

# Heat pumps in Europe as easy as 1-2-3

- |              |                  |                            |
|--------------|------------------|----------------------------|
| 1. Heating   | 1. In cold       | 1. Residential             |
| 2. Cooling   | 2. average       | 2. Commercial              |
| 3. Hot water | 3. warm climates | 3. Industrial applications |

## 2017

1. 1.1 mill. units sold (+13%)
2. Stock: 10.6 mill units
3. HP share 8% of all boilers

gasHP?  
HybridHP?



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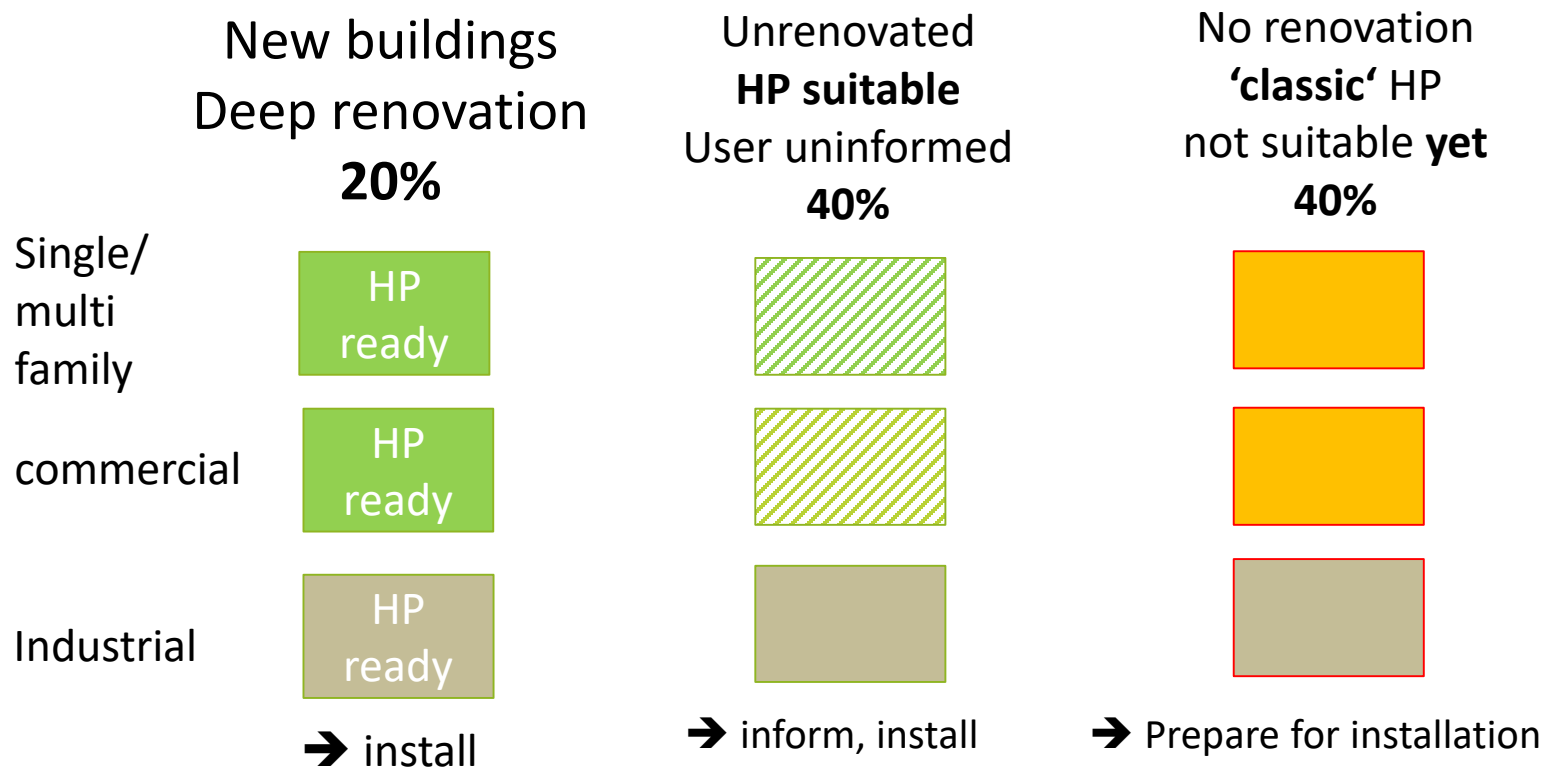


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# Heat-pump readiness per market segment



# Under development

- Large/industrial heat pumps: 160°C – 200°C, 3 – 15 MW
- Standard solutions for the renovation sector
- Basic efficiency (3,5 – 4) low cost
- Sound emission updates: Design / Control
- Heat pumps for smart buildings/Smart grids

# A decarbonised building stock – a question of faith?

“religion” of green molecules      “religion” of renewable electrons

“We can’t electrify everything. It will be too costly and the gas infrastructure is there anyway. So we need to green the gas energy carrier”

- High upstream investment
- End-user tech often identical
- Low hanging fruit: boiler replacement



“Gasification cannot be sustainable and electrification will happen anyhow. So we need to quickly switch to already existing RES-E systems”

- High downstream investment
- Need to educate end-user
- Low hanging fruit: deploy HP where possible

**United in the faith of a decarbonised building stock?**  
**Common “Saints”: Efficiency? Smartness?**  
**--> New “Heating and cooling package”**

# Future cities (including their industrial areas) can be heat pump cities



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