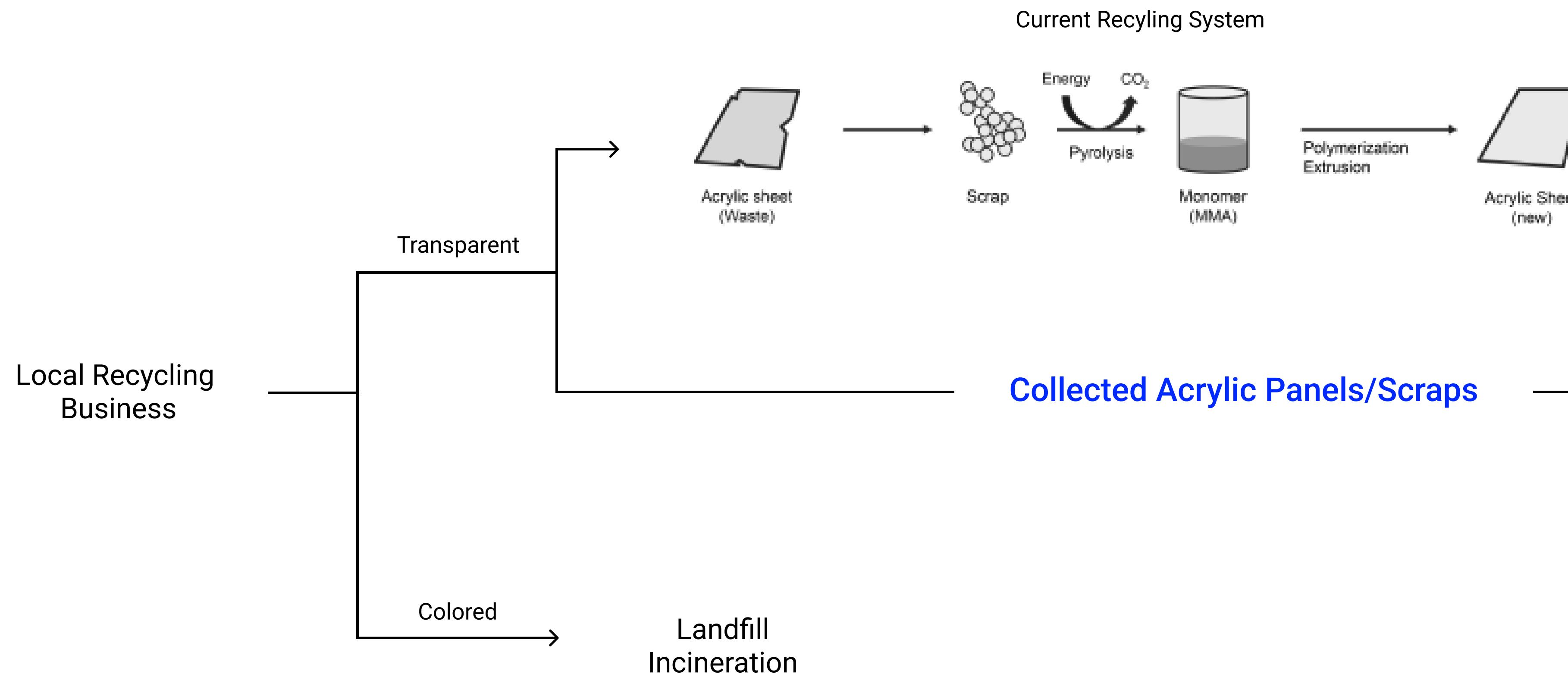
Churning out
the panel



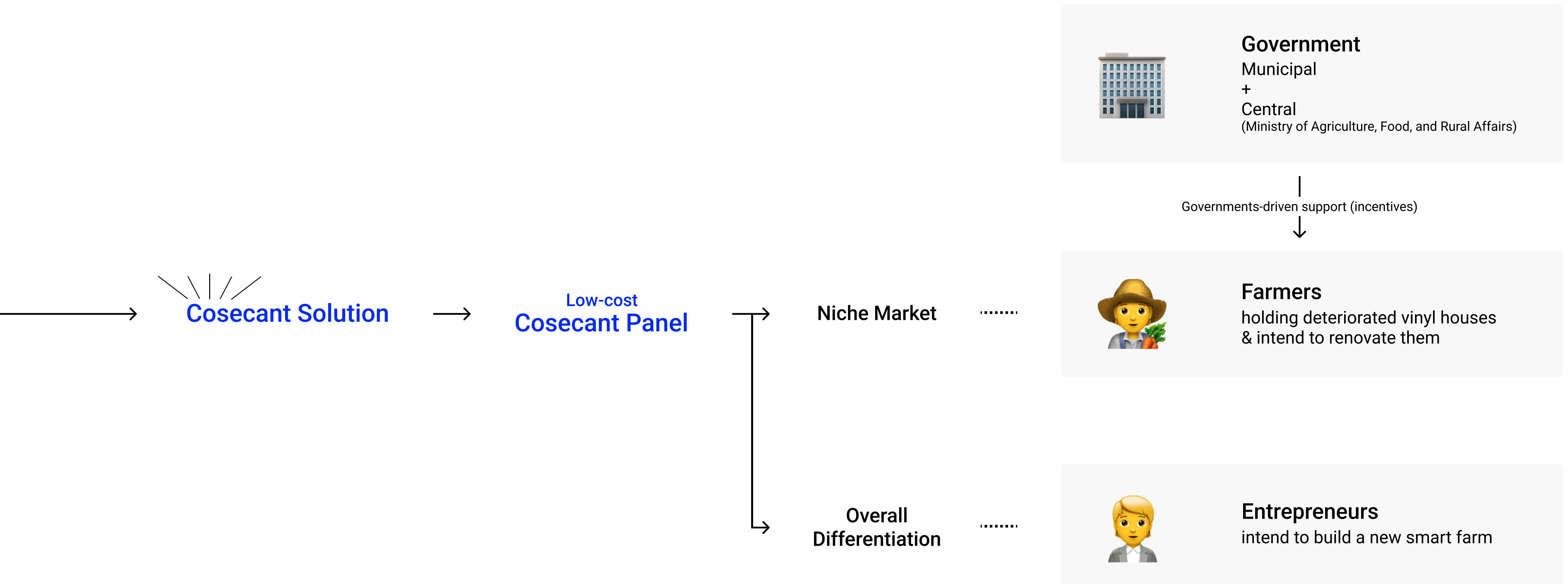
Targeting two chunks
of the consumer



Business Model



Business Model



Target

short-term target



farmers who intend to
renovate their deteriorated vinyl houses

long-term target



farmers who plan to
construct a new smart farm

Target



short-term target

farmers who intend to
renovate their deteriorated vinyl houses

unaffordable

low-cost driven dominance
→ Niche market

Target



long-term target

farmers who plan to
construct a new smart farm

reduce maintenance/heating cost

low-cost driven dominance
—————> Overall differentiation

Target

short-term target



farmers who intend to
renovate their deteriorated vinyl houses

long-term target



farmers who plan to
construct a new smart farm

Supply Channel

short-term solution



COVID-19 sneeze shield

long-term solution



Acrylic scrap pellet

Goal

Government-supported
renovation projects

B2P
business

2025

2030

\ \ | / /
110,000 vinyl houses
nationwide

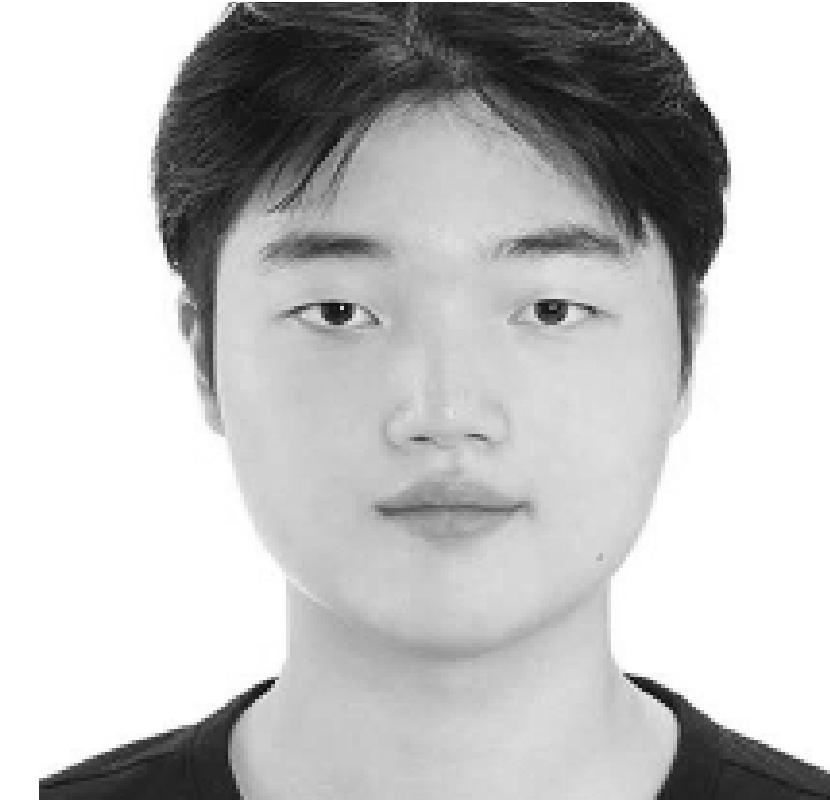
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Twin-wall sheet greenhouse solution
Thank you

