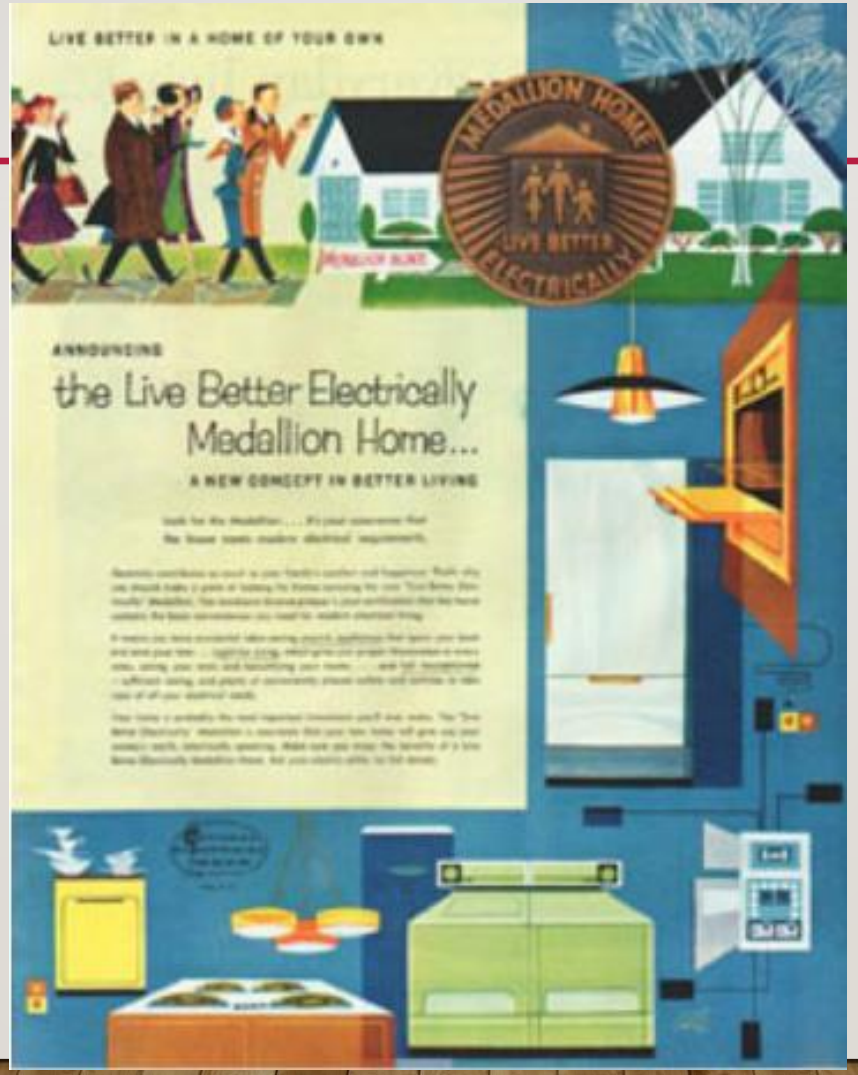
“ALL ELECTRIC” 2.0

ALL ELECTRIC 1.0

- In the 1950-1970s, there was a marketing push for "All Electric" homes. It was presented as the "home of the future" and clean, comfortable, and safe.

ELECTRIC APPLIANCES. Mrs. Stanley Johnson, Arlington Heights, Ill.: "I just love our Medallion home – especially the kitchen. All these electric appliances that came with it – like this wall oven – sure make my job much easier. And my husband says they're easier to buy this way, because we pay for them on the mortgage."


LIVE BETTER IN A HOME OF YOUR OWN
MEDALLION HOME
LIVE BETTER ELECTRICALLY
ANNOUNCING
the Live Better Electrically Medallion Home...
A NEW CONCEPT IN BETTER LIVING

- In October 1957, LBE launched the "Medallion Homes" campaign, which sought to sell 20,000 all-electric homes nationwide by 1958, 100,000 by 1960 and 970,000 by 1970.


Newest guide for home buyers – the Live Better Electrically MEDALLION
MEDALLION HOME
LIVE BETTER ELECTRICALLY
You'll get more news to help you Live Better Electrically on these popular TV shows:
Westinghouse-Desilu Playhouse (beginning Oct. 6)—CBS Network—Monday—10 P.M. (N.Y.T.).
General Electric Theater —CBS Network— Sunday—9 P.M. (N.Y.T.).
Whirlpool—Perry Como, Bob Crosby, The Investigator and Today Is Ours—NBC Network
This new Medallion assures you a home has been inspected by the local electric utility... meets modern standards for wiring, appliances and lighting. Look for the Medallion. It means a wonderful new way of life for you and your family!
What Sterling is to silver... that's what this Medallion is to a new house! It's the new national symbol of the finest in electrical living. Let these three top TV stars, speaking here for the electrical industry, tell how you save trouble, time, and money by choosing a home that wears the Live Better Electrically Medallion.
BETTY: In a Medallion home, you start right off with a modern electric range, plus at least 3 additional major appliances, maybe more. They're installed, ready to go to work the day you move in! Appliances are easier to pay for this way.
RONNIE: The lighting in every Medallion home is specially planned, too. It provides better light for better sight, plus new beauty for your home. You also get full Housepower. This means enough power, wiring, circuits, switches, and outlets to handle all the appliances you want to use.
FRAN: You'll be glad all your life you bought a Medallion home. Read below what a few of the thousands of new Medallion home owners think of them. Then go see the Medallion homes in your neighborhood. Your electric utility will tell you where they are.
New ideas for Better Living
The new Medallion is backed up by home builders, electric utilities, and electrical manufacturers (Frigidaire, General Electric, Hotpoint, Kelvinator, Thermador, Westinghouse, Whirlpool, and others). This year, utilities will award Medallions to 100,000 new homes —in every style and price range across the country. You'll see lots of new ideas in the Medallion homes on display now!
Betty Furness
WESTINGHOUSE
Ronald Reagan
GENERAL ELECTRIC
Fran Allison
WHIRLPOOL
*1

- These homes were a big improvement over previous homes with coal, or oil heating systems. They were insulated to higher standards, and as a result, were much more comfortable.

- The “Gold Medallion Home” was a title given to the best of these homes, and to get that award, they had to have electric heat, electric water heating, electric washers and dryers, and electric disposals. These new features made them immensely popuar.

ELECTRIC HEATING. Many Medallion homes feature electric heating, too. These are awarded a special Gold Medallion. The all-electric heat pump, shown here in the home of Mr. and Mrs. William Isaac of Beverly Hills, California, provides year-round comfort from a single unit which automatically heats or cools as the weather requires.

ssue of Better Homes & Gardens *1

GOLD MEDALLION HOME

- To earn a gold medallion--a decal affixed to a home's entryway and considered the apex of modern, all-electric living--a home had to have an electric clothes washer and dryer, waste disposal, refrigerator and all-electric heating.

- Almost all utility companies were able to give these customers a very favorable "electric heat rate" Because of the insulation and favorable rate, these homes were actually quite inexpensive to heat.

- My father installed many of these electric heating systems in those days, using electric baseboards, ceiling radiant cable, and electric furnaces. These customers were very pleased and proud of their "All Electric" homes.

- "All Electric" was a great marketing idea and extremely effective.
- We have to remember that it was successful because it met the customer's needs.

- The systems were:
- Comfortable
- Clean
- Affordable to operate

- The Medallion Homes campaign was a huge success. By some estimates, the nationwide goal of about 1 million all-electric homes was achieved, according to the Edison Electric Institute, although data on the actual number built is unavailable.

- Unfortunately, when electric rates rose, the cost of operation rose significantly, and at the same time, natural gas started becoming more readily available. That started the demise of the "all electric" marketing success.

- In central Illinois we were able to keep many homes all electric by installing geothermal heating systems. That addressed the cost of operation issue. Now customers could have it all.

- Comfortable
- Clean
- Affordable to operate
- And Air Conditioning

- The only "Green" that people were interested in was the green they could save on their utility bill. And they could save a lot. Almost every utility in the area still had an electric heat rate. CIPS, CILCO, Illinois Power, Union Electric, and yes, even Commonwealth Edison.

- When those special rates went away, the geothermal industry slowed considerably.
- The RECs have kept many of these special rates, and those areas still have a lot of geo installations.

ALL ELECTRIC 2.0

- Now, to the second generation of "All Electric"
- We are now in a time of renewed interest in the environment, and the concern over climate change and carbon emissions.

- In this new environment, we can make our homes and buildings environmentally friendly, and carbon neutral, only if they use electricity for heating.
- It's pretty difficult to eliminate C02 from a gas furnace system.
- Electricity is increasingly produced by renewable energy sources such as wind and solar so it can be carbon neutral.

- The new terms are:
- Beneficial Electrification
- Net Zero
- Carbon Neutral
- Renewable Energy

BENEFICIAL ELECTRIFICATION

- The "short" definition of beneficial electrification is: "The use of electricity for end-uses that would otherwise be powered by fossil fuels (natural gas, diesel, propane, fuel oil, or gasoline), where doing so reduces []GHG[] emissions and saves consumers money."

BENEFICIAL ELECTRIFICATION

- The concept is born out of the idea that if our nation or the world is to achieve significant reductions of GHG, the only way to do so is to electrify more end-uses, such as transportation, space and water heating, and commercial and industrial processes.

- So in this new environment, we have to remember what made “all electric” successful the first time.
- Comfortable, Clean, and Affordable
- Com Ed program “All Electric” construction

COM ED ELECTRIC HOME PROGRAM

- Partner with ComEd to move the home building industry toward a renewable energy future—and receive a $2,000 incentive for each qualifying energy-efficient electric new home.

JUST A FEW REASONS TO BUILD ALL-ELECTRIC INCLUDE:

- Avoid gas line costs and coordination
- Accommodate flexible designs and layouts
- Upsell by bundling with solar, EV-ready, and smart home features
- Future-proof your business to appeal to evolving customer preferences
- Offer increased safety and peace of mind (no combustion in the home)

PROJECT SNAPSHOT: BrightLeaf Homes	
Energy-Saving Improvements	• **Air tightness of 1.11-1.26 ACH50** • **Heat pump space and water heating** • **ENERGY STAR® appliances** • **WaterSense® plumbing fixtures** • **LED lighting** • **Induction cooktops** • **3kW solar panels**
Estimated Annual Energy Savings	**6,000–7,600 kWh per home**
Estimated Annual Electric Cost Savings	**$760–970* per home**
ComEd Energy Efficiency Program Incentive	**$2,000 per home**

*Estimated annual cost savings are based on an electricity rate of 12.76 cents per kWh.

- And to meet these requirements we will need to use Geothermal Systems to make electric heating affordable.
- Getting to “net zero” today is pretty easy with a geo system and a solar array. It’s a good match because you get 30% more out of your solar array than with any other system.

RESIDENTIAL GEOTHERMAL EXAMPLE

- Here's an example of a typical home in northern Illinois.
- We're looking at 2 different Geo options, an air source heat pump and a gas furnace

Design Data

Heating Load:	60,000	Btu/hr
Htg Load Temp Diff:	82	Deg F
Cooling Load:	25,000	Btu/hr
Clg Load Temp Diff:	20	Deg F
Sensible Cooling:	19,250	Btu/hr
Reference City:	Chicago, IL	
Winter Design:	-4	Deg F
Summer Design:	94	Deg F
Bldg Balance Temp:	59	Deg F
Avg Internal Gains:	9,868	Btu/hr

Heating Setpoint:	72	Deg F
Cooling Setpoint:	75	Deg F
Begin Cooling At:	70	Deg F
Hot Water Setpoint:	125	Deg F
Hot Water Users:	3	
Continuous Fan:	Yes	
Annual Heating Load:	91.9	Million Btu
Annual Cooling Load:	21.8	Million Btu
Ann. Hot Water Load:	15.5	Million Btu
Daily Hot Water Use:	55	Gallons

Estimated Operating Cost Summary

HVAC System Option	Heating Cost	Cooling Cost	Hot Water Cost	Cont. Fan Cost	Total Cost	Monthly Cost
QE 1860 Q-Mode / Vert 1 U-Tube - 0.75"	$502	$19	$84	$34	$639	$53
TE 064B Digital / Vert 1 U-Tube - 0.75"	$536	$88	$273	$56	$952	$79
Gas-91%-Ignitor-Condensing System	$1,035	$212	$240	$343	$1,830	$153

Comments:

Utility Cost	Rate	Summer	Winter
Electric - Geothermal	$ / kWh	.107	.077
Electric - Heat Pump	$ / kWh	.107	.077
Electric - Furnace	$ / kWh	.107	.097
Natural Gas	$ / Ccf	0.90	0.90
Propane	$ / gallon	1.60	1.60
Fuel Oil	$ / gallon	2.63	2.63

Due to the variability of weather, system installation and living habits this analysis is to be considered an estimate.

Design Data

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Cooling Load:	25,000	Btu/hr
Clg Load Temp Diff:	20	Deg F
Sensible Cooling:	19,250	Btu/hr
Reference City:	Chicago, IL	
Winter Design:	-4	Deg F
Summer Design:	94	Deg F
Bldg Balance Temp:	59	Deg F
Avg Internal Gains:	9,868	Btu/hr

Heating Setpoint:	72	Deg F
Cooling Setpoint:	75	Deg F
Begin Cooling At:	70	Deg F
Hot Water Setpoint:	125	Deg F
Hot Water Users:	3	
Continuous Fan:	Yes	
Annual Heating Load:	91.9	Million Btu
Annual Cooling Load:	21.8	Million Btu
Ann. Hot Water Load:	15.5	Million Btu
Daily Hot Water Use:	55	Gallons

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TE 064B Digital / Vert 1 U-Tube - 0.75"	$536	$88	$273	$56	$952	$79
15 SEER - Scroll - R410a System	$1,139	$224	$412	$307	$2,082	$173

Comments:

Utility Cost	Rate	Summer	Winter
Electric - Geothermal	$ / kWh	.107	.077
Electric - Heat Pump	$ / kWh	.107	.077
Electric - Furnace	$ / kWh	.107	.097
Natural Gas	$ / Ccf	0.90	0.90
Propane	$ / gallon	1.60	1.60
Fuel Oil	$ / gallon	2.63	2.63

Due to the variability of weather, system installation and living habits this analysis is to be considered an estimate.

COMMERCIAL GEOTHERMAL EXAMPLE

- And the numbers work for commercial projects also. Here's a remodel of an existing building in Chiago.

Design Data

Heating Load:	168,400	Btu/hr
Htg Load Temp Diff:	78	Deg F
Cooling Load:	166,800	Btu/hr
Clg Load Temp Diff:	16	Deg F
Sensible Cooling:	128,436	Btu/hr
Reference City:	Chicago, IL	
Winter Design:	-4	Deg F
Summer Design:	94	Deg F
Bldg Balance Temp:	55	Deg F
Avg Internal Gains:	29,109	Btu/hr

Heating Setpoint:	68	Deg F
Cooling Setpoint:	75	Deg F
Begin Cooling At:	70	Deg F
Hot Water Setpoint:	125	Deg F
Hot Water Users:	2	
Continuous Fan:	No	
Annual Heating Load:	226.3	Million Btu
Annual Cooling Load:	104.7	Million Btu
Ann. Hot Water Load:	11.2	Million Btu
Daily Hot Water Use:	40	Gallons

Estimated Operating Cost Summary

HVAC System Option	Heating Cost	Cooling Cost	Hot Water Cost	Cont. Fan Cost	Total Cost	Monthly Cost
VE Var Spd Tons / Vert 1 U-Tube - 1.25"	$1,240	$226	$303	$0	$1,768	$147
15 SEER - Scroll - R410a System	$2,855	$994	$303	$0	$4,151	$346
Gas-91%-Ignitor-Condensing System	$2,451	$1,132	$165	$0	$3,748	$312

Comments:

Utility Cost	Rate	Summer	Winter
Electric - Geothermal	$ / kWh	.100	.080
Electric - Heat Pump	$ / kWh	.100	.080
Electric - Furnace	$ / kWh	.100	.080
Natural Gas	$ / Ccf	0.85	0.85
Propane	$ / gallon	1.60	1.60
Fuel Oil	$ / gallon	2.00	2.00

GED.ged

Due to the variability of weather, system installation and living habits this analysis is to be considered an estimate.

ALL ELECTRIC 2.0

- Nothing is really new, we just have to look to our past to understand what worked then, and why, and what will work now and in the future.