

MTD H-HOME 60 NG™

ThermaVolt™ PVT • Thermal • Battery • Hydrogen Reserve

KEEP YOUR NATURAL-GAS HEAT. ADD A SMARTER HOME ENERGY SYSTEM.

Designed for an Indianapolis test home, H-Home 60 NG combines ThermaVolt™ PVT solar, battery storage and hydrogen reserve while retaining an existing serviceable natural-gas furnace. The goal: lower first cost, resilient electricity and useful recovered heat without paying to replace a working heating system.

WHY THIS CONFIGURATION

LOWER CAPITAL COST

Retaining the existing furnace removes the large hydronic heat-pump package and helps move the concept toward a ~\$60,000 installed-product objective.

HYDROGEN FOR RESILIENCE

Hydrogen is not forced to cycle every night. It is reserved for extended outages and low-solar periods, where long-duration storage adds the most value.

BATTERY FOR DAILY CYCLING

A 15–20 kWh LFP battery handles normal overnight loads, fast transients and black-start functions efficiently.

SOLAR FIRST

ThermaVolt™ PVT electricity serves house loads first, then charges the battery; surplus energy can produce hydrogen for long-duration reserve.

USE THE HEAT

ThermaVolt™ PVT backside heat plus electrolyzer/fuel-cell recoverable heat can preheat domestic hot water through a compact thermal buffer.

GAS HEAT STAYS AVAILABLE

The existing natural-gas furnace continues to cover Indianapolis winter space heating, avoiding a costly HVAC conversion.

PRELIMINARY H-HOME 60 NG PACKAGE

Subsystem	Preliminary Target	Role
ThermaVolt™ PVT array	14–16 kW	House electricity + recoverable thermal energy
LFP battery	15–20 kWh	Daily cycling, transient loads, black start
PEM electrolyzer	2–3 kW target	Converts surplus renewable electricity to H ₂
Hydrogen reserve	~2 kg usable target	Long-duration / extended-outage energy reserve

PEM fuel cell	2–3 kW target	Converts stored H ₂ back to electricity
Thermal buffer	80–120 gal	DHW preheat / recovered-heat utilization
Space heating	Existing NG furnace	Retained as primary Indianapolis winter heat
Controls	MTD Dashboard	Dispatch, metering, alarms and energy management

HOW ENERGY MOVES

1 ThermaVolt™ PVT	2 BATTERY	3 H ₂	4 FUEL CELL	5 NG FURNACE
powers home	stores daily energy	stores surplus long-term	restores power	heats home

INDIANAPOLIS ECONOMIC LOGIC

Planning Point	Preliminary Result
Representative annual space-heating gas use	~575–580 therms/year planning basis
Representative annual space-heating gas cost	~\$640/year planning estimate
Avoided heat-pump/hydronic capital	~\$14,500–\$18,500 preliminary
H-Home 60 NG equipment objective	~\$40,000–\$44,000 preliminary
Installed product objective	Targeting ~\$60,000, subject to site, permits, final OEM pricing and design

PRELIMINARY PRODUCT CONCEPT

Final system sizing requires site-specific electrical load data, roof/solar review, existing furnace condition, DHW demand, code/AHJ review, and final vendor quotations. Hydrogen production, storage, ventilation, detection and pressure equipment must use certified components and code-compliant installation. ThermaVolt™ PVT thermal performance values remain subject to final product data and project conditions.

MODERN THERMAL DESIGN | ThermaVolt™ PVT | modernthermaldesign.com