

# H2Grill2Go

## HydrogenGasgrill + Electrolyser + H2Tank2Go®

bypassing FuelCell conversion on route to subsidies free Hydrogen Energy Economy

### motivation, bridging P2G2F® with Power-to-Gas-to-Heat (P2G2H)

Once industrial countries like Germany worry about "getting through winter", this also describes unprecedented high demand for energy self-sufficient systems in all areas of life. H2-mobility does not see significant products to stand without permanent subsidies and/or political market interventions, both is not acceptable. No matter if CO2-scenario is true or fairytale, fossils are too valuable to burn away. Since reconversion (FuelCell) is still too costly, bypassing is most attractive. At H2Grill2Go, H2 is replacing fossil gas to burn to heat & available in solid state tanks. Energy stand-alone, only sun, wind and rain needed.

charge your mobile (at buffer battery)      heat your home (at ideal H2-combustion)      power to your ZEV (power any via IronBird)



Gasgrill energy, propane	H2Grill2Go, energy generation
5kg C <sub>3</sub> H <sub>8</sub> bottle, vol. 21 liter, net-weight 5,6kg, ~65 kWh. Good for 25 grill-session (GS). >2,6 kWh/GS 750 g/h at Grill, 5kg fire gasgrill for 6,6h. 25GS > 25min/GS ✓	(a) onboard   1 week / 268 h, 30 sunny-hours solar: 0,4 m <sup>2</sup> , 100W, 10% performance > 0,25 kWh DLY wind: 2x 50W = 100W, 30% performance > 0,7 kWh DLY <b>onboard Σ 1 kWh DLY</b> (1/2 times net-requirement)
<b>H2Grill2Go, H2-energy requirement</b> required good for 5GS/week > 13 kWh/week > 1,9 kWh DLY	(b) portable/adapted solar, 1m <sup>2</sup> , max. 250W x 10% performance > 0,6 kWh DLY wind, max. 800W x 30% performance > 5,7 kWh DLY <b>adapted Σ 6,3 kWh DLY</b> (3 times net-requirement)
<b>H2 storage capacity for 1 week</b> 1 kg H <sub>2</sub> ~33,33kWh (≈ 3kg/4l gasoline), required net storage 13 kWh, gross 21 kWh → <b>630g Hydrogen for 1 week.</b>	<b>Σ generation 7,3 kWh DLY</b> ./ 40% lost > <b>4,4 kWh DLY</b> ✓

<b>energy required from what we are used to</b> grill-session (GS) 5kg C <sub>3</sub> H <sub>8</sub> propane 65 kWh good for 25GS <b>2,6 kWh/GS</b>	<b>Hydrogen</b> density (ρ) 0.0899 g/l or kg/m <sup>3</sup> at 0°C/1013hPa ~ 1.01325bar (ICAO standard). firing temp. H <sub>2</sub> /O <sub>2</sub> 3.080°C H <sub>2</sub> on air 2.130°C CH <sub>4</sub> on air 1.950°C	GERMAN PATENT APPLICATION Hydrogen-Gasgrill with Electrolyser and self-sufficient Energy Generation, CO <sub>2</sub> -free. Albert Hesse Familienstiftung      Zoz Group	<b>energy generation onboard + adapted</b> Σ 7,3 kWh DLY ./ 40% lost >> <b>4,4 kWh DLY</b>	<b>H2Tank2Go® safety 1<sup>st</sup>, efficiency 1<sup>st</sup></b> 10xH2Tank2Go® store 650g H <sub>2</sub> adds 38kg to Grill
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H2 storage 630g → pressure vessel 200l	H2 storage 650g → 10x H2Tank2Go®
Electrolyser outlet pressure 30-50bar, at vessel 10bar lower. 1l-tank 100bar/~9g H <sub>2</sub> , 20-40bar/~3g H <sub>2</sub> , 630g H <sub>2</sub> > 200l tank	H2Tank2Go® (0,95l/4,3kg) stores 65g H <sub>2</sub> (100th), 10 tanks required. <b>650g H<sub>2</sub></b> , total vol. 10 liter adds 38kg to Grill ✓

**no more carrying gas-bottles, no more "do I have enough gas?"**  
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