



MEETING **EDE 56-19-21**

**STANDING COMMITTEE ON ECONOMIC DEVELOPMENT  
AND ENVIRONMENT**

~  
**TUESDAY, MARCH 30, 2021**  
**COMMITTEE ROOM 'A', LEGISLATIVE ASSEMBLY**  
**6:00 P.M.**

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**AGENDA**

1. Prayer
2. Review and Adoption of Agenda
3. Declarations of Conflict of Interest
4. In Camera Matters
  - a) Committee Priorities
5. Public Matters
  - a) Public Briefing from ElectroMotion Energy Corporation with Jai Zachary, President
6. In-Camera Matters:
  - i. Wrap-up Discussion
7. Date and Time of Next Meeting: At the Call of the Chair.
8. Adjournment

# ElectroMotion Energy Corporation

## “Revolution Housing Platform”

PEOPLE.POWER.PLATFORM

The Standing Committee on Economic Development and Environment

Jai Zachary, President.CEO

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# Overview

1. Heat & Electricity Relationship
2. Heat & Home Relationship
3. Heat & Environment Relationship
4. Revolution Housing Platform
5. Revolution Virtual Power Grids
6. Revolution Cost Analysis
7. Product Status
8. Contact Information

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# Heat & Electricity Relationship

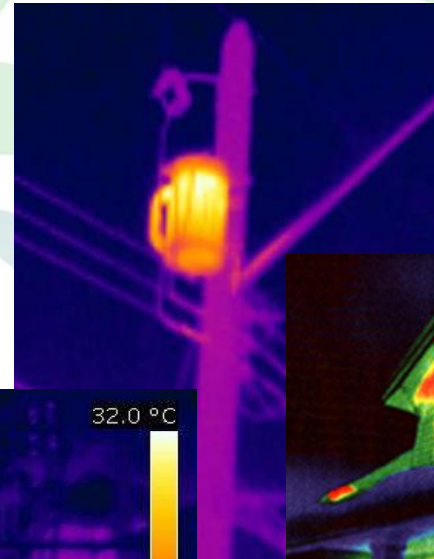
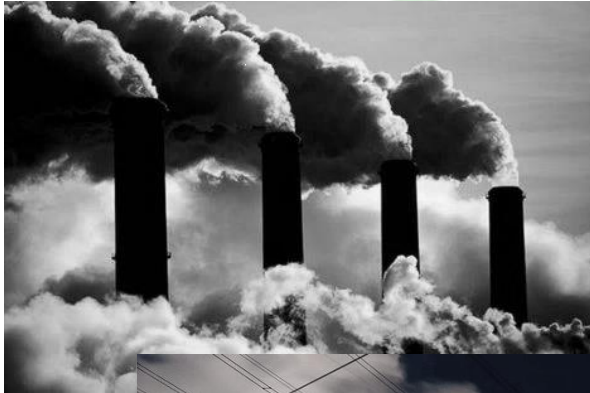
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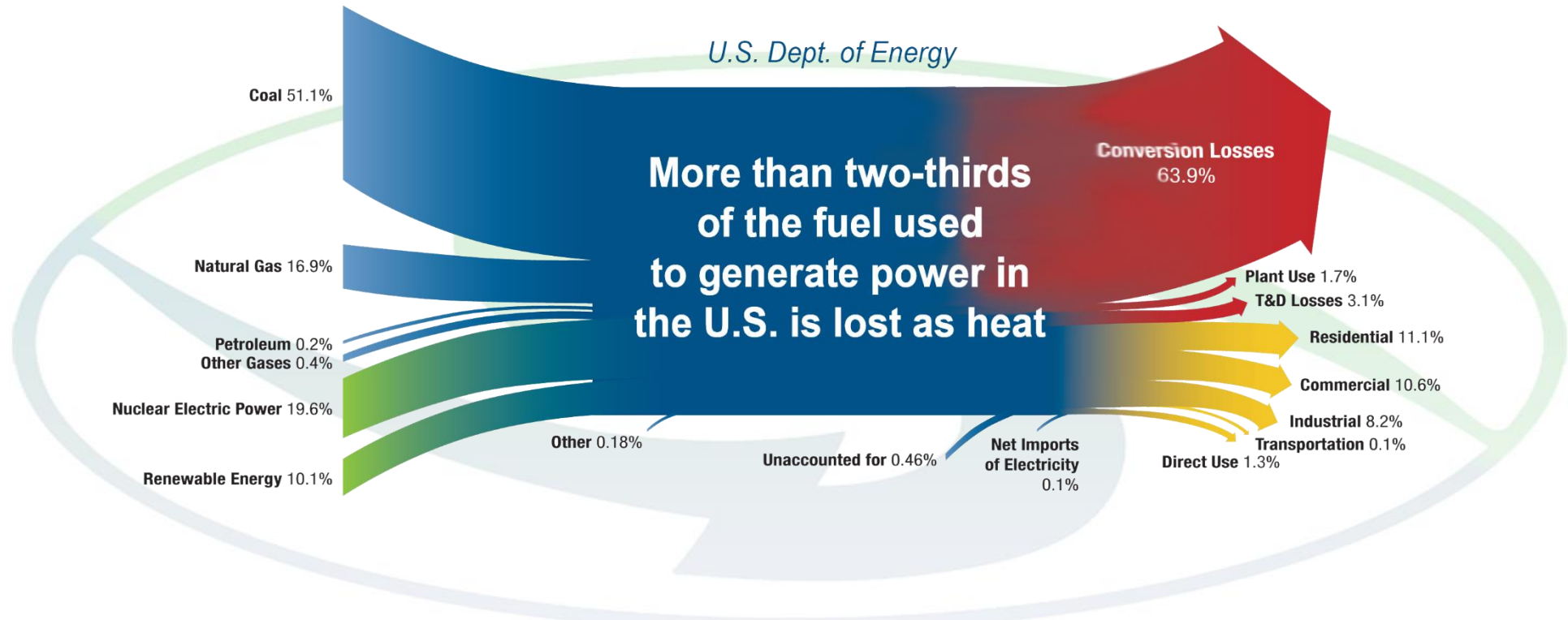


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# It's All About Heat... (and Electricity)



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More than two-thirds of **global electricity is generated with thermal** (heat) methods using nuclear, coal, natural gas, diesel or petrol

Inuvik



Old Crow



Ulukhaktok



Paulatuk



***Massive amounts*** of heat pollution is being released into the atmosphere every day... affecting the water, ice, permafrost and climate



# Heat & Home Relationship

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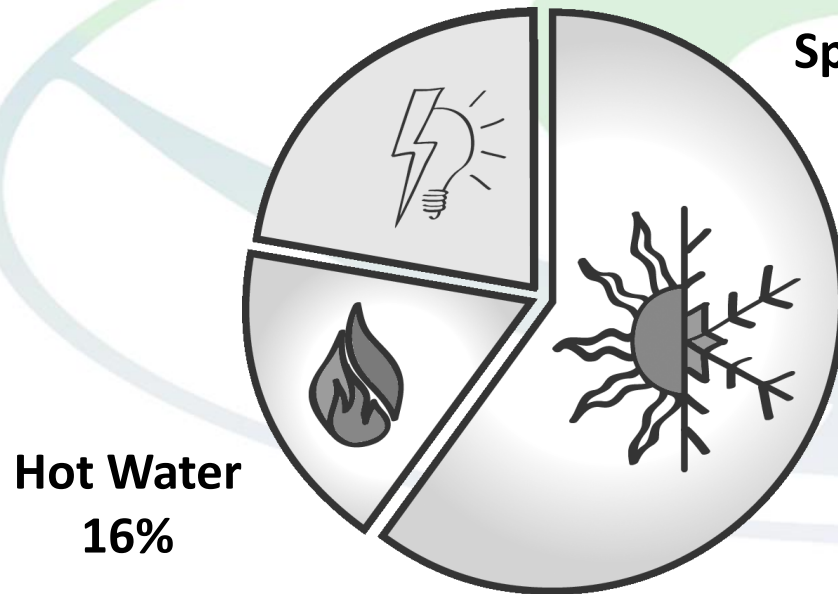
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# Household Energy Profile

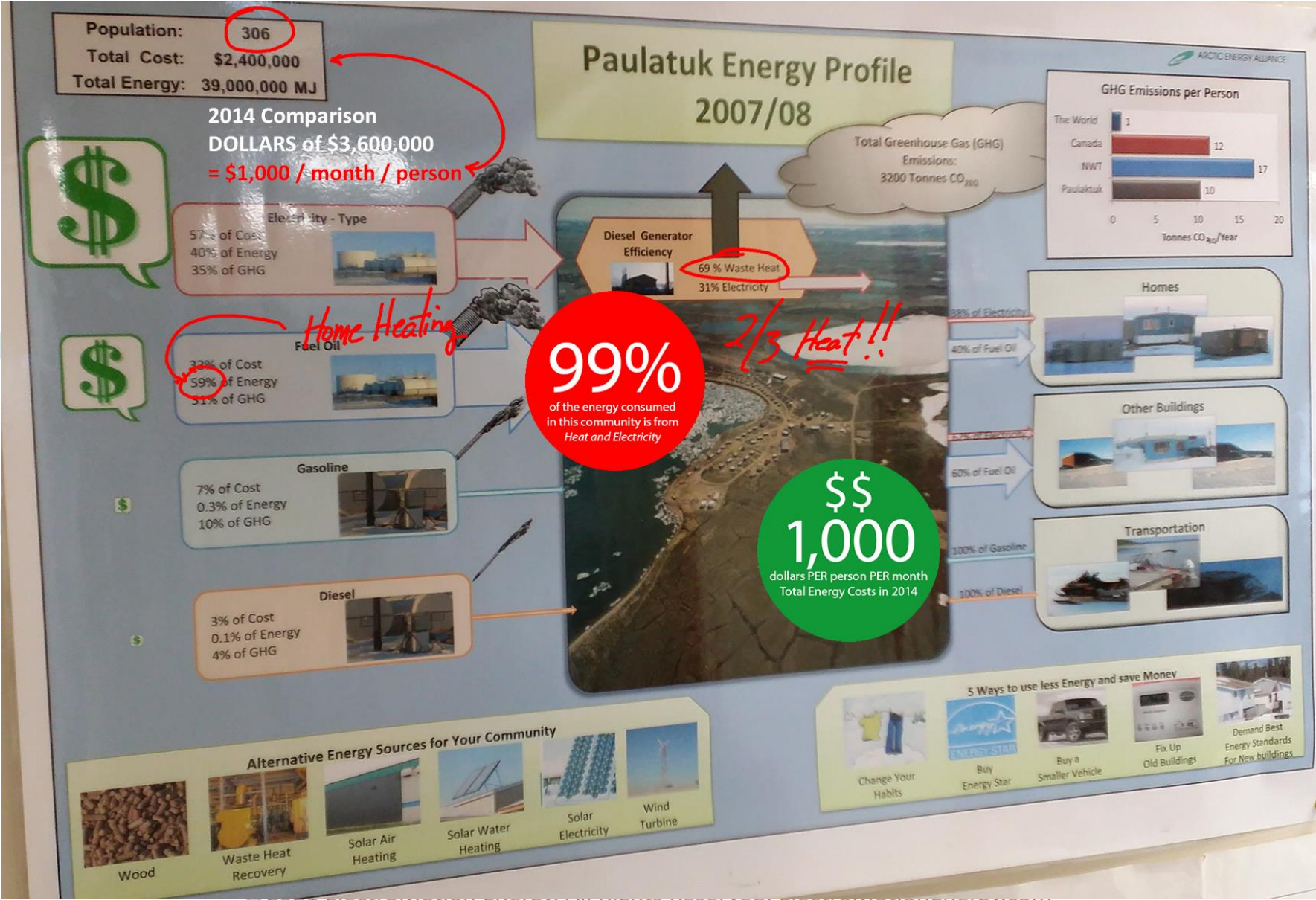


Space Heating  
60%

= **2/3 Heat Energy**

- 'Free heat & hot water' if able to generate electricity as a *byproduct* at the home when needing space heat

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# Heat & Environment Relationship

## (Thermal Pollution)

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# Heat Effect on ICE & Permafrost



- Paulatuk Example
  - In 20 years has ejected approx. 500,000 GJ of heat into environment
  - Enough to melt same size iceberg that sank the Titanic

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# Heat Effect on ICE & Permafrost



- Paulatuk Example
  - Alternately, the volume of ice which has been melted is equivalent to *one-and-a-half times* the volume of the Empire State Building!

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# Revolution Housing Platform

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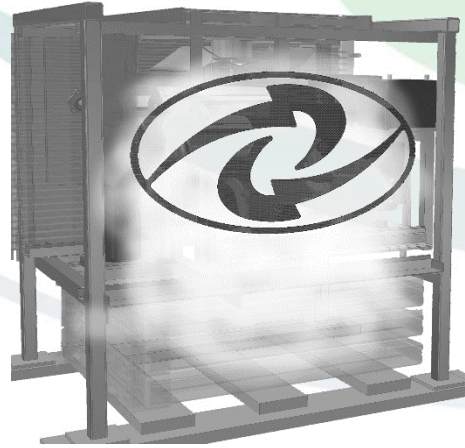


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# Integrated Platform

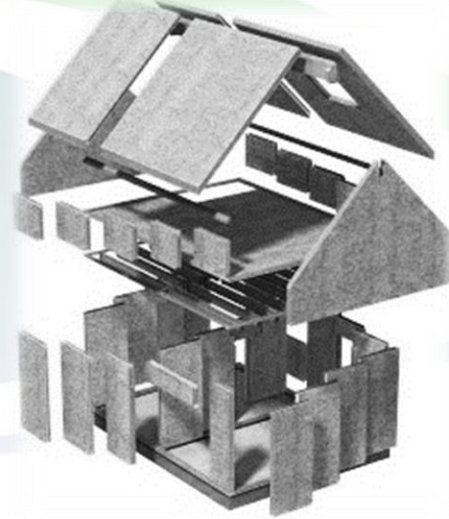
'Plug & Play Power' & Housing System

Revolution CORE



Residential, Distributed Energy Resource replaces heating, cooling and hot water systems

Revolution Housing Platform



Flat-Pack, On-Site Assembly in Days  
Plug & Play Housing System

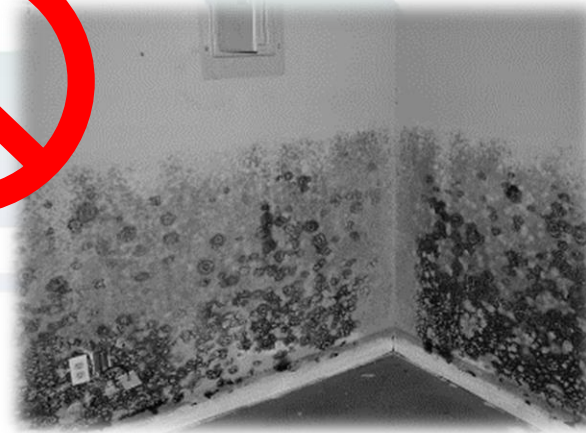
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# Typical Housing Issues



- Limited seasonal construction window and available trades personnel
- Limited useful life, prone to damage, fire and black mold
- Expensive to heat and provide electricity

- Molds, Vermin and contaminants
- Only consume energy – poor efficiencies
- Expensive, slow, stick-frame construction
- Poor insulation, sealing and quality control



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# Revolution Housing Benefits



- ELIMINATES the constraints of seasonal construction, distribution and reliance on skilled trades people
- NO molds, Vermin or contaminants
- Flatbed, barge or air transport

- Year-round, fast lockup, 'plug & play' system
- PRODUCES energy while also reducing energy consumption for the home and community
- Less costly, lasts longer, near-indestructible

The Insulspan SIP (Structural Insulated Panel) system consists of a solid, one-piece, pre-cut SIP units that are ready to install as wall, floor, or roof components suitable for many residential and commercial building applications.



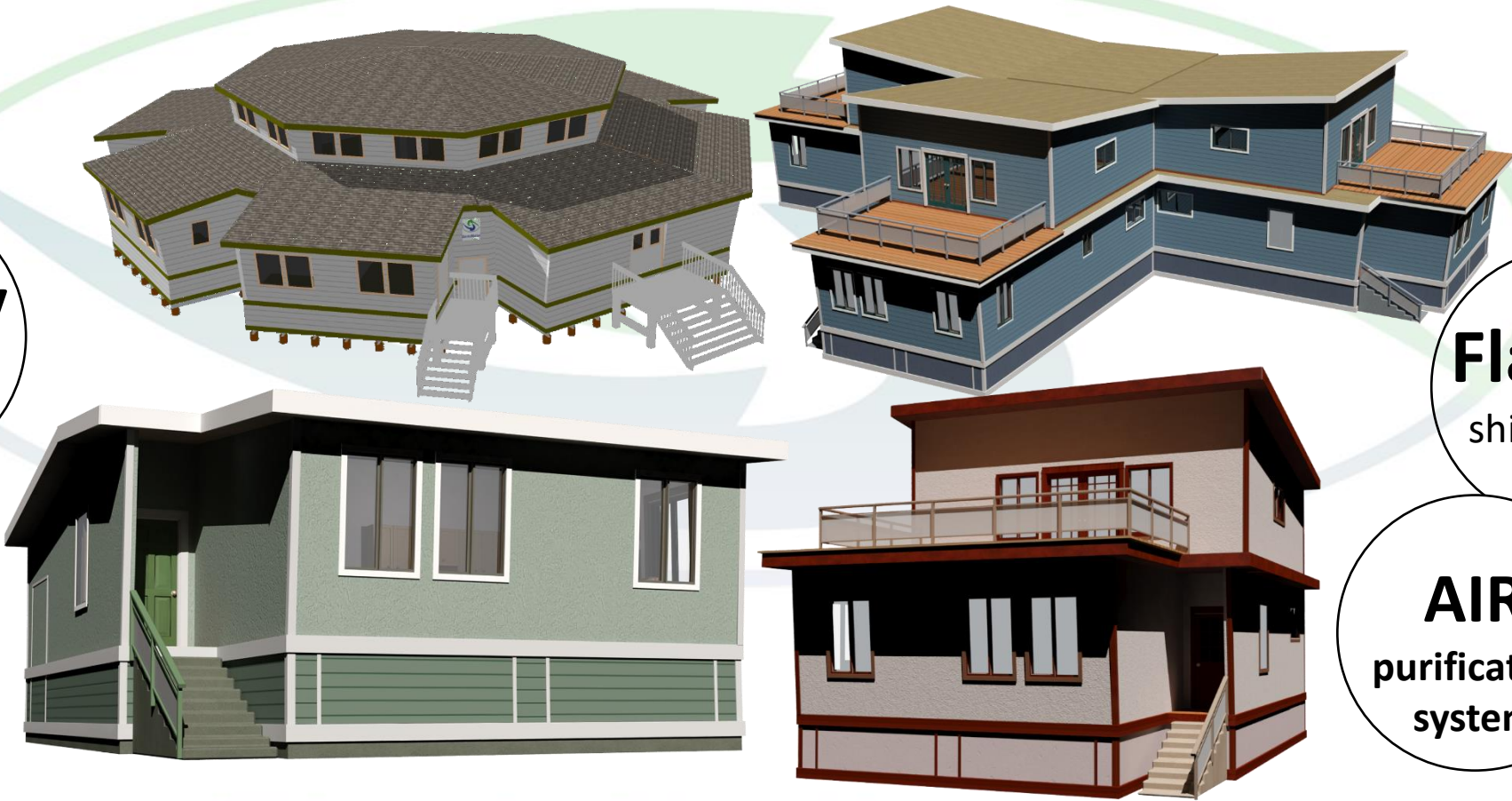
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# Revolution Housing

**Days**  
to assemble  
vs Years

**Factory**  
precision  
CNC fit

**Plug &  
Play  
Power**



**Flatpak**  
shipment &  
setup

**AIR**  
purification  
system

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# Virtual Power Grids

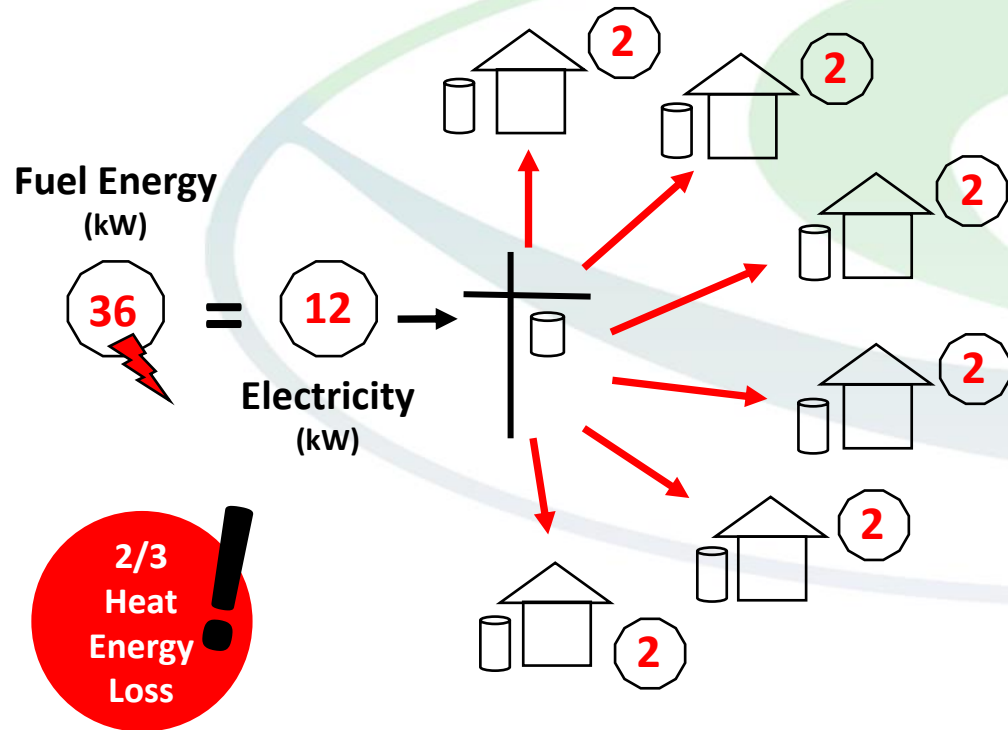
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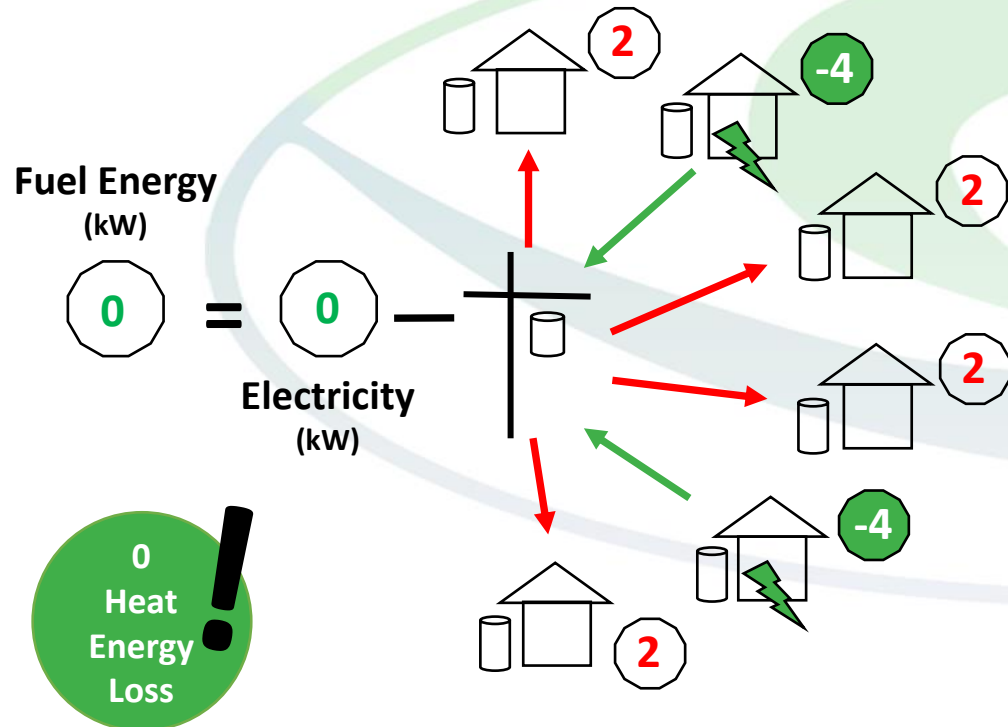
# Thermal Generation Model



- **36 kW** of fuel energy required to generate **12 kW** of electricity for only **6 homes**
- Generation and Distribution losses account for 2/3 **heat** and **energy loss**
- Heat energy that's **LOST** is equal to energy needed to heat the home
- Central power source for the community
- Thermal and Green House Gas Pollution = **HUGE** Environmental Impact

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# Revolution Virtual Power Grid Model



**= Energy Sustainability**

- 6 kW of electricity is generated during every Revolution heating cycle – as a *byproduct*
- 36 kW of fuel energy is **ELIMINATED** when **only 2 Revolutions** are operating (30% Duty Cycle)
- Energy efficiency is **3X greater**
- **MULTIPLE** power sources for the community
- **NO** power or heating loss
- **3-to-1 REDUCTION** in Thermal and Green House Gases Pollution

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# Revolution Cost Analysis

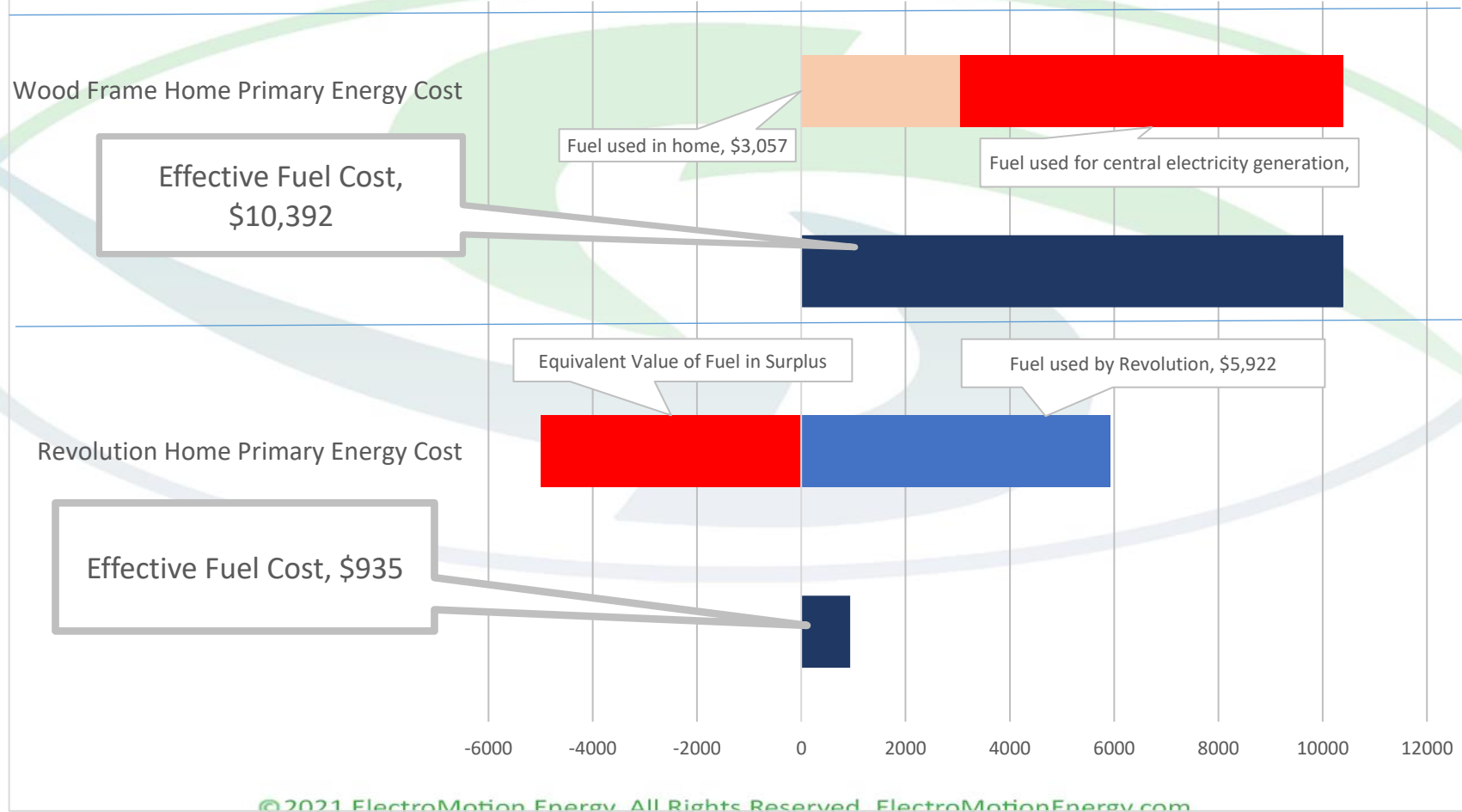
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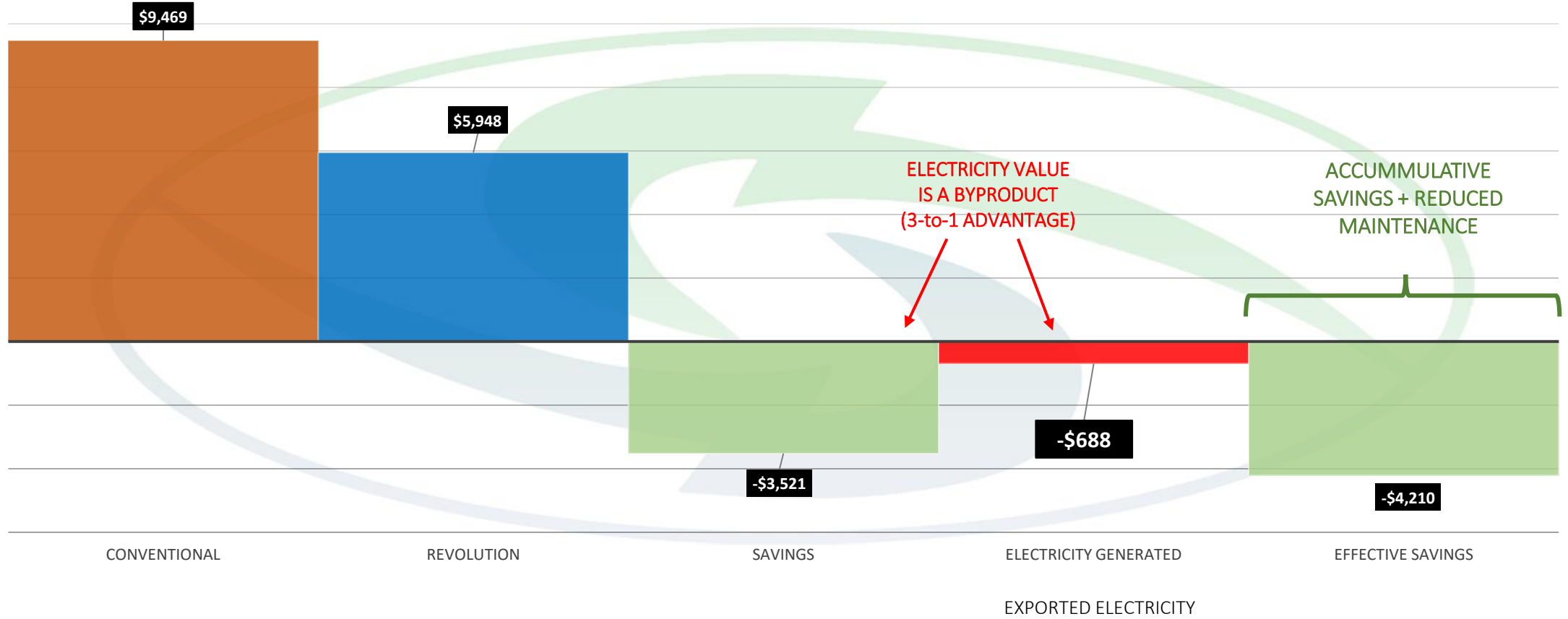
## Primary Energy Cost used per Wood Frame Home versus a Revolution Home



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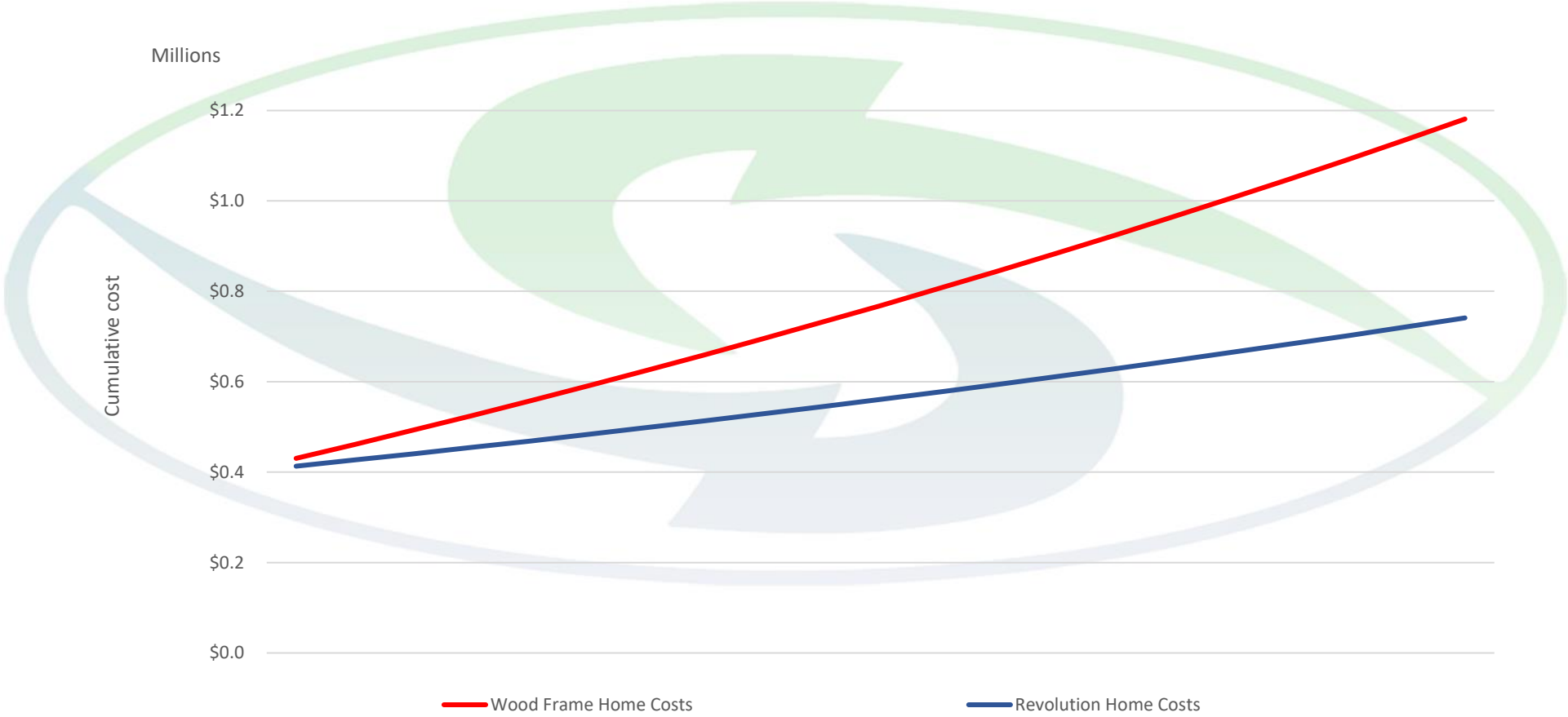
# ANNUAL ENERGY COST PER HOME



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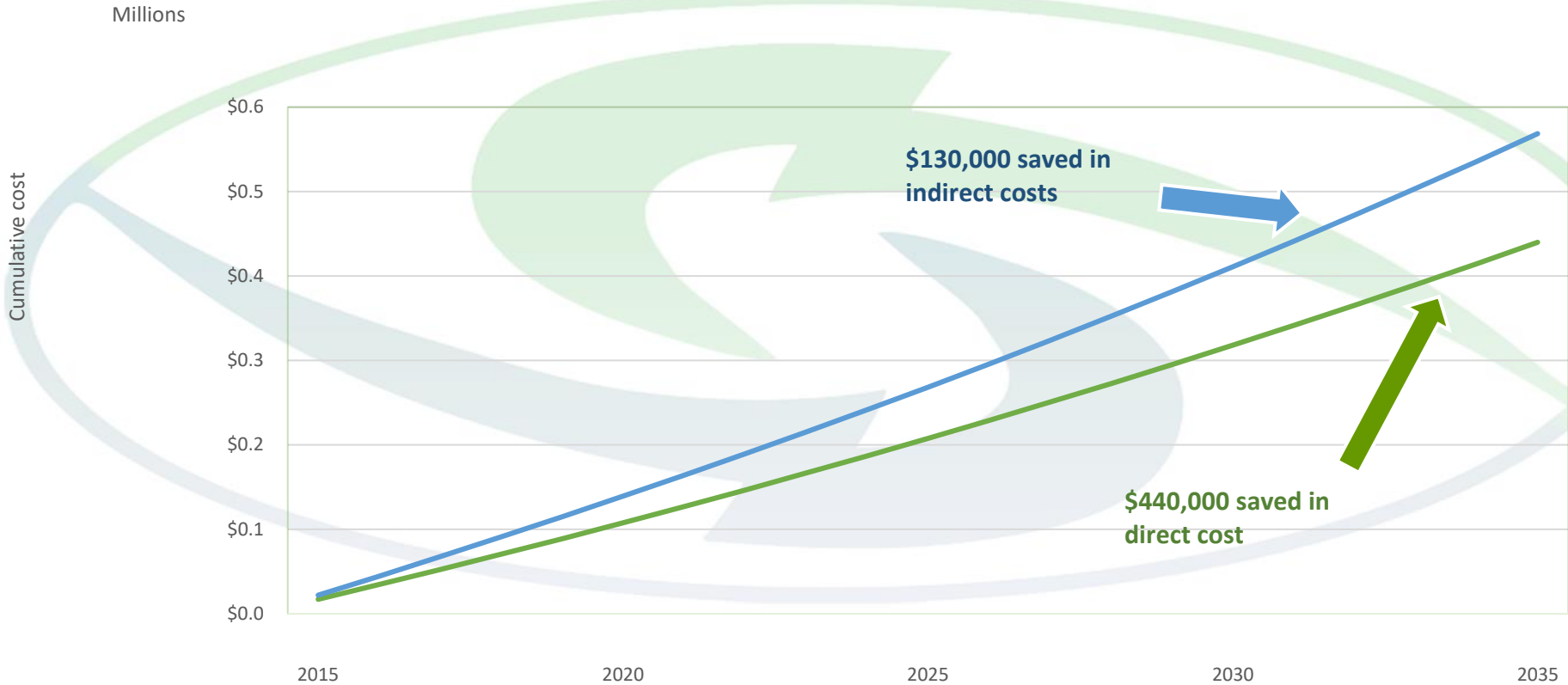


# Total Capital and Operating Cost Comparison between Wood Frame Home and Revolution Home over 20 years



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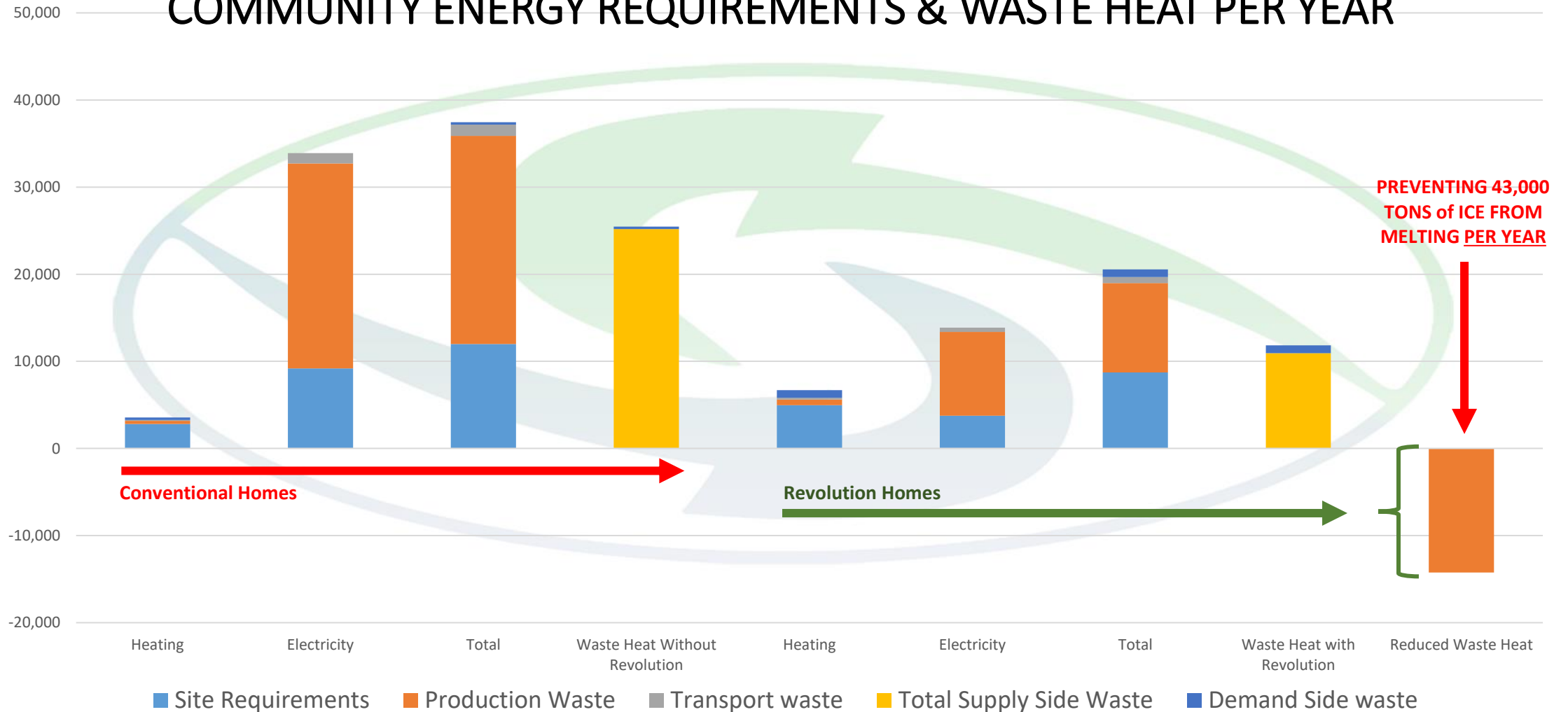
## Cumulative Costs Savings of Revolution Home vs. Wood Frame Home (Direct and Indirect Savings)



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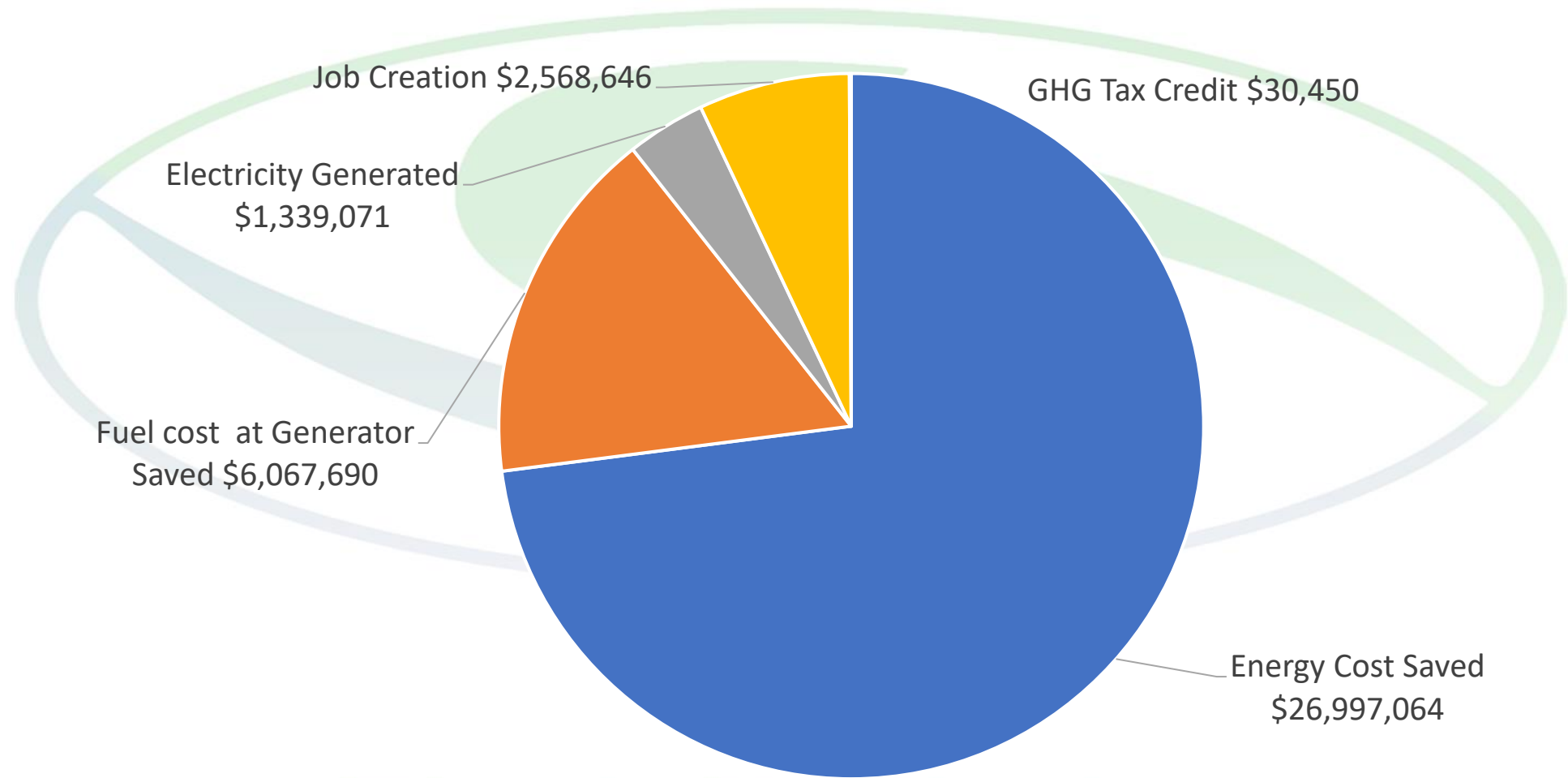


# COMMUNITY ENERGY REQUIREMENTS & WASTE HEAT PER YEAR



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# VALUE TO COMMUNITY WITH REVOLUTION HOMES



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# Current Product Status



- 9 Years R&D with multi-year field test sites
- Revolution Series A manufactured prototypes currently undergoing live field testing
- Multiple relationships and contracts with Utilities, manufacturers, development partners
- Summerland Plant with Demonstration Home
- Globally Patented including CAN, USA, EU, ASIA
- Production facilities in CAN & USA

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# Q&A / Contact Information

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