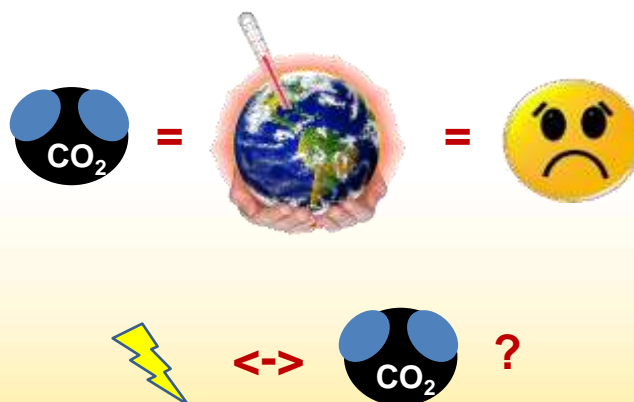


## Ist Strom (noch) böse?

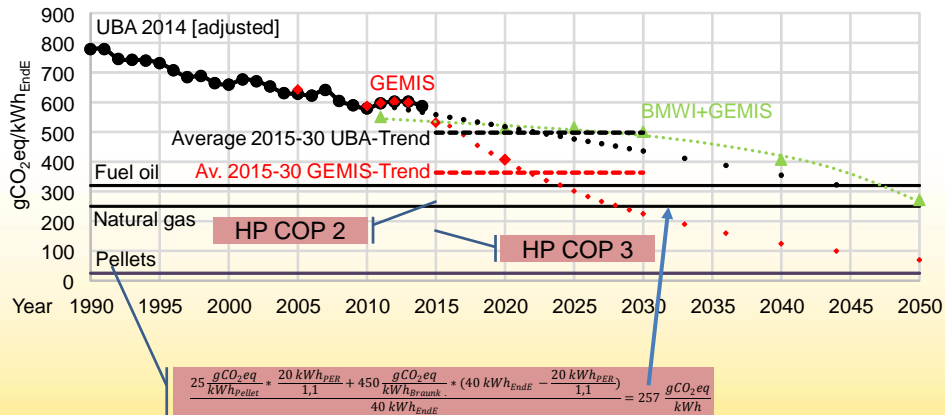


Dr.-Ing. Benjamin Krick, Passivhaus Institut

## CO<sub>2</sub> ist schädlich



## CO<sub>2</sub>-Entwicklung



## Deutschland: Entwicklung und Prognosen

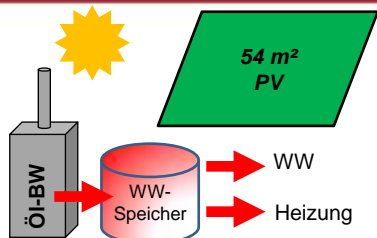
## Parameterstudie | Parametric evaluation



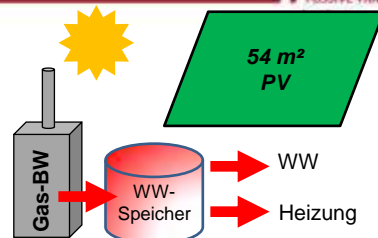
<b>Energiebezugsfläche:</b> 160 m <sup>2</sup>	<b>Heizwärmebedarf:</b> 15 kWh/(m <sup>2</sup> a)
<b>U-Werte [W/(m<sup>2</sup>K)]:</b> Wand: 0.13; Dach: 0.09; Boden: 0.16; Fenster: 0.67	<b>Luftdichtheit:</b> 0.4 h <sup>-1</sup>
<b>Haushaltsstrombedarf:</b> 9.1 kWh/(m <sup>2</sup> a) = 1.45 MWh/a (beste Geräte, Licht 90 lm/W – Typisch in Deutschland: 3.5-5 MWh/a)	

## Gebäudemodell

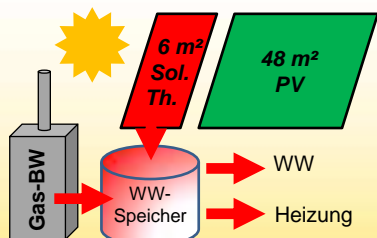
**Parameterstudie**



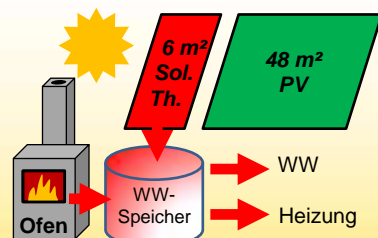
**V1: Öl-BW-Kessel**



**V2: Gas-BW-Kessel**



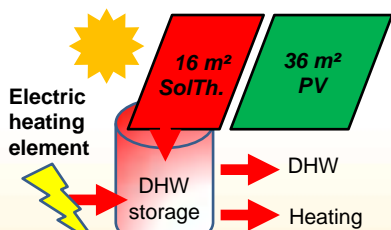
**V3: Gas-BW + Solarthermie**



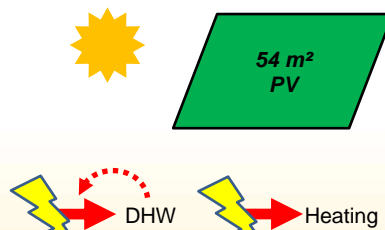
**V4: Pellets + Solarthermie**

**Versorgungsvarianten – Brennstoffgestützt**

**Parameterstudie | Parametric evaluation**



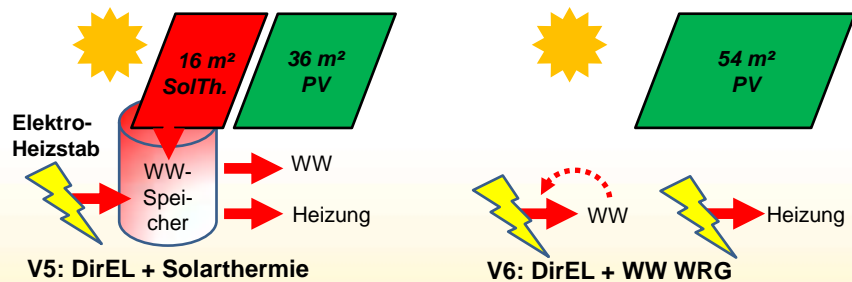
**V5: DirEL + solar thermal**



**V6: DirEL + DWHR**

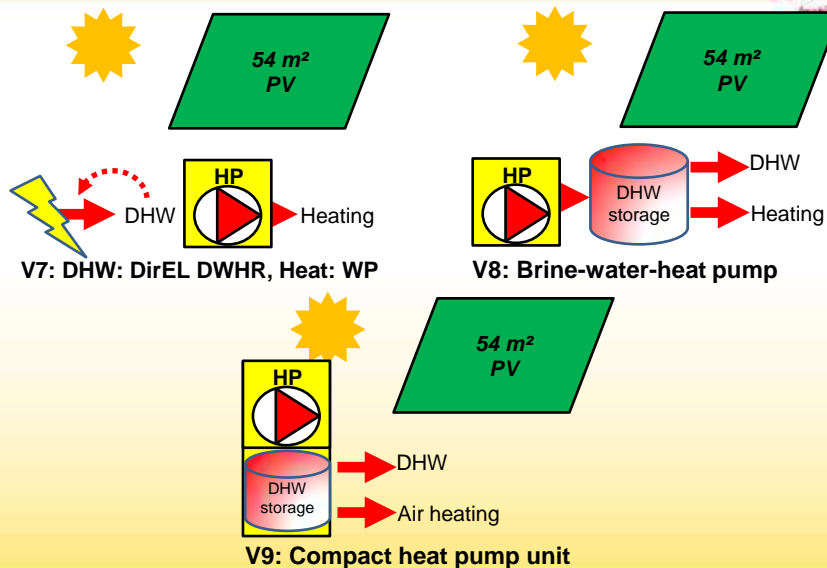
**Versorgungsvarianten | Supply variants**

## Parameterstudie



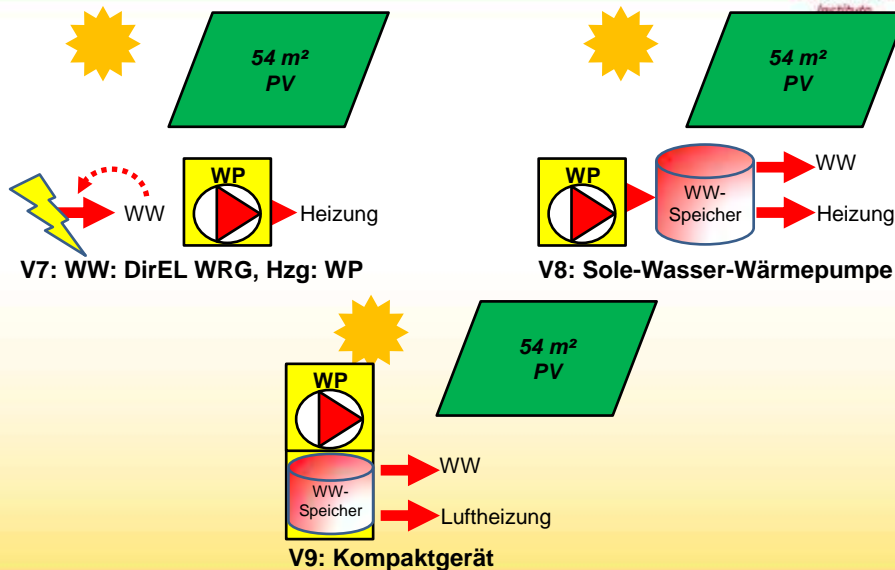
## Versorgungsvarianten – Direktelektrisch

## Parameterstudie | Parametric evaluation



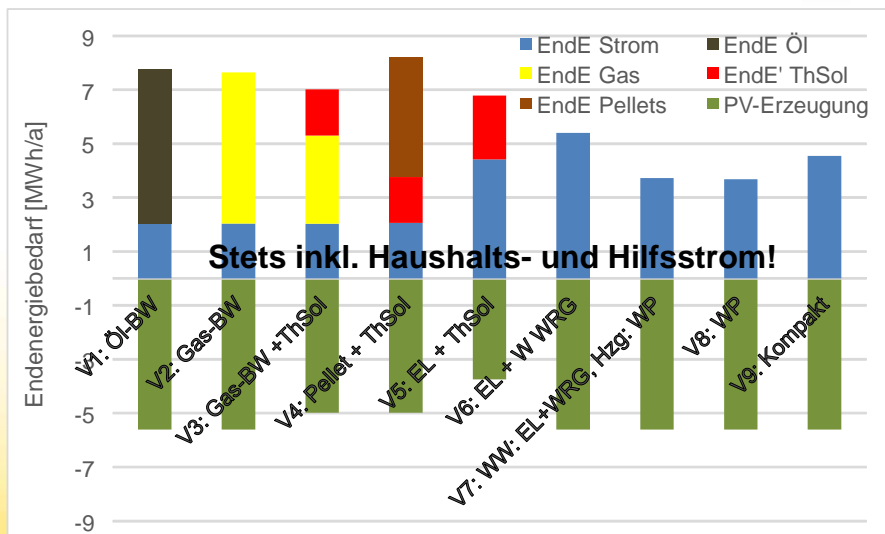
## Versorgungsvarianten | Supply variants

Parameterstudie



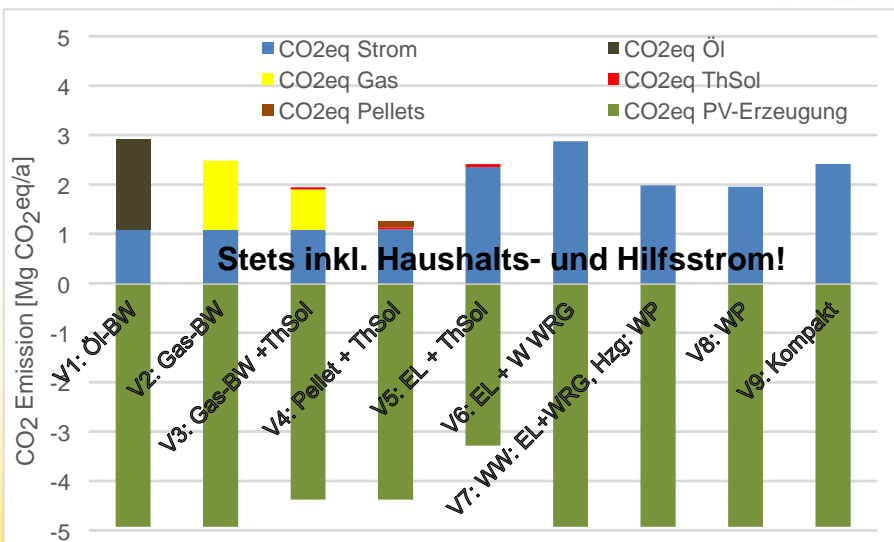
Versorgungsvarianten – Wärmepumpen

Parameterstudie



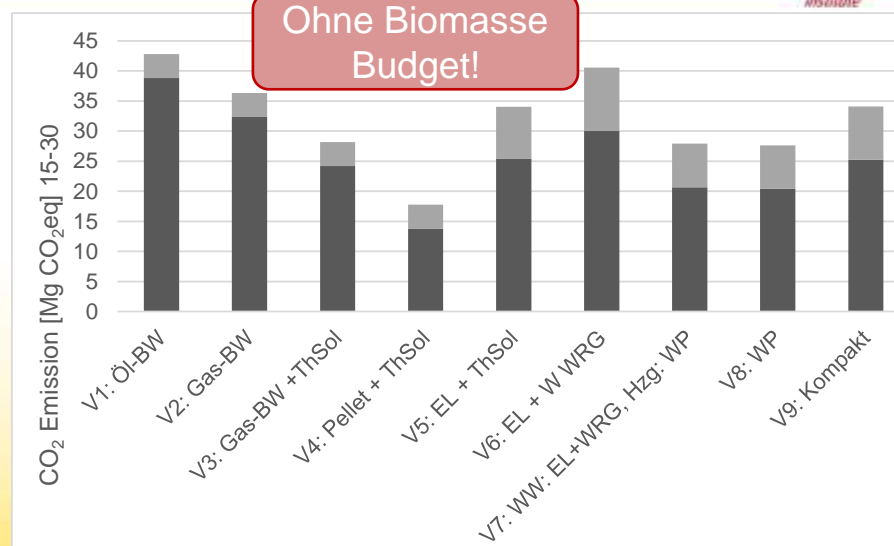
Ergebnisse – Endenergie

Parameterstudie



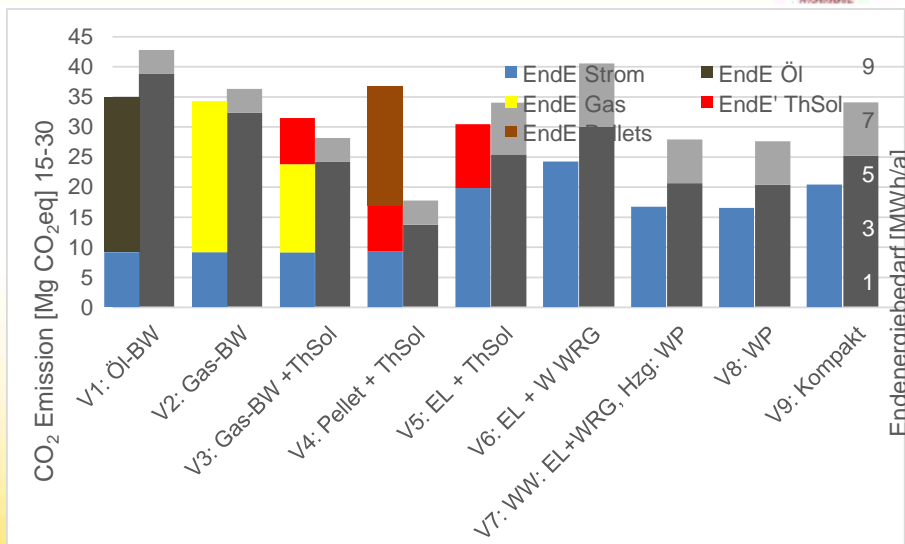
Ergebnisse – CO<sub>2</sub>eq, Bezug: 2015

Parameterstudie



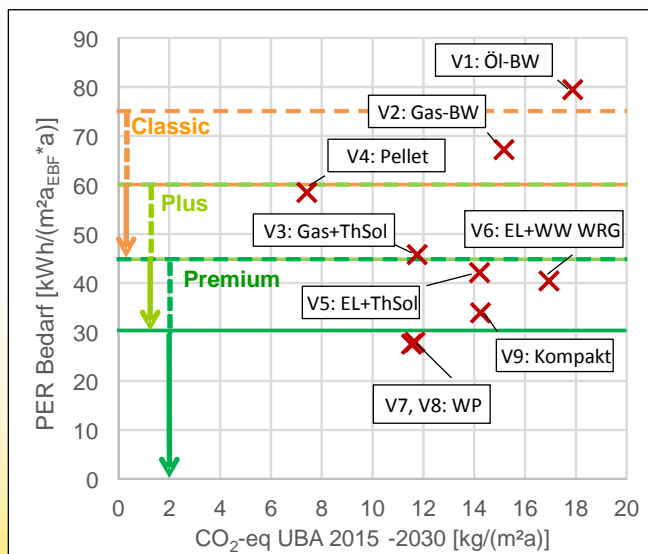
Ergebnisse – CO<sub>2</sub>eq, Bezug: 2015-2030

Parameterstudie



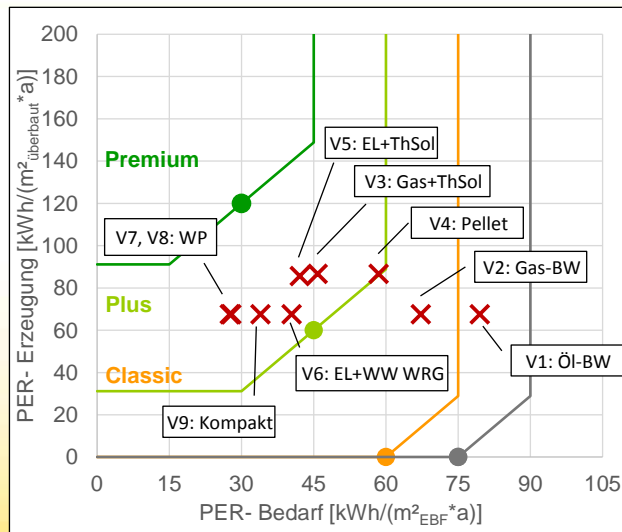
Ergebnisse – CO<sub>2</sub>eq, Bezug: 2015-2030

Parameterstudie



Ergebnisse – CO<sub>2</sub>eq & PER-Bedarf

## Parameterstudie



## Ergebnisse – Passivhausklassen

## Fazit

