



Zero Energy Greenhouse

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9

billion people
by 2050



Global Food
Demand

85%

Increase

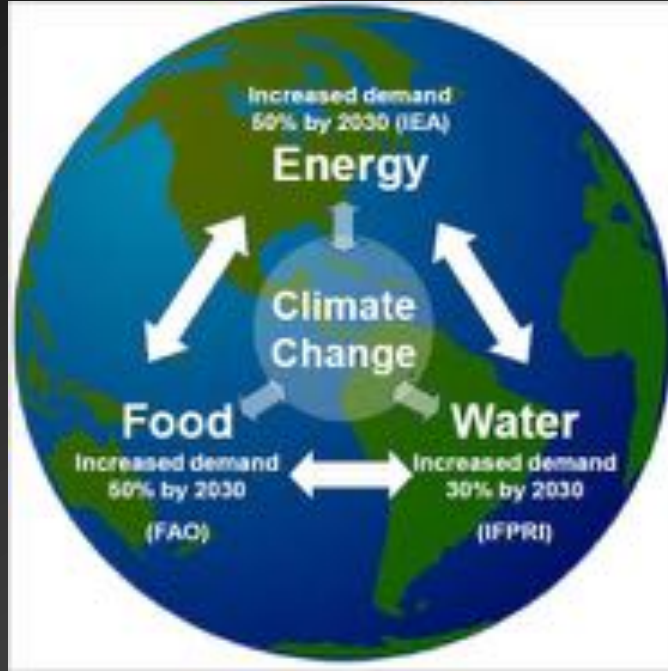


TODAY

2050

Entertainment

Food-Water-Energy Nexus





A Partial solution is
Greenhouses

10X
Crop Yield

90%
Less Water

10X
More
Energy

28%
of operating costs

cooling



heating



ventilation



lighting





Brite Solar Glass

A Paradigm Shift in Agriculture

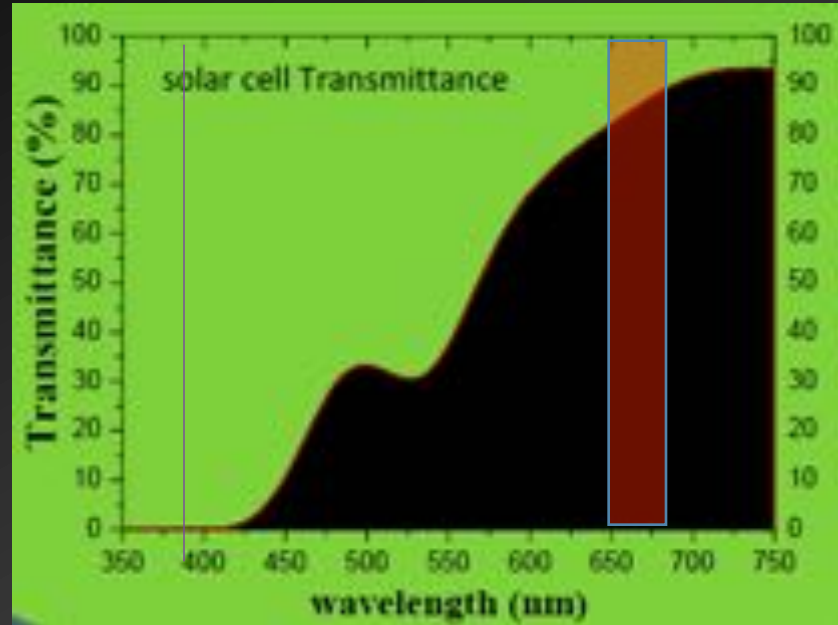
70%

Transparent
Solar Panels

Eliminate

Energy Bill of
Greenhouses





Spectrally Tuned Transmission

Thermal Conductivity constant (λ)- Independent of glass Thickness for Sample Windows (W/mK)	
Type of Glass	λ ' factor for the samples w/o any frame
Single Glass	1.07
Double Glass with 1.3 cm air space	0.62
Double glass, low e, (E*=0.2), with 1.3 cm air space	0.52
Double glass, low e, (E*=0.1), with 1.3 cm air space	0.49
"Brite" Solar Glass	0.16

*E is the emittance of the low e coated surface.

Excellent Thermal Insulation



Our Pilot Greenhouse In Greece



**AGRICULTURE RESEARCH CENTER ELGO
DIMITRA: Institute for Genetic
Improvement & Genetic Resources and
Institute of Rural Economy**

BriteGreenhouse

BODY ELGO DIMITRA: Institute for Genetic Improvement &
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Comparable
Yield

Comparable
Weight

Better
Nutrients

Economic Model

- Brite Solar Glass Cost – 50 Euro/sq met
- Cost is Offset in two ways
 - Electricity Generation
 - Energy Savings(heat, cooling)
 - Tax Credits



Total Cost of Ownership Model

Customer Specific Data							
Country	City	Plant	Greenhouse Covering Material	Fuel Type	Benchmarked To	Crop Area	Assumption
USA	Houston	Cucumber	Brite Solar Product	Natural Gas	6mm Double Wall Polycarbonate	Length	50
						Width	20
						Height	4
						Greenhouse Ground Area in m²	1,000
						Lower Part Area	Assumption
						Greenhouse Cover Area in m²	560
						Upper Part Area	Assumption
						Diagonals	10
						Angle in Degrees	16
						Height	3
						Greenhouse Cover Area in m²	1,060

Economic Model

- Eindhoven, NL
- Hydroponic Tomatoes
- 1 Acre
- Natural Gas Heating

Economic Model

- Brite Glass – 204K Euro
- Yearly Contribution
 - 25K Euro Electricity Sales
 - 35K Euro Gas Savings
- 4 year Payback
- Tax Credits on 204K Euro

Infinite Energy

Imagine the Possibilities

- Artificial Illumination
- Better Climate Control
- Waste Water Reclamation
- Salt Water Desalinization



Solar Technologies

A Complete Solution for
Future Agriculture