



**energie
sprong
fr**

**Scaling up a
Net Zero retrofit
market in EU**



**Perspectives from the
Global Energiesprong
Alliance**

Rebuild Italia

> IPCC tell us: the worst is not a certainty, pending we invest 3 to 6 times more, time is switching from testing to copying

The hope

- Mainstreaming effective and equitable climate action now will reduce losses and damages for nature and people.
- Climate action provides co-benefits.
- Multiple, feasible and effective options are available to reduce GHG emissions and adapt to human-caused climate change.

The path forward is clear

| | | |
|--|--|---|
| Tried and tested polices available now | Need to be designed for diverse contexts | Need to be scaled up and applied widely |
|--|--|---|

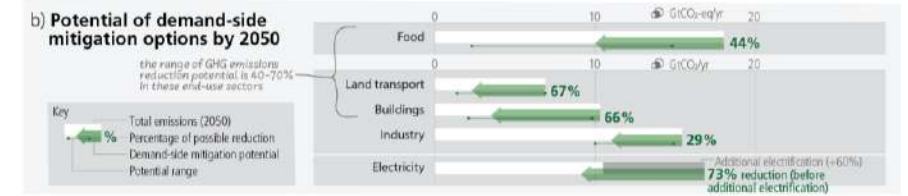
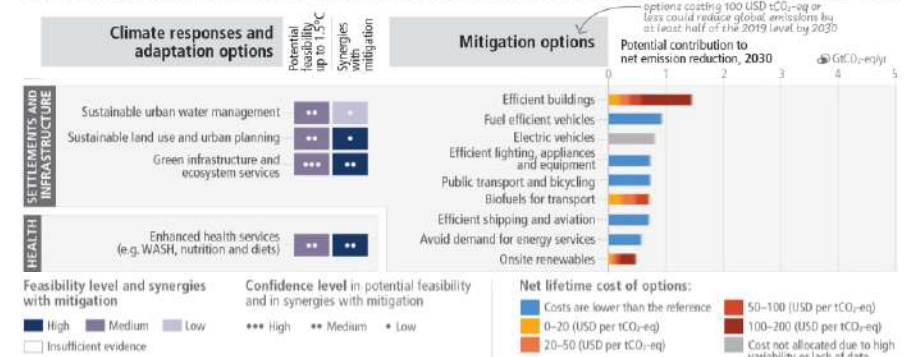
Increased financing for climate action

- 3-6 times the current climate investment is required
- But there is enough global financing to rapidly reduce emissions
- Developing countries require external funding to meet adaptation needs
- Options are available to scale up financing

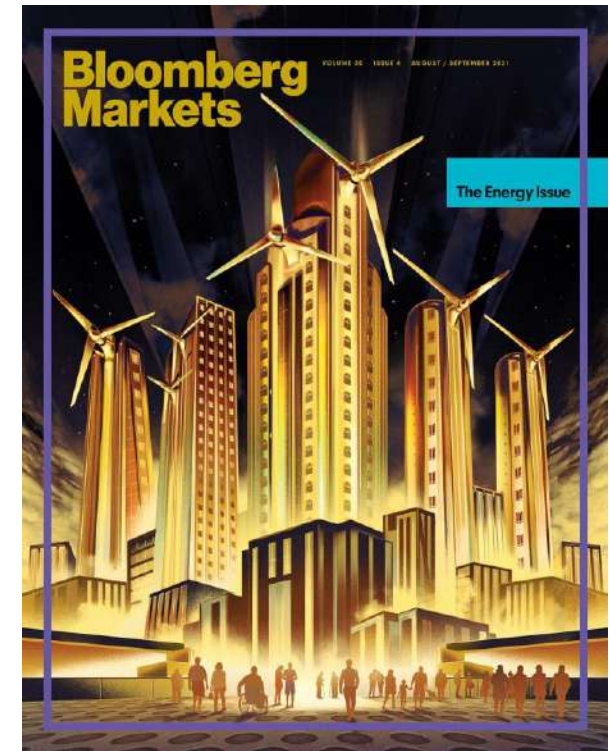
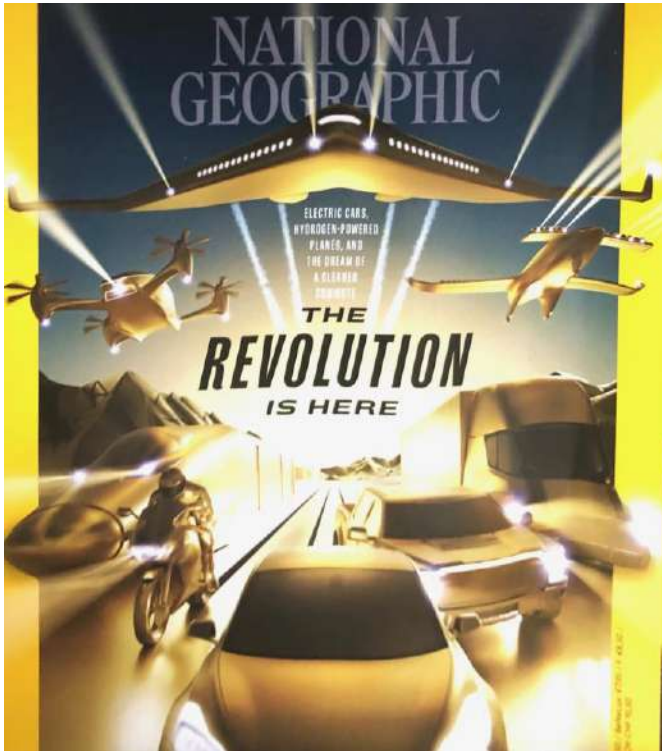


There are multiple opportunities for scaling up climate action

a) Feasibility of climate responses and adaptation, and potential of mitigation options in the near-term



> Energy retrofit of buildings is the most underinvested key leverage of the energy transition: hype is not here, yet



Where is the cover on building energy efficiency, which is 40% of the problem ?

> Deep energy retrofit being expensive is a fact: not a fatality. Let's work on making cheaper deep energy retrofit a reality



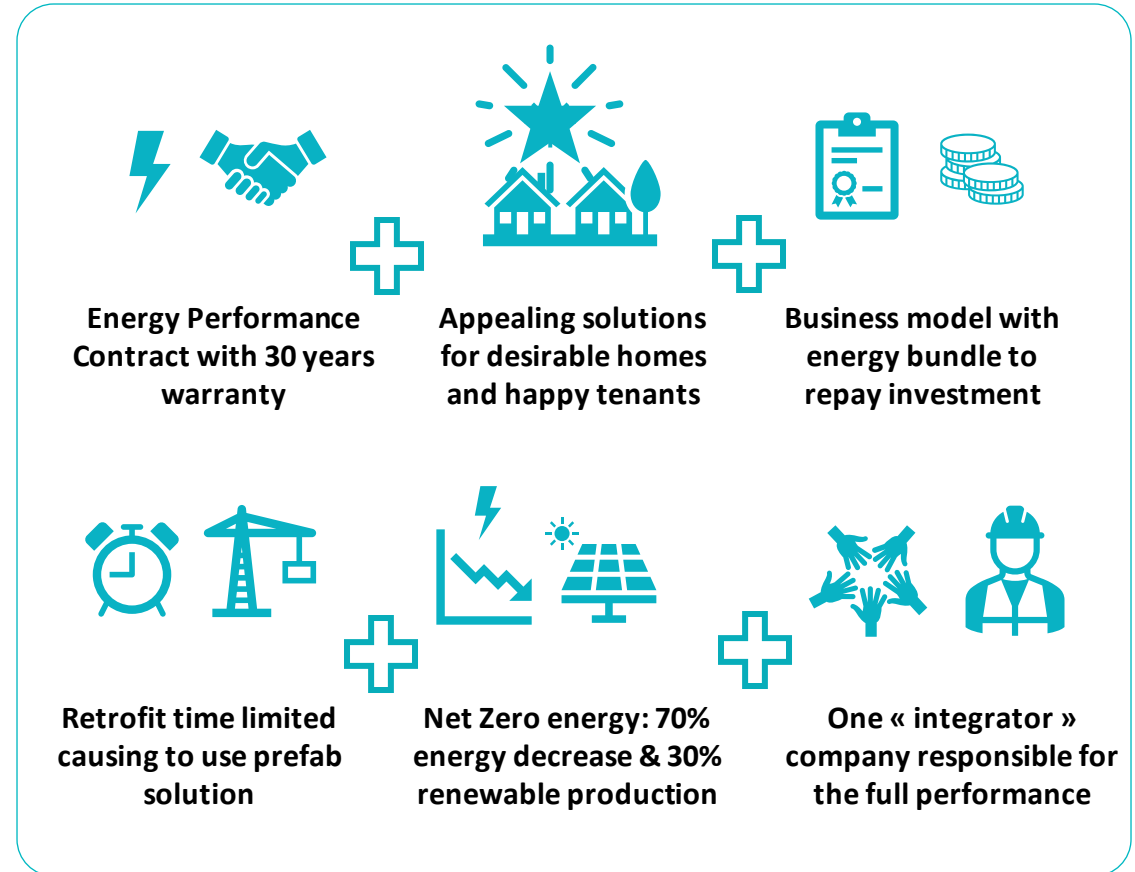
Stop thinking we should choose between « a few deep energy retrofits » or « many light energy retrofits ». Many affordable deep energy retrofits is the way to go

> Dare to have simple & radical solutions on the right market to activate a demand: toward Net Zero Energy Retrofit

Ambitious and clear (zero pesticide) : a success even is more expensive

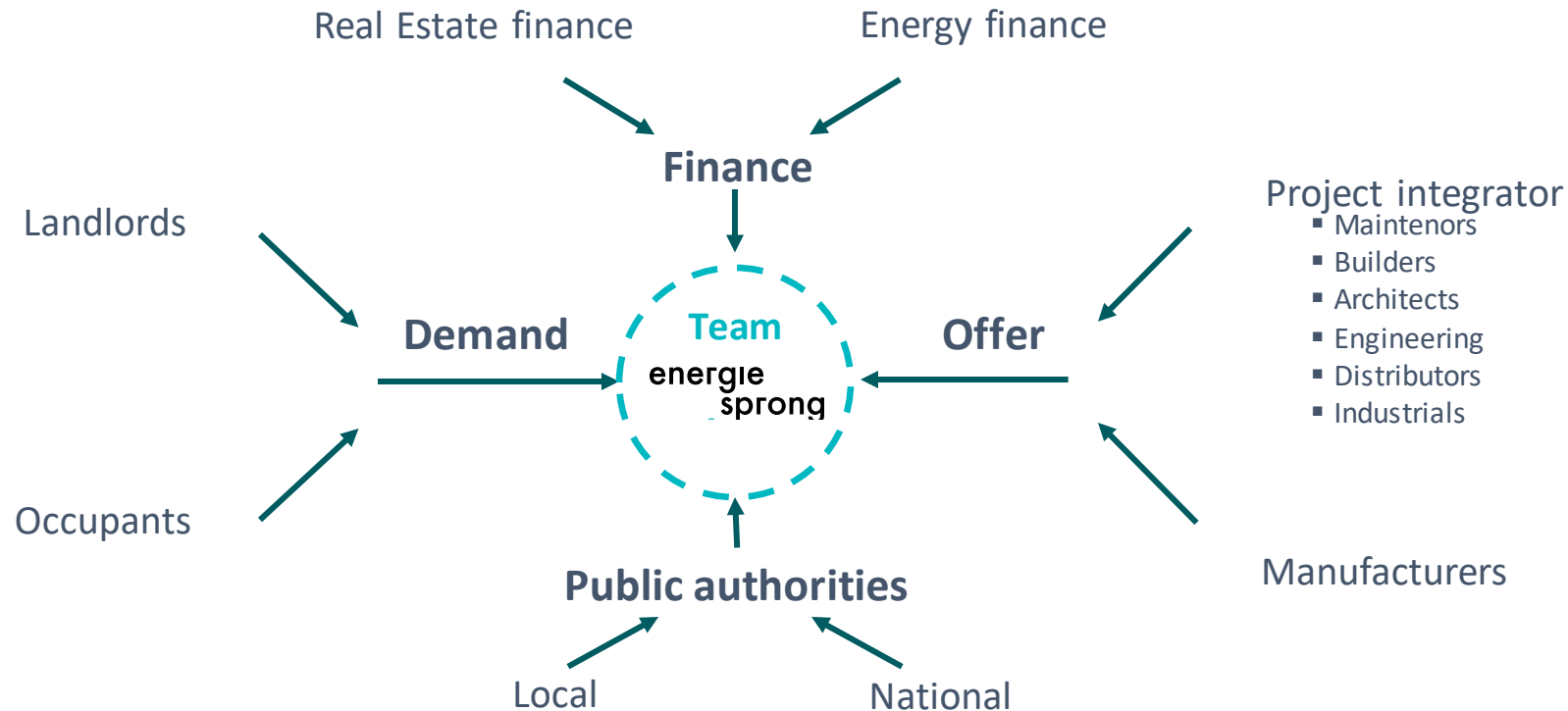


Less ambitious and less clear : did not work well even if less expensive



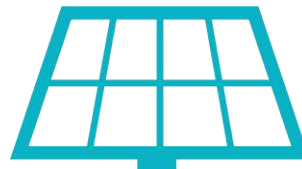
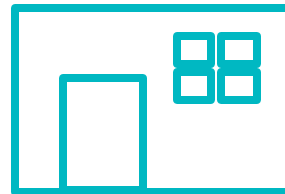
Going NZEB in 1 step will not be the only way but should be “locomotive market” driving further innovation

> **Aligning stakeholder interests to make a net zero market emerge, in line with national context is what the Energiesprong movement is acting on**



Such an approach of publicly funded « intermediation of general interest » by a market development team is an efficient & innovative public policy being deployed from country to country

> More integrated solutions, going off-site to get more efficient are being developed for façade, roofs & energy systems



Switching from 15 to 3 integrated suppliers for providers delivering performance to end user / building owners

> The idea works in different EU countries, with many various suppliers and many housing organizations involved

Nearly 10 000 housing retrofitted



NL: > 7.000 homes



FR: > 2.000 homes



UK: > 200 homes

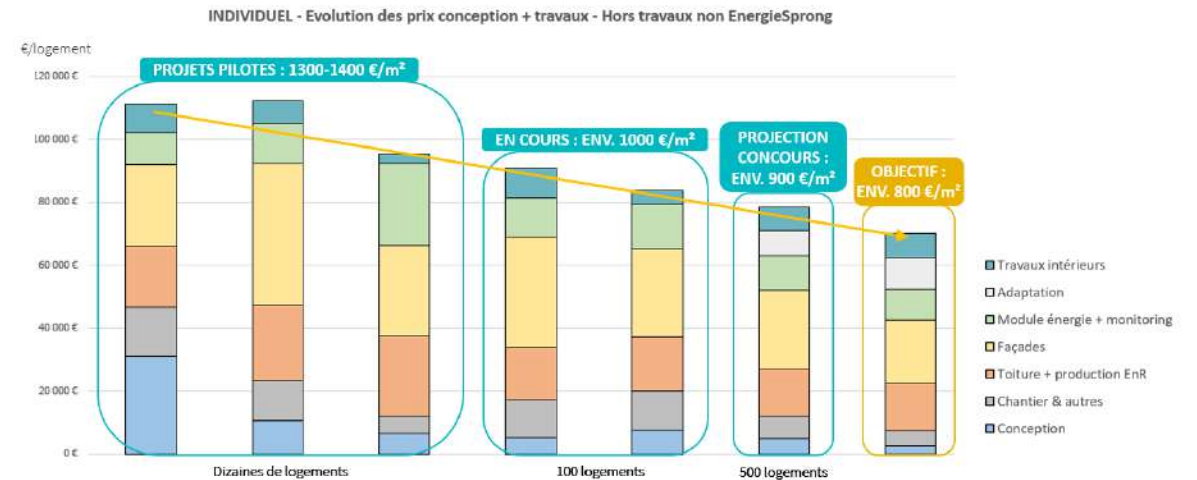


DE: > 100 homes



IT: > 5 homes

Price curve going down but still expensive



We need more volume, more volume & more volume to carry on development in a stable & supportive environment. Rome was not built in a day

> It is not just about random volumes, typology matters. It is time to build catalog and to deal with higher investment acceptance



Maison individuelle

3 typologies de maisons construites entre 1945 et 2000, représentant 60% des consommations énergétiques finales tous usages des maisons individuelles



| | Maison isolée sur la parcelle | Maison en bande | Maison semi-isolée |
|--|-------------------------------|----------------------------|------------------------|
| Nombre et % sur le parc social construit entre 1945 et 2000 | ≈ 75 000 soit 17% | ≈ 100 000 soit 22% | ≈ 275 000 soit 61% |
| Nombre et % sur le parc résidentiel construit entre 1945 et 2000 | ≈ 7.5 M soit 75% | ≈ 650 000 soit 6% | ≈ 1.9 M soit 19% |
| Élévation | RDC ou R+1 | R+1 généralement | RDC ou R+1 |
| Toiture | Inclinée, double pente | Peu inclinée, double pente | Inclinée, double pente |



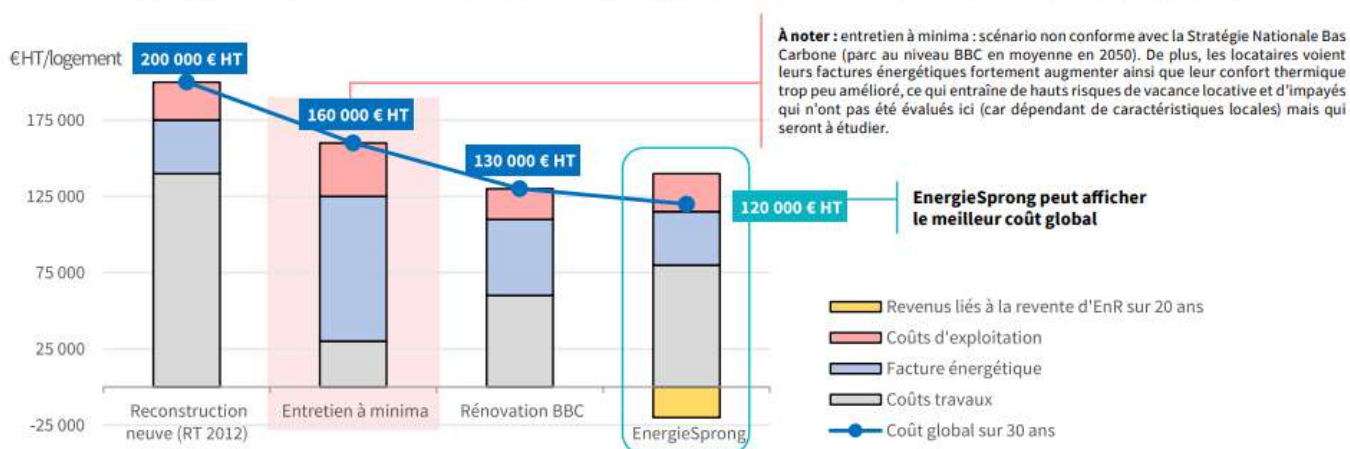
Logement collectif

3 typologies de bâtiments construits entre 1945 et 2000, représentant 75% des consommations énergétiques finales tous usages des logements collectifs



| | Petit collectif isolé sur la parcelle | Petit collectif en bande | Grand collectif |
|--|---------------------------------------|--------------------------|------------------|
| Nombre et % sur le parc social construit entre 1945 et 2000 | ≈ 200 000 soit 7% | ≈ 150 000 soit 5% | ≈ 2.5 M soit 88% |
| Nombre et % sur le parc résidentiel construit entre 1945 et 2000 | ≈ 800 000 soit 14% | ≈ 600 000 soit 10% | ≈ 4.4 M soit 75% |
| Élévation | < R+4 | < R+4 | > R+4 |
| Toiture | Toiture terrasse | Toiture terrasse | Toiture terrasse |

Coût global sur 30 ans en individuel – pour la typologie de référence – hors travaux hors EnergieSprong



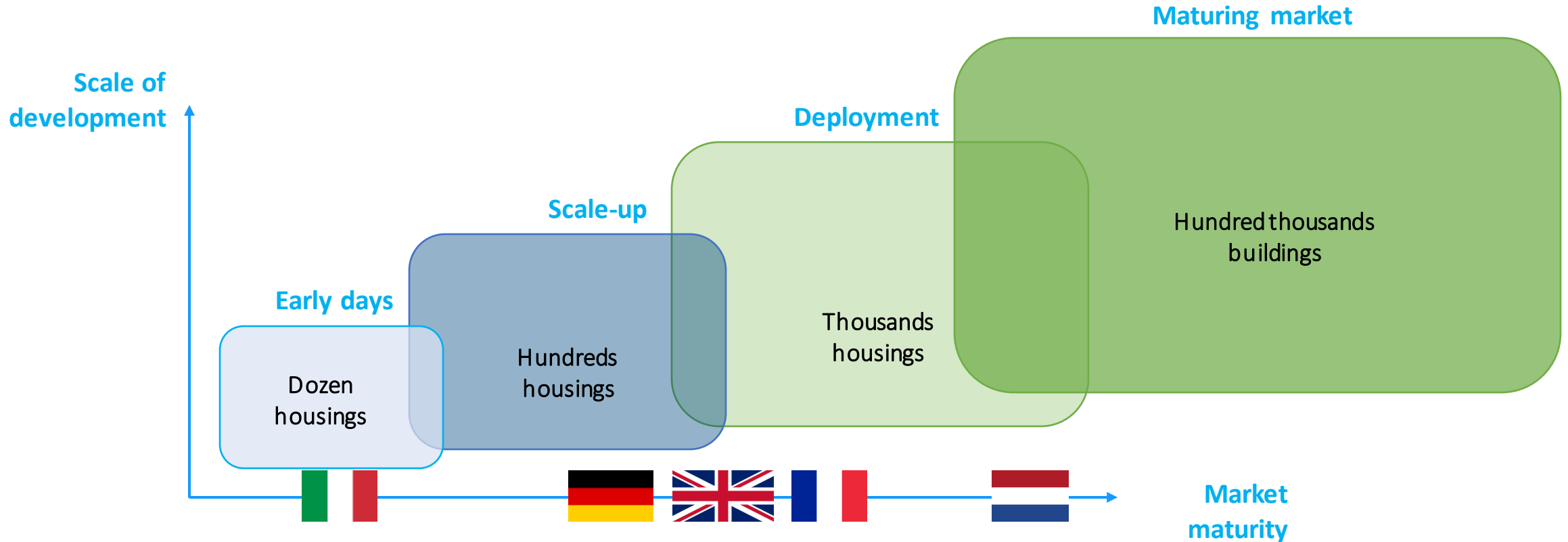
¹⁾ Ce prix n'est pas le prix minimal sur le long terme : il peut être amené à évoluer encore à la baisse au-delà des deux années à venir.

²⁾ Prix conception + réalisation, excluant les travaux hors EnergieSprong

3

CFO have to rethink their analysis in a post carbon world to be able to afford more than a few prototypes. Organizing & financing the replication is the challenge now

> Different market maturity in different EU countries, the challenge is to accelerate strongly these development



Challenges are different at different market development stages, but this is EU beauty, some are paving the way for us to smartly copy / paste

> It is crucial now to jump from “projects” to “products” adapted to specific archetypes to really get “serial” & open Gigafactories

GESCHIKT VOOR WONINGTPOLOGIE

1. EGW jaren '50 gemetselde gevels
2. EGW jaren '60 stapelbouwmethode
3. EGW jaren '60 plat dak
4. EGW jaren '70 gevellementen voor- achtergevel
5. EGW jaren '80 baksteengevel
6. Galerij jaren '60 laag ≤ 4 bouwlagen
7. Galerij jaren '60 / '70 doorlopende balkons
8. Galerij jaren '70 inspringend balkon
9. Portiek jaren '50 gesloten baksteen
10. Portiek jaren '60 / '70 portiek plat dak
11. Portiek jaren '80 portiek plat dak



- With different teams of builders / industrials developing integrated solutions for specific archetype they would specialize into and where they would not reinvent engineering and deliver high volumes
- Developing “products” is the most important thing to drive cost down and delivery large series. Just going “off site” for “one shot” projects will not solve the issue

Grondgebonden woning Jaren '60 (plat dak)



Dit format gebruiken we voor de eerste validatie. Aan dit overzicht kunnen geen rechten worden ontleend, het overzicht is bedoeld als illustratie voor de offerte.

| | ICMELS | ICMELS | ICMELS | Klimaatpak | Klimaatpak | woon duurzaam | woon duurzaam | triple solar | Develop inc | renovation | | |
|---|----------|----------|----------|------------|------------|---------------|---------------|--------------|-------------|------------|----------|----------|
| Investeringkosten | € 48.500 | € 48.000 | € 67.500 | € 30.808 | € 37.878 | Zwerm Concept | NOM | € 35.000 | € 25.000 | € 47.700 | € 20.881 | € 80.000 |
| Investeringkosten zijn inclusief arbeid | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| GESCHIKT VOOR TEMPERATUURREGIME | | | | | | | | | | | | |
| Hoge temperatuur (>75°C) | ● | | | ● | ● | | | | | | | |
| Midden temperatuur (55-75°C) | ● | | | ● | ● | | | | | | | |
| Lage temperatuur (<55°C) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| SCORE DOOR EXTERNE ADVISEUR | | | | | | | | | | | | |
| Beperken warmtebehoefte | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Beperken CO ₂ -reductie | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Gereed voor CO ₂ -neutraal | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Comfort | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Investering € 0 tot € 100.000 | — | — | — | — | — | — | — | — | — | — | — | — |
| Energiekosten per maand € 0 tot € 200 | — | — | — | — | — | — | — | — | — | — | — | — |

Galerijflat - Jaren '60/'70



| | ERAFLATS | CORPORATE WERKTE | heijmans b'woond | triple solar | renovation | ES | isowall |
|---|----------|------------------|------------------|--------------|------------|----------|---------|
| Investeringkosten | € 44.800 | € 3.000 | € 46.000 | € 25.000 | € 60.000 | € 17.500 | € 6.925 |
| Investeringkosten zijn inclusief arbeid | ● | ● | ● | ● | ● | ● | ● |
| GESCHIKT VOOR TEMPERATUURREGIME | | | | | | | |
| Hoge temperatuur (>75°C) | ● | ● | ● | | | ● | ● |
| Midden temperatuur (55-75°C) | ● | ● | | | | ● | ● |
| Lage temperatuur (<55°C) | | ● | | ● | ● | ● | ● |
| SCORE DOOR EXTERNE ADVISEUR | | | | | | | |
| Beperken warmtebehoefte | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Beperken CO ₂ -reductie | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Gereed voor CO ₂ -neutraal | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Comfort | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ | ★★★ |
| Investering € 0 tot € 100.000 | — | — | — | — | — | — | — |
| Energiekosten per maand € 0 tot € 200 | — | — | — | — | — | — | — |

> Future is thinking regional catalog for dozen of thousands E=0 prefab retrofit to deliver in every region

Renovation propositions Future Factory

50,000 households in 5 years
out of energy poverty with
an industrial approach

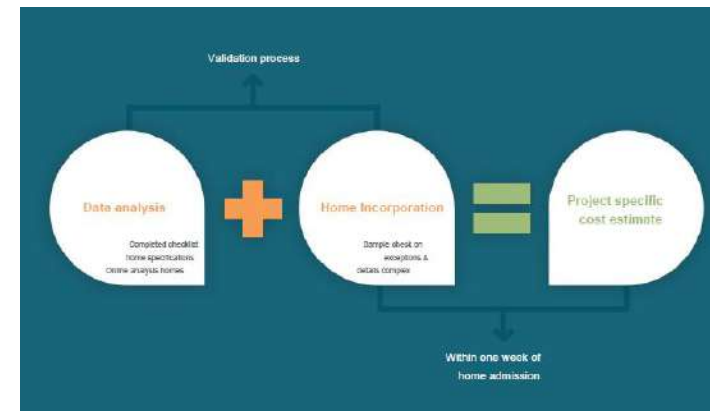
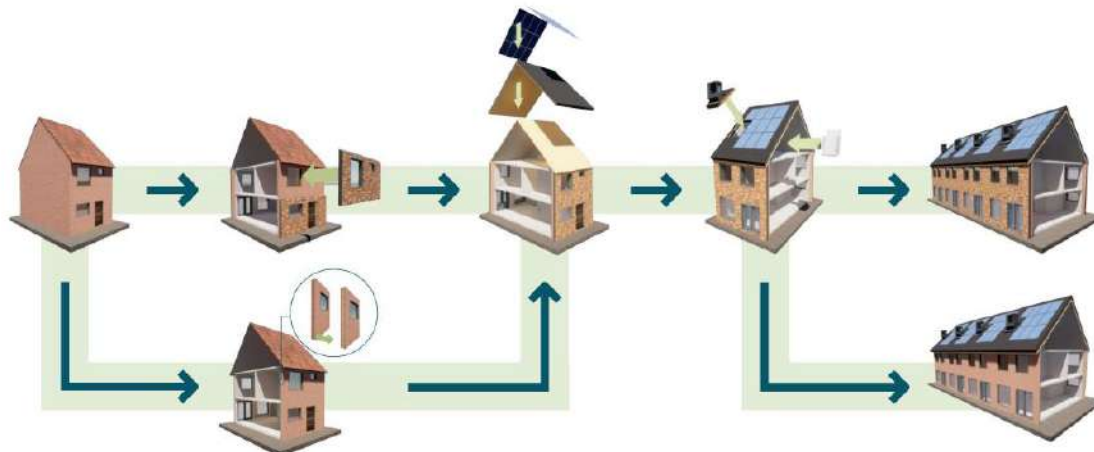


FUTUREFACTORY
VERBUURZAMEN OP GROTE SCHALE

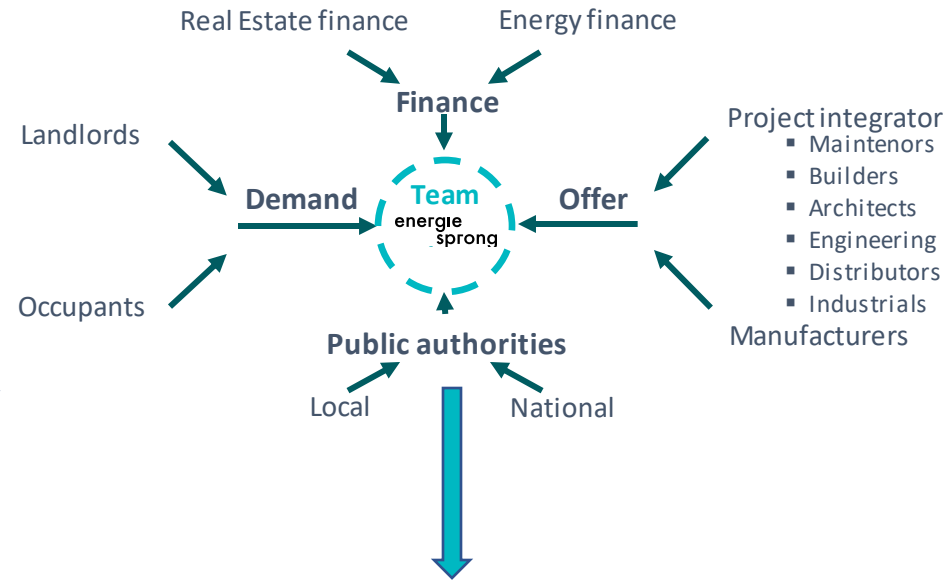


| Future Factory proposition | |
|------------------------------------|--|
| Summary | |
| Net heat demand (after insulation) | 50 - 70 kWh/m ² |
| Energy bill reduction | €€ |
| Default & Target Values | Does not meet standard |
| Natural gas free | natural gas free |
| EPV possible | EPV 2.0 |
| Exploitation term | 30-45 years |
| General | |
| Roof | Project and realization costs: €10,000 |
| Facade | Roof element (R ₀ > 6.0): €10,000 |
| Floor | Insulating cavity wall (R ₀ ≈ 1.8) for rear facade: New windows (triple glass) and (slide-in) frames: €0000 - €15,000 |
| Installation and monitoring | Floor insulation (R ₀ = 3.5) in crawl space: €1,000 |
| | PV panels and central energy module (HRV, buffer tank, inverter, heat pump (kW and monitoring/ display integrated): €25,000 |
| Total incl. VAT | €70,000 €81,100 |
| | Single glass replacement: Including frames |

INSIDE



> EU & national Policies are needed to support that market scale up: toward demand, offer & market development



Action 1: support to a linear growing demand

Action 2: simplify the support to market intermediation

Action 3: support to EU industrial champion

- [Low borrowing rate](#) for buildings owners
- [Temporal decreasing subsidies](#)
- [Mandatory NZEB % retrofit](#) in energy retrofit target to activate a growing demand

- Create [stable ways to finance Market Development Team](#) over 5-10 years

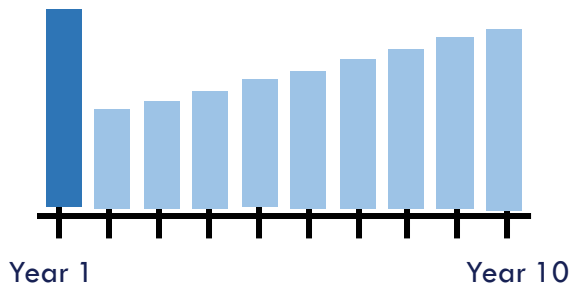
- [Strong subsidy support EU industrial champion for NZEB off site retrofit beyond State Aide rules to set gigafactories & improved products](#)

> But this is not just about public policies but about market players changing pace in ambition and business model

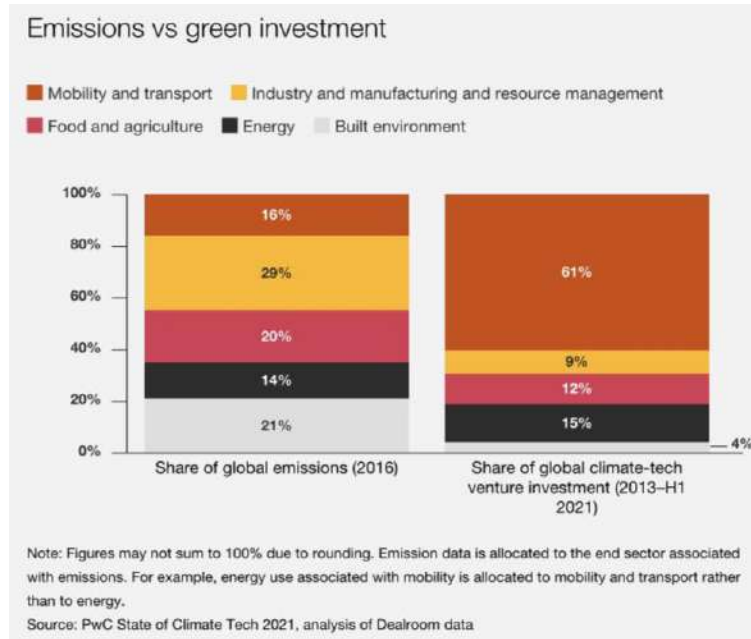
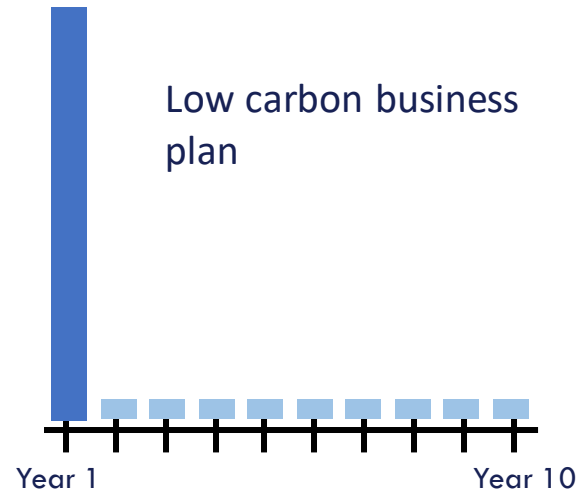
Building owner to rethink their business model when investing 3 times more is needed

Solution providers to fund and find investor for such scale up switch

Fossil fuel business plan



Low carbon business plan



> Jumping from 10 000's to million's is our current challenge and it will need business model shift & new frontiers to overcome

France in 1904 for cars



EU in 2023 for E=0 retrofits

10 000 homes



Producing better & cheaper solutions (with lower carbon footprint), financing capacities both in demand & offer side, training enough workforce

> Join the movement and help us go one step further



We want to make waves and support the Green renovation wave

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