

• ENERGY STAR Stakeholder Meeting | Phoenix

MANDALAY HOMES

• THERE'S A CERTAIN ENERGY HERE



- Presented by
- Geoff Ferrell
- Chief Technology Officer

ALIFORNI

● Flagstaff

● Chino Valley ● Clarkdale
● Prescott ● Prescott Valley

ARIZONA

● Wickenburg

● Glendale ● Phoenix

MANDALAY HOMES

- Founded in 1999
- Will build approx 250 single family homes in 2018
- Have built exclusively ENERGY STAR, Indoor air PLUS and Zero Energy Ready Homes since 2012
- Average HERS without renewables of 47
- Market our above code homes at nearly cost neutral price point to Energy Star 3.0 builders in our market
- Standardizing on a grid optimized renewables and energy storage platform as a standard feature
- Grid Optimized Homes average a HERS 25-32
- Awards include DOE - Housing Innovation Awards, Energy Star - Partner of the Year, Hive 50 - Innovator of the Year, Tech Home Builder - Brilliance Awards, Arizona Forward – Environmental Excellence Award



- Mandalay Specifications

- All Mandalay Homes since 2013 have had solar as the only energy option offered
- Historically low take rate as an option due to initial investment and low ROI prospect. Less than a 7% conversion rate.
- Arizona electric utilities have a unique rate structure that has extended the ROI of solar alone even further
- Mandalay's "Grid Optimized" home is a combination of an energy optimized home and a tailored solar/ battery storage solution meant to maximize monthly utility savings for the absolute lowest initial investment possible
- This new feature is being offered as a standard feature on all new home development moving forward
- 30+ homes under construction currently in 2 developments
- An additional 200 will be started or closed by the end of 2019
- 9 homes currently commissioned and running in various areas of Northern Arizona



The image features the Lennar logo in white, bold, sans-serif capital letters with a registered trademark symbol (®) at the end. The logo is centered horizontally against a background of overlapping, semi-transparent shapes in various shades of blue and green, creating a dynamic, abstract pattern. The top half of the image is dominated by these blue and green shapes, while the bottom half is a plain white background.

LENNAR®

Energy Star

September 6, 2018

Company Overview

- Since 1954: incorporated in Miami, Florida:
 - Doing business in 21 states;
 - over 49 markets;
 - 29,3000 homes in 2017
- 1981 formed Universal American Mortgage Company;
- 2011 formed Lennar Multifamily Communities (luxury rental apartments);
- 2013 formed Sunstreet Energy Group (solar and home automation)
- 2017 first Wi-Fi Certified Home

Energy Star

- Lennar started its partnership with ENERGY STAR in 2002.
- Lennar built over 10,500 ENERGY STAR homes in 2017 (2nd most ENERGY STAR homes built by a builder in the country).
- Lennar had 7 divisions that won the Leadership in Housing award in 2017.



Sunstreet: Role of Renewables



- Under 42 USC § 6831(b)(2) Congress sought to encourage “the development and implementation of voluntary performance standards for new residential and commercial buildings which are designed to achieve the maximum practicable **improvements in energy efficiency and increases in the use of nondepletable sources of energy**” (emphasis added).
- “encourage States and local governments to adopt and enforce such standards through their existing building codes” (b)(3).
- Examples of solar homes to follow

Colorado



Typical Size is 4 kW



Austin, TX



Benefits of Solar

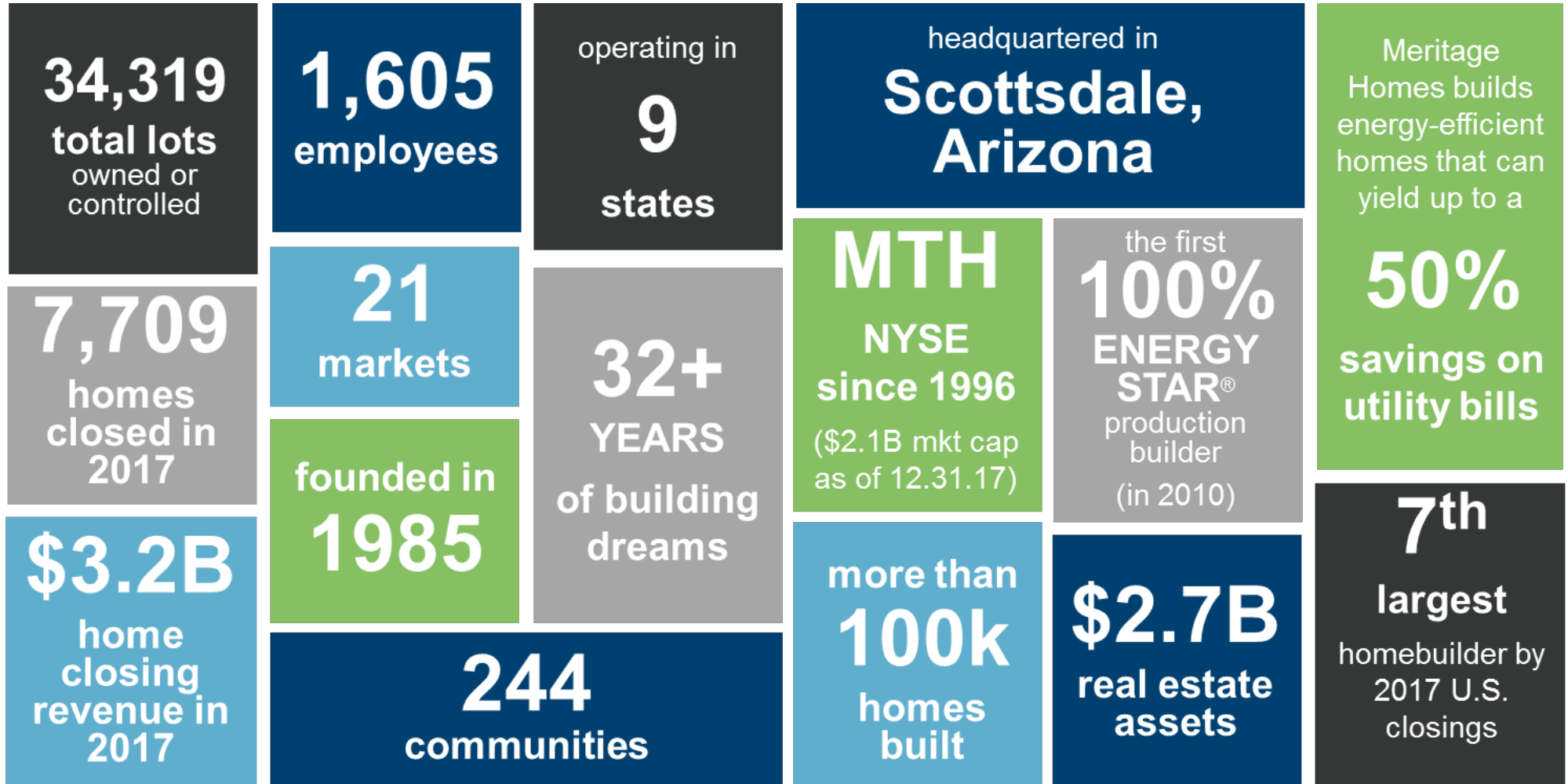
- Meets numerous policy goals:
 - Renewable/Clean energy mandates;
 - Building codes (e.g., ERI Path, CA Requirement);
 - 80% efficient after 40 years (NREL)
 - Energy Star in the future?;
- Strong public support;
- Enhances the affordability of a home using favorable consumer financing (e.g., lease or PPA)



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for energy-efficient homes®

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Quick Facts



All facts and figures as of December 31, 2017, unless otherwise noted.

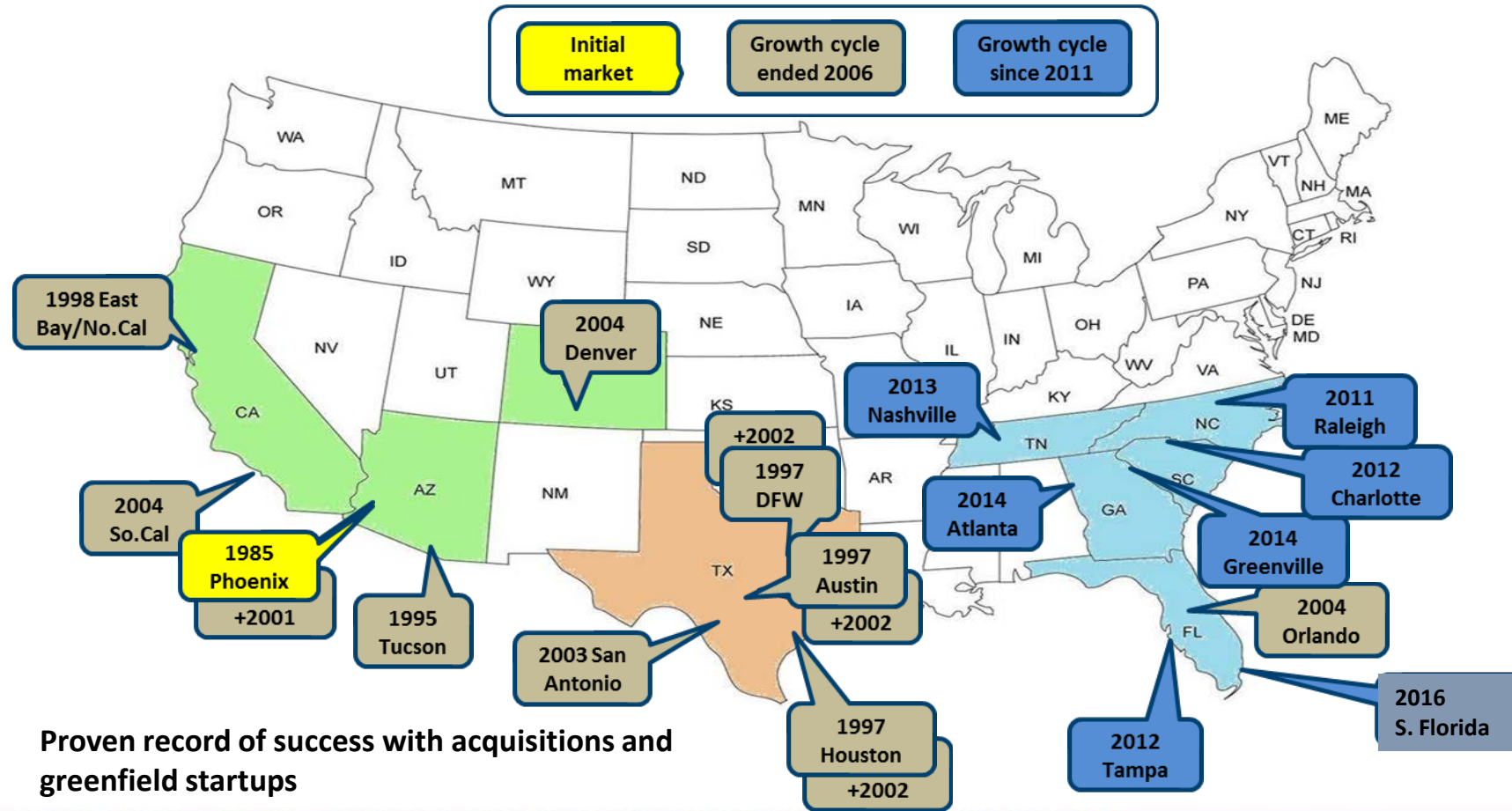
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Meritage Builds Homes Coast-to-Coast

A Growth Oriented Company With Opportunity



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OUR CORE VALUES



**START
WITH
HEART**



**INTEGRITY
ABOVE
ALL ELSE**



**DEVELOP
TO
EMPOWER**



**THINK
STRATEGICALLY**



**BUILD
VALUE**



**PLAY
TO WIN**

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Commodities



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How do typical customers buy a home?



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Customer Priorities

Location

Floor Plan

Price

?

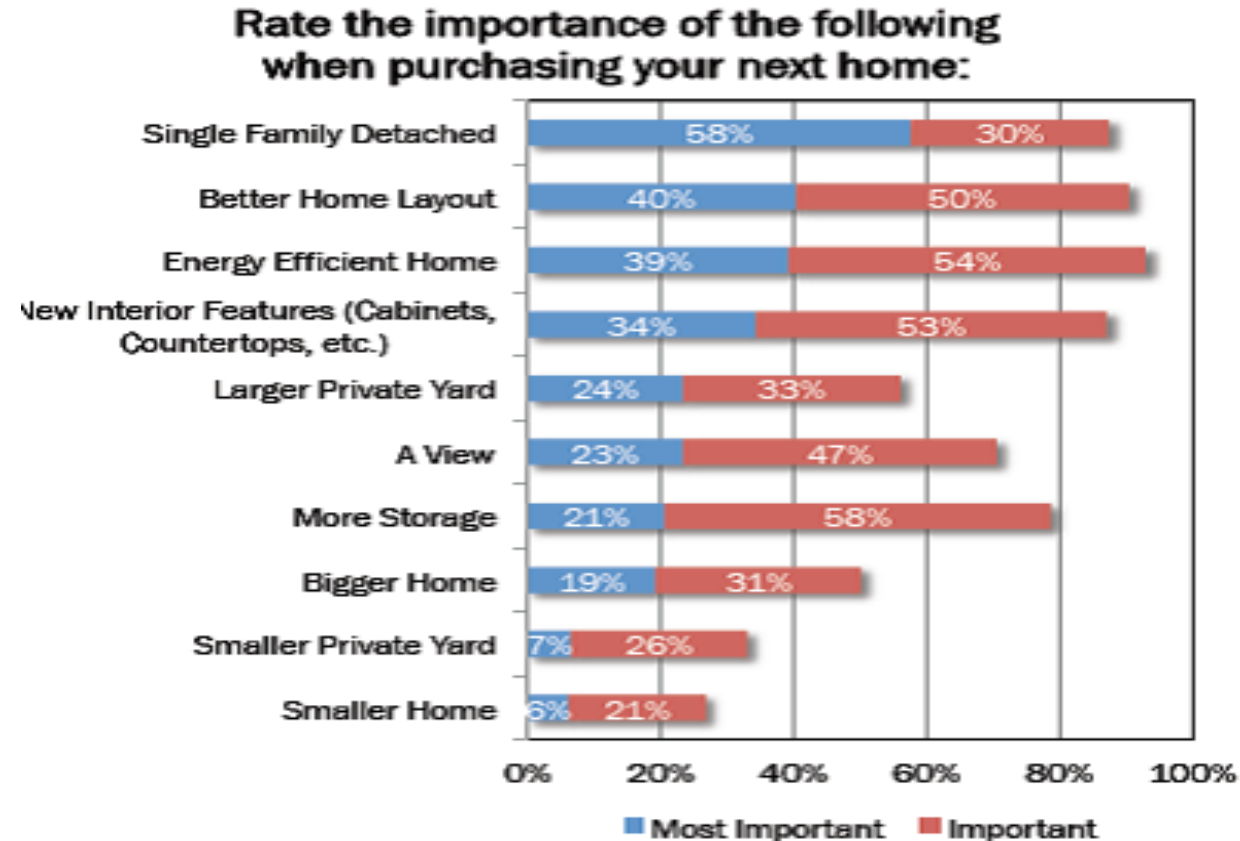


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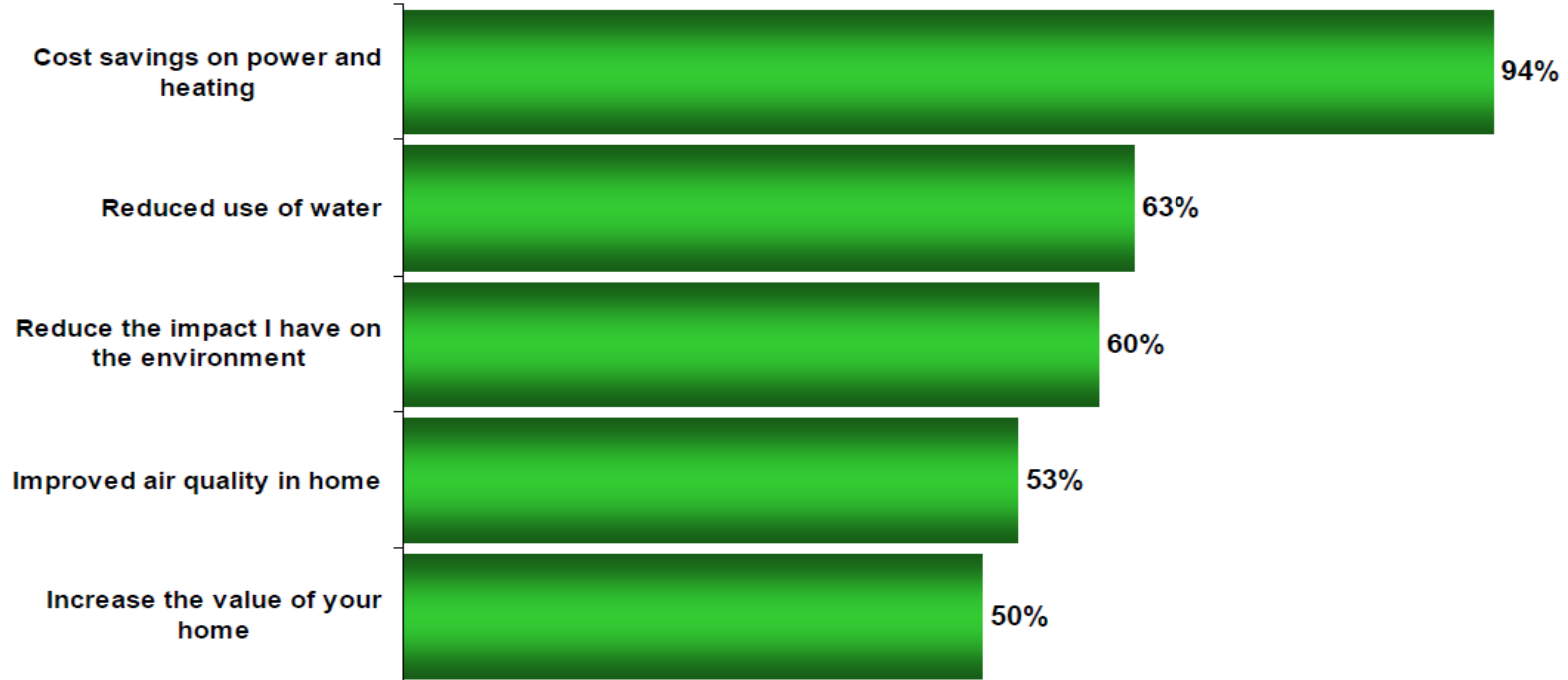
New Opportunity to get Better Value



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Win/Win/Win/Win/Win

TOP 5 REASONS TO BUY GREEN HOME / MAKE GREEN IMPROVEMENTS TO HOME



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J.D. POWER
AND ASSOCIATES

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81%

say higher energy efficiency would cause them to choose one new home over another.

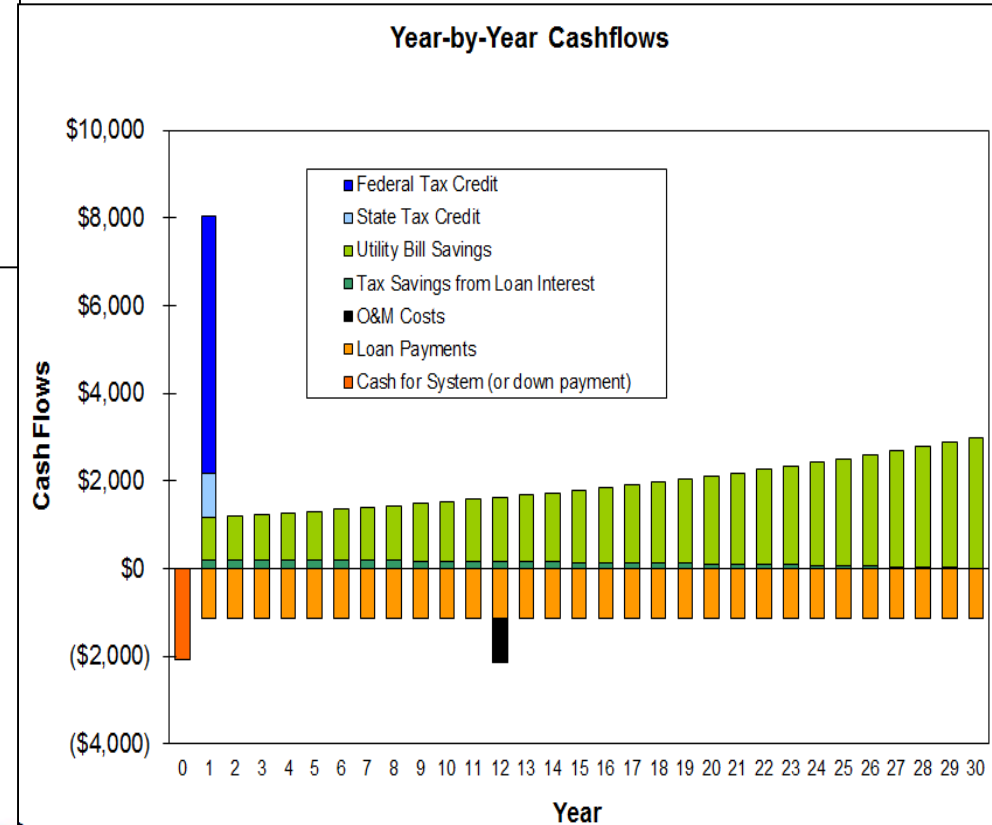
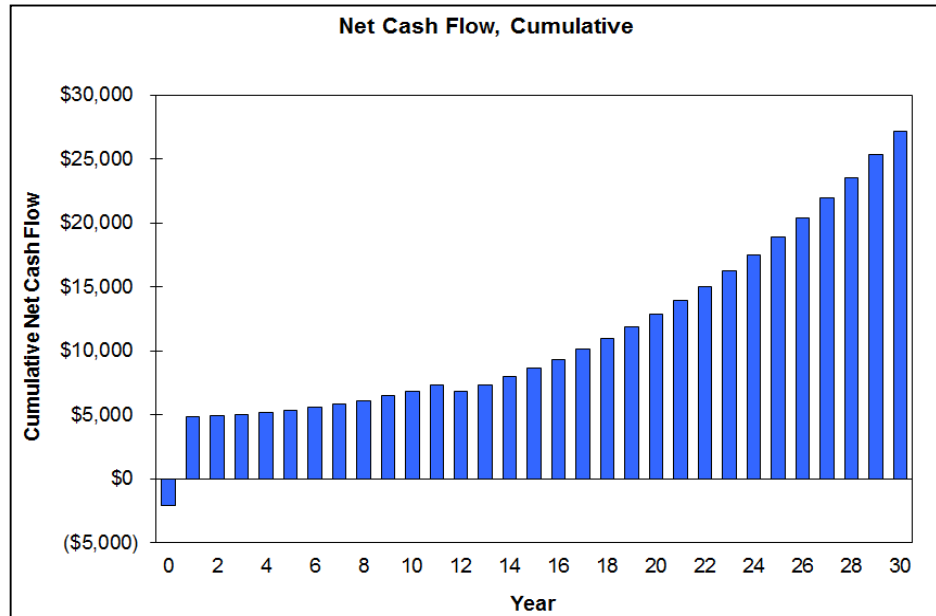
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Cash Flow Analysis Example: 4.6 kW system in AZ

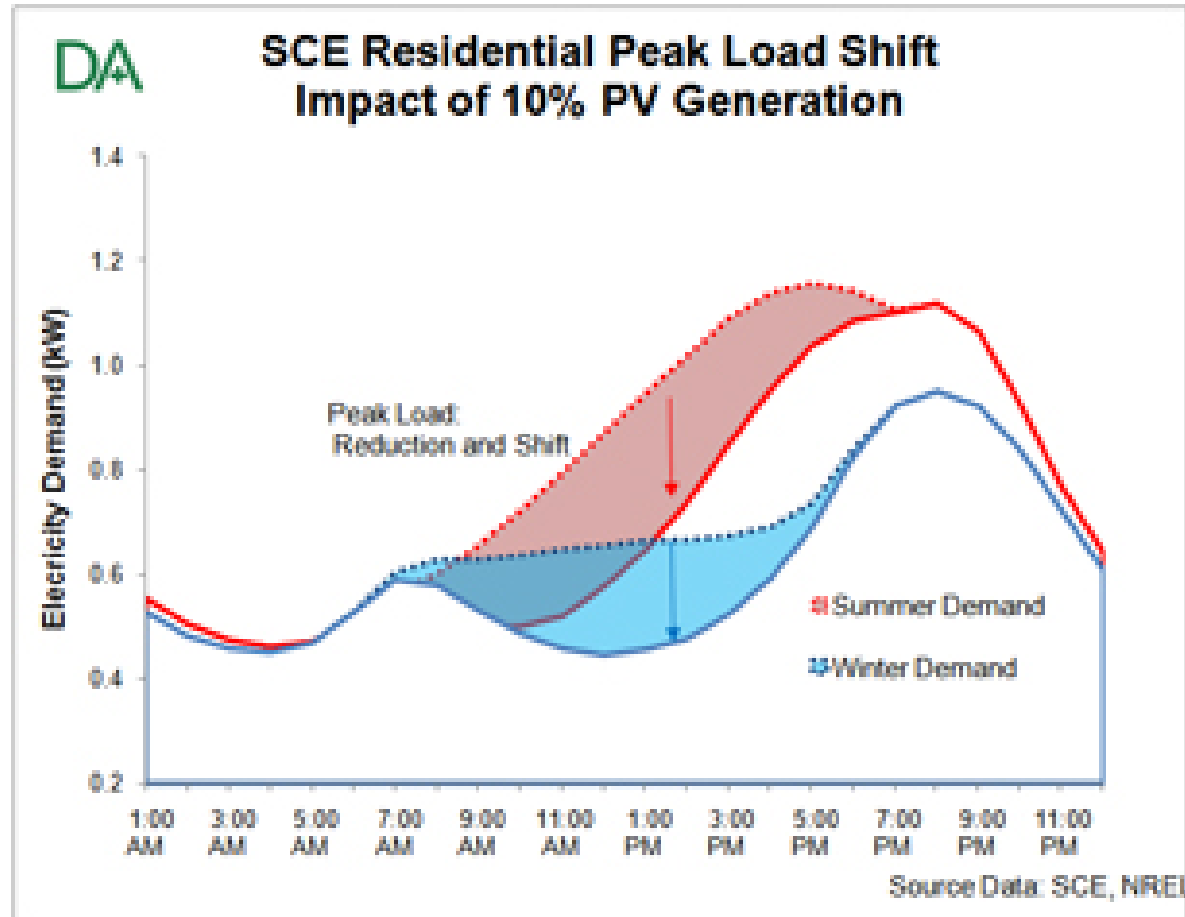
Assumptions

- 10% down, 30-yr FMR at 4.6%
- Current Electricity Avg. rate of \$0.12 per kWh
- Electricity rate of inflation = 4%



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Renewable Energy: Duck Curve



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How do customers make Better choices?



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Sierra Crest



Happy planet. Happy wallet.

Special savings on California's first Net Zero Neighborhood. Ends April 30.



Click the Promotions
tab below for details



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MASLOW'S HEIRARCHY of NEEDS



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ReNEWable Home: IBS 2018

New Value Standard

- Multigenerational Design
- Advanced Home Automation
- Advanced Health Management
- Advanced Materials / Construction Processes
- Advanced Energy Management
- Disaster Resistant
- **Lower Total Cost**

The screenshot shows the top portion of the Builder website. At the top, there is a navigation bar with the 'Builder' logo and links for DESIGN, MONEY, BUILDING, LAND, BUILDER 100, PRODUCTS, VIDEOS, and RESOURCES. A search icon and a menu icon are also present. Below the navigation bar, there is a banner for the 'reNEWable living home' project, which includes a 'Coming Soon...' message and a 'Register Today' button. To the right of the banner is a '2018 Concept Home Tour' button. Below the banner, there is a section titled 'SPONSOR PAVILION' and a 'Contributors' section. The 'Contributors' section features a video thumbnail with the text 'Proving Performance at a Production Level'. Below the video, there is a 'Partners' section with the Meritage Homes logo. To the left of the video, there is a section titled 'Multigen Homes Need Space for Aging in Place' by Dan Swift, with the subtitle 'The reNEWable Living'.



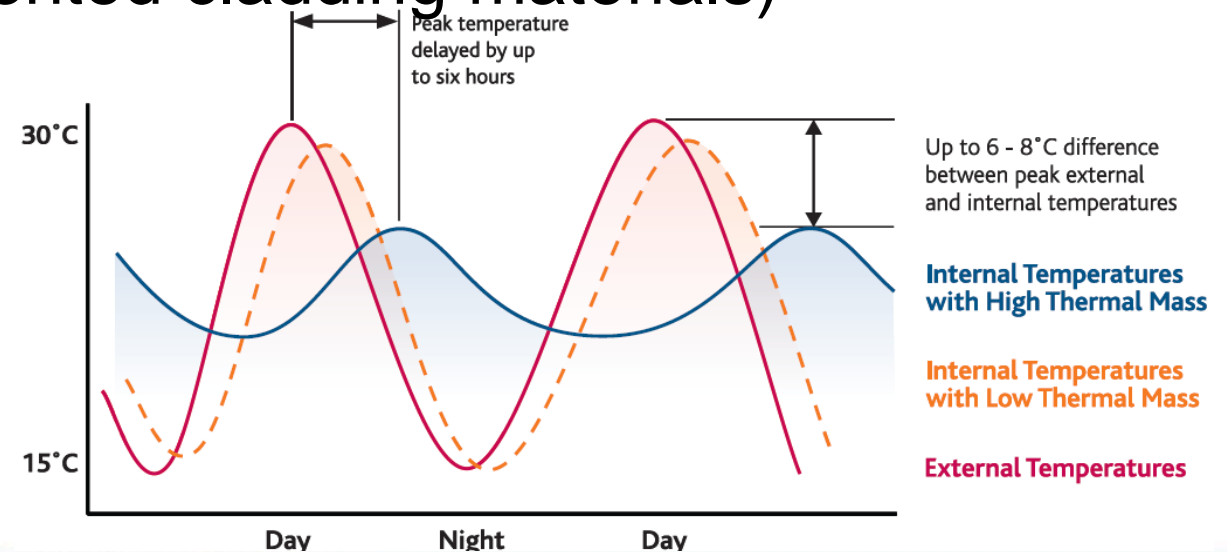
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Moving the Energy Demand

- A. Smart ventilation (off peak)
- B. Isolated Thermal mass / phase change
- C. Thermal storage (heatpump HVAC precool off peak)
- D. Low solar heat gain (reflective / vented cladding materials)
- E. Smart appliances
- F. Large hot water storage w/ heat pump.
- A. West facing solar.



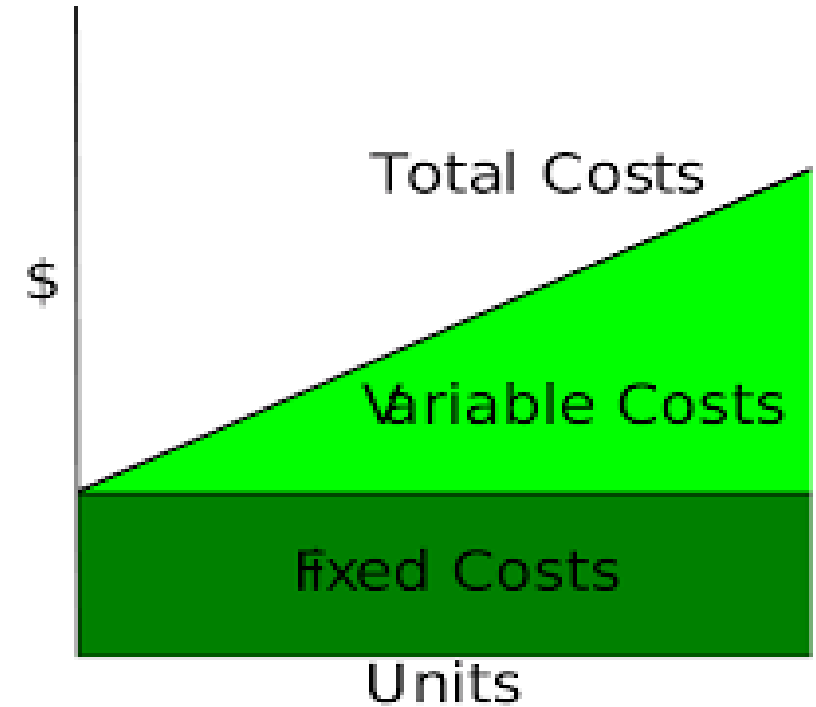
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Improving Choices

- **Demonstrating lower total cost**

- HERS Scores
- Appraisals
- Mortgages

- **Leverage lower cost TOU rates**



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Thank you!

CR Herro

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Geoff



Jeremy



CR