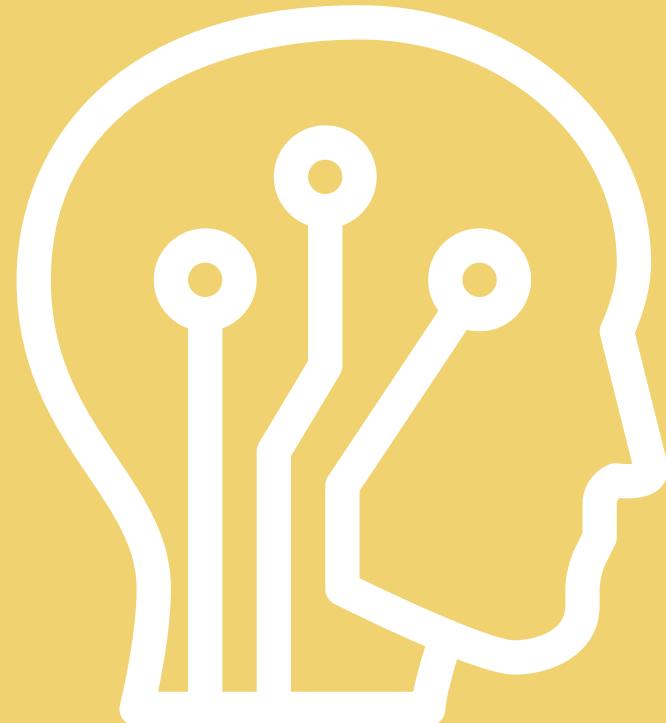


COGNITION**Smart Data**

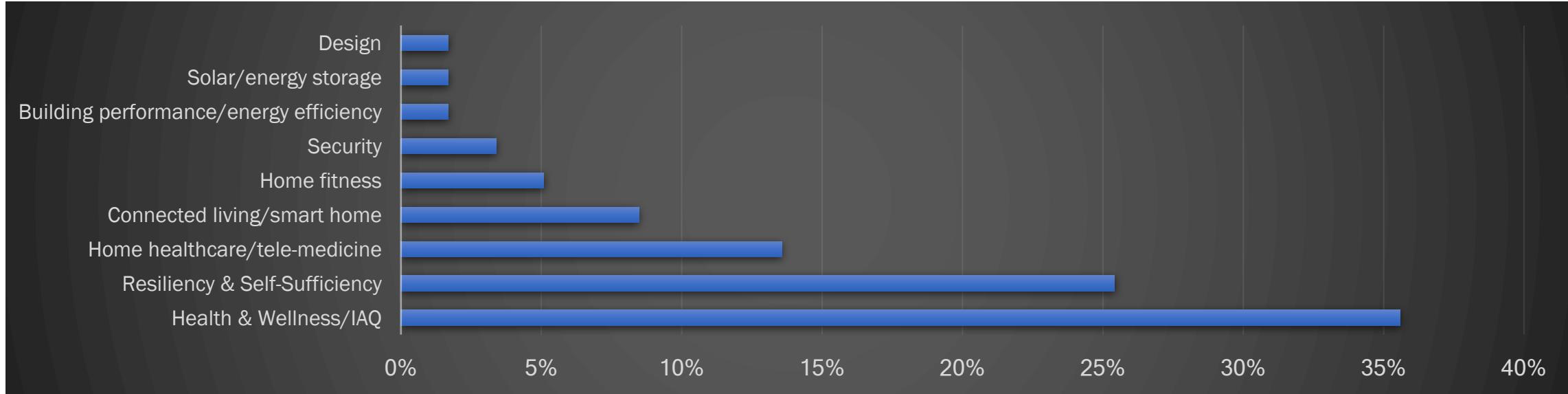
Data. Insights. Business Intelligence. Deliverables. Actionable Results.

## Market Trends Driving Solar Adoption



# Impacts of Coronavirus on Housing Sector

According to a Green Builder Media survey, the most impacted sectors will be:

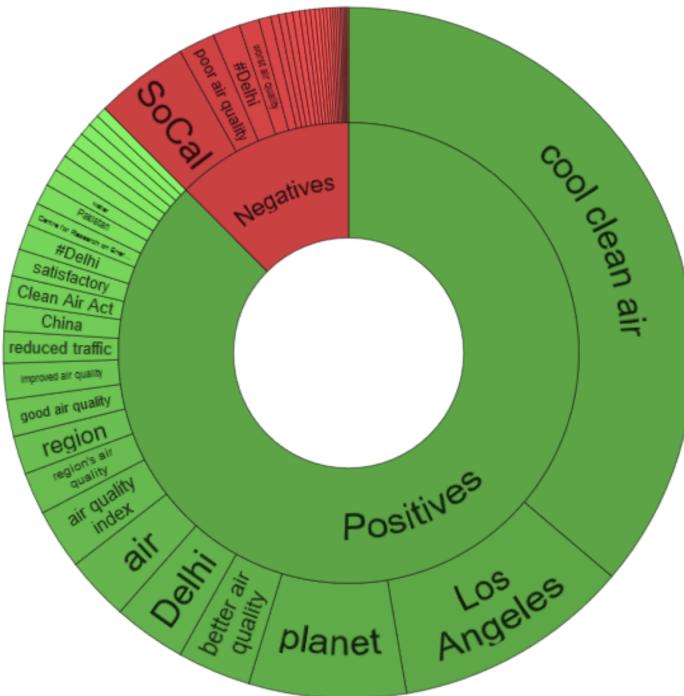


Expected long-term impacts include:

- Enhanced innovation as we adapt to new realities
- Requirements to make homes virus-resistant
- Heightened demand for healthy homes with good IAQ
- Growing interest in self-sufficiency—onsite power production and storage
- Increased transformation to digitization and technological innovation

# Impact on Climate Action

On social media, news, blogs, and forums, people are actively talking about the Coronavirus pandemic's positive environmental impact: air and water quality has dramatically improved over the past few weeks because of the shut down of business, industry, and transportation across the globe.



cool clean air

Positives

Negatives

SoCal

Delhi

better air quality

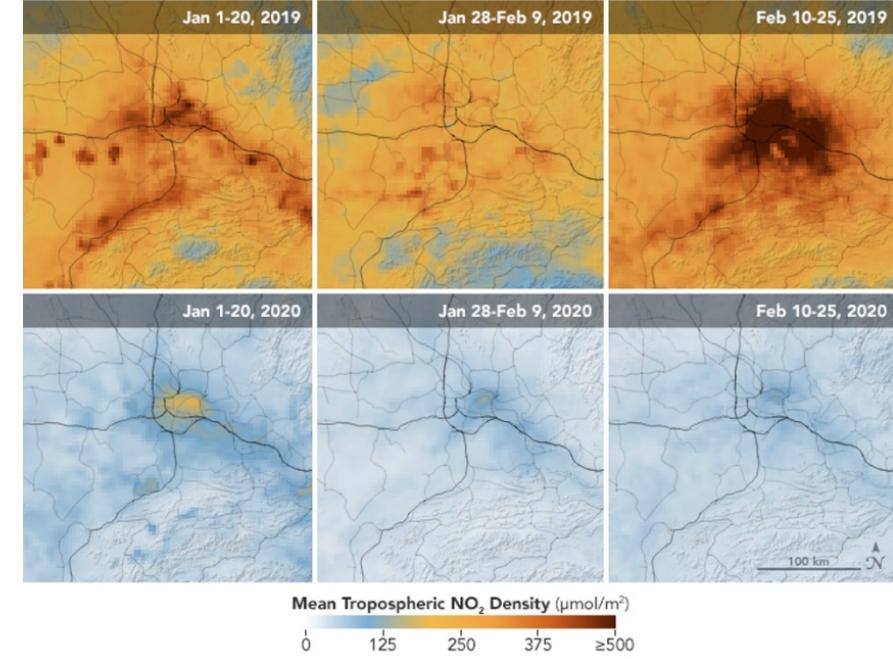
planet

Los Angeles

healthy home-cooked meal  
#climatechange  
#sustainable material  
destroy future  
drive change  
economic slowdown  
satisfactory  
Clean Air Act  
China  
reduced traffic  
improved air quality  
good air quality  
region  
region's air quality  
air quality index  
air  
Delhi  
better air quality  
planet  
Los Angeles

#coronavirus  
#COVID19  
#sustainable future  
#natural beauty  
#natural #organic food recipe  
#natural ingredient  
destroy planet  
run stark reminder  
investment opportunity  
face global challenge  
not go away  
not wasted  
not care  
Action  
solution  
#natural beauty  
die from  
crueltyfree  
benefit  
manage  
work  
death system  
affect quality  
real  
threat hoax  
threaten life  
affect availability  
#natural #organic food recipe  
easy  
sustainable  
organic  
serious issue  
#coronavirus  
cause  
make  
reduce energy cost  
patient parent  
make  
sustainable future  
threaten existence  
hardest hit  
#climatechange  
destroy future  
drive change  
economic slowdown  
satisfactory  
Clean Air Act  
China  
reduced traffic  
improved air quality  
good air quality  
region  
region's air quality  
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Delhi  
better air quality  
planet  
Los Angeles

Pollutant Drops in Wuhan—and Does not Rebound  
Unlike 2019, NO<sub>2</sub> levels in 2020 did not rise after the Chinese New Year.



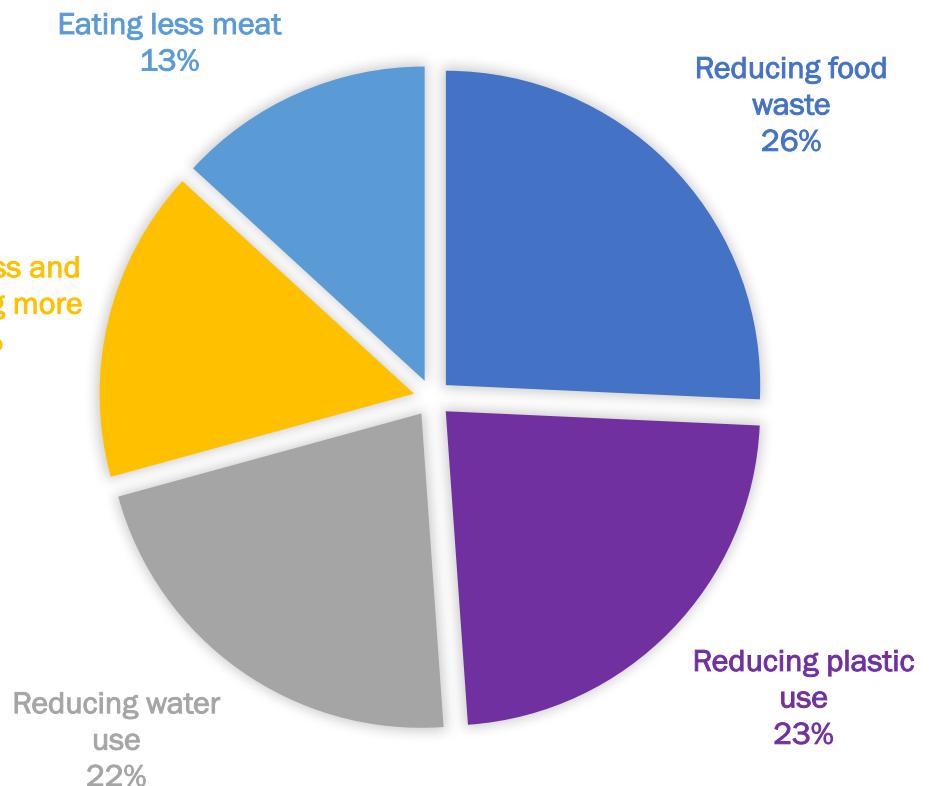
Satellite data collected by NASA shows a steep decline in pollution levels in China since early January, when Coronavirus forced an economic slowdown.

For more information about the connection between Coronavirus and climate, read [Coronavirus and the Phoenix](#)

# Growing Ethic of Sustainability

Consumers feel the impact of climate change and are acting accordingly

- 62% of consumers claim that the climate crisis is directly impacting their local communities and posing a hazard—mostly in the form of increased flooding, extreme weather, damaged ecosystems, droughts, and wildfires
- 66% of consumers believe the government isn't acting fast or aggressively enough to reduce the effects of climate change, particularly when it comes to protecting air and water quality



# Evolving Audiences

## Consumers

Consumers now play a central role in purchasing

- Specifying products up to 70% of the time
- 50% want a net zero energy home and are willing to spend up to \$9,000 in energy efficient features (NAHB)
- Actively purchasing products that will enable them to save money on energy, maintenance, and operations
- Demanding intelligent, healthy, sustainable living solutions

Products & technologies have become more and affordable, enabling this transformation

## Trade

Building professionals are building green in response to consumer demand and changing codes, using sustainability as differentiator to create value and revenues

- Massive transformation to net zero and all-electric: innovation in renewables, efficiency, DSM, and automation technologies
- Codes, regulations, programs, and policy driving change
- Increasing need for resilient structures

Valuation metric is shifting from first cost to full cost

- Homes with 3rd party certifications—higher/faster sale and resale value
- Green buildings yield meaningful ROI and lower operating costs

# Net Zero Imperative

Emissions are only down approximately 5.5%, which shows how much buildings (heating, cooling, electricity) contribute to fossil fuel demand.

The global market for net zero energy structures will explode to \$78.8 billion by 2025 due to innovation in high-performance products, renewable energy, and automation technologies, and corresponding advancements in codes and policy.

Innovations to watch for:

- New solar technology—PVs, inverters and storage
- Heat pump water heaters
- Minisplit HVAC systems
- Induction cooktops
- Smart thermostats
- High R-Value windows
- High performance insulation and building envelope systems
- Offsite/prefab construction
- Electric vehicle to Grid (V2G)

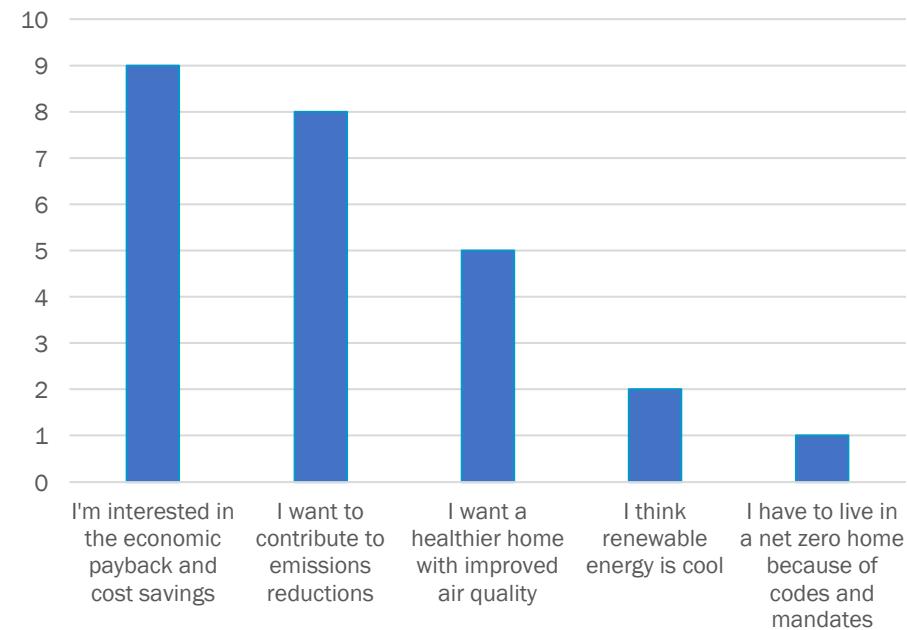
For more information about Net Zero, watch the webinar [Demystifying Zero](#) and read [The Net Zero Imperative](#).



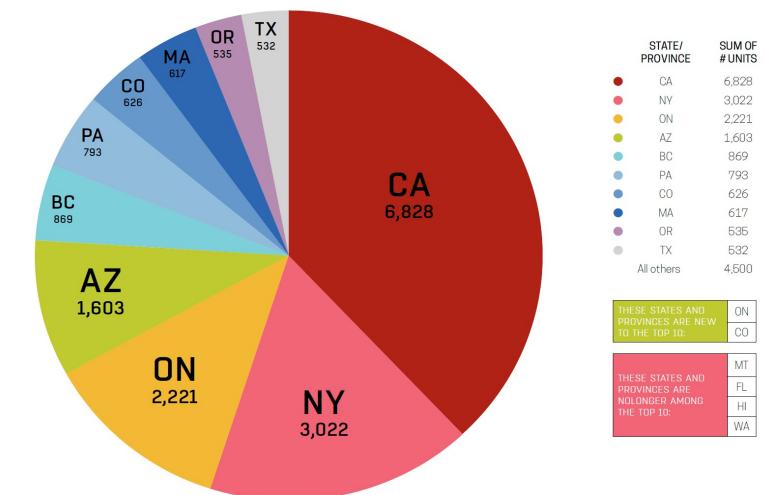
# The Future is Zero

## Massive Transition to Net Zero Structures

- The global market for net zero energy structures will explode to \$78.8 billion by 2025 due to innovation in high performance products, renewable energy, and automation technologies, and corresponding advancements in codes and policy—growth irrespective of location, climate, and political jurisdiction
- In the U.S. and Canada, the number of net zero residential structures grew by 59% in 2018 (when compared to 2017):
  - 22,146 single family and multifamily projects that are either in design, construction, or operation
  - Larger multi-family buildings represent 71% of total residential stock
- Important trends to keep your eye on: community micro-grids, transition to total electrification, and zero carbon



## TOP 10 ZERO ENERGY STATES/PROVINCES BY NUMBER OF UNITS



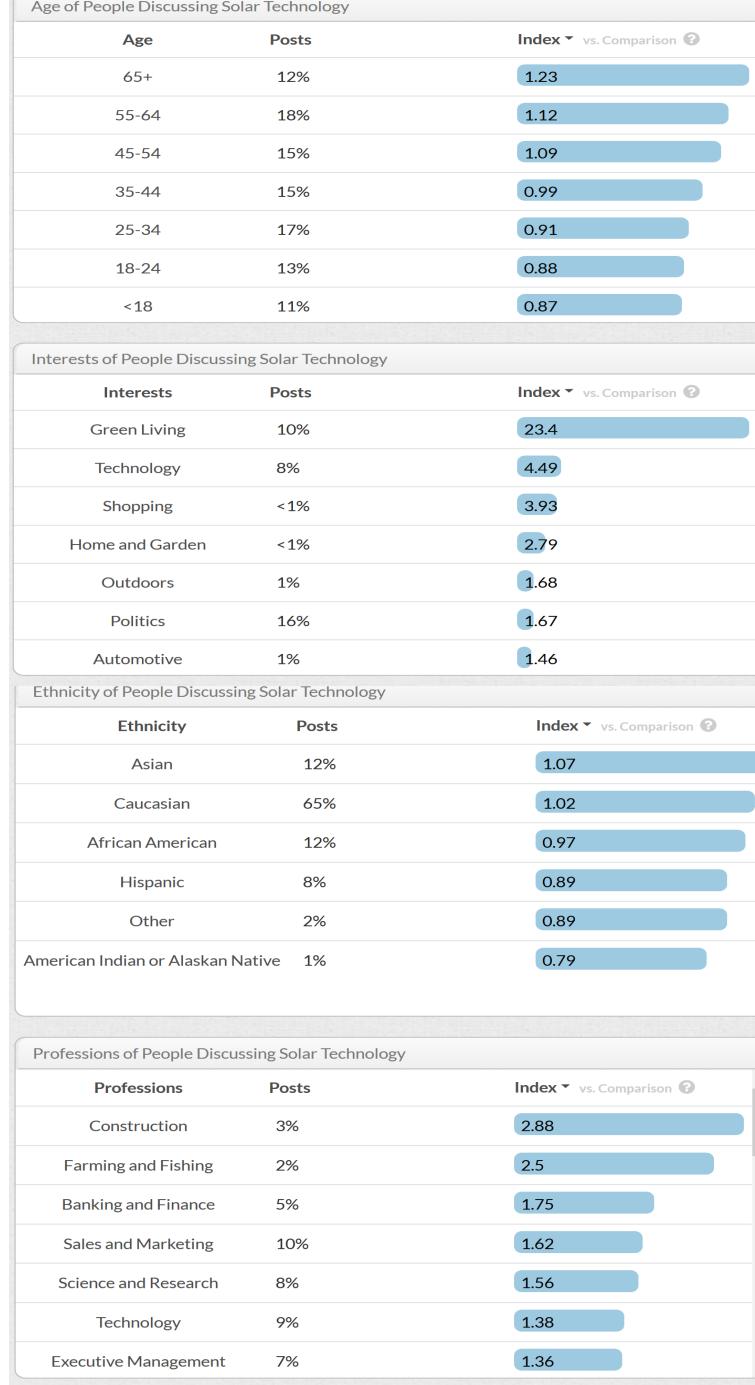
# Solar Explosion

Global demand will continue to increase exponentially

- Market drivers
  - The cost to build new solar and wind energy facilities are now cheaper than fossil fuel and nuclear facilities; soon, building new solar and wind plants will be cheaper than operating current fossil fuel plants
  - Aggressive clean energy targets being set by governments, corporations, and communities are spurring growth
  - Movement towards net zero and electrification will continue to spur growth in the solar sector
  - Blackouts due to natural disasters have placed solar + storage on the forefront across the U.S.
- Ongoing consolidation and commodification of upstream PV market
  - Solar industry is entering a period of extended growth where success will be driven by value chain specialization, technology innovation and economies of scale
- Growing focus on energy services like storage and demand-side management
- Creative financing solutions continue to be essential
- Integration with the smart home market will be a major market driver to streamline the harvesting, storage, usage and monitoring of energy

# Solar Audience, Purchase Drivers, and Sentiment

- Audience Profile
  - Boomers (55+ years old) represent the most vocal share of online discussion (34%), followed by Millennials (18 to 34 years old) at 28% share
    - Boomers like solar, but Millennials express largest purchase intent
- Purchase Drivers
  - Consumers: Comfort and Climate Action
  - Trades: Price
- Purchase Incentives
  - Creative financing options and deep discounts to drive sales
- Sentiment
  - Positive: solar aligns with buyer values, reduces environmental impact provides redundancy, reduces energy costs
  - Negative: lack of functionality during blackouts, manufacturing outside of the US, toxicity of manufacturing, and panels catching on fire



# Key Homebuyer Segments

Millennials and older Zoomers will drive housing market uptick.

Dual-income, college educated couples that:

- Are living in dense apartment buildings and want more space
- Have a strong ethic of sustainability
- Are totally at home in the digital world
- Are settling down, starting families, and hitting their peak homebuying potential

Compact floorplans, low monthly payments, and smart homes that are sustainable, efficient, and healthy.

Many of these homebuyers believe that:

- Connected living technologies like smart thermostats, security, lighting, IAQ sensors, and leak detection, should be included as a standard offering (as opposed to an upgrade).
- Healthy home is a fundamental homeowner right
- Good indoor air quality is as important as location when making homebuying decisions



# Key Homebuyer Segments (continued)

Strong purchase interest in solar technologies (including photovoltaics, storage solutions, and power management systems) to reduce carbon footprint, decrease energy bills, and increase self-sufficiency.

Consider the ability to net meter, or feed energy back to the grid, a badge of honor.

Smart + solar integration, streamlined connectivity, and redundant technology to keep hubs, routers, servers, security systems, and backup power supplies functioning.

Work-life balance that incorporates home fitness, wellness, and healthcare.



# Key Homebuyer Segments (continued)

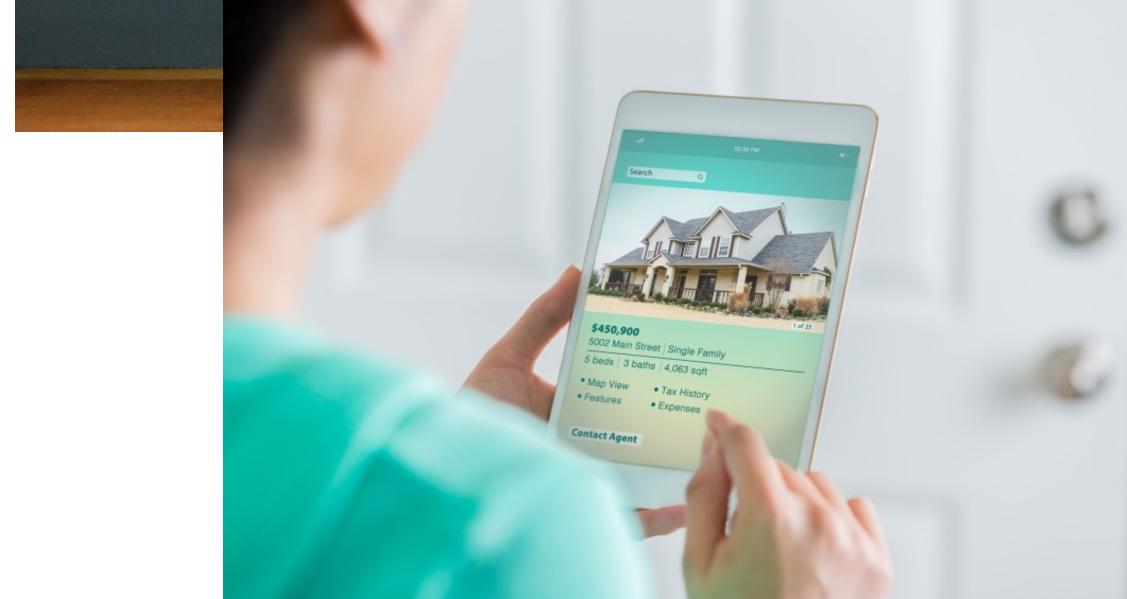
Intrigued by small footprint living.

- Upsizing from 800-1,000 to 1,200-1,500 square feet (no McMansions here!)

Leaving higher priced, denser urban areas for inner suburbs (medium-density environments), outer suburbs, and even rural areas.

Influencing home design, construction, and product specification, they're also impacting the way that homes are purchased.

This group, totally comfortable making large purchases online, are already driving the digitization of the housing market, as indicated by the massive uptick in 3D home tours.



# #BuildBackBetter

As we reopen the economy, will we take the opportunity to reimagine our lives?

Will we implement a new mandate for renewable energy, reduced vehicle traffic, and Green New Deal strategies?

- Germany: generated record amount of solar energy due to clear skies

How much more livable would our cities be if we designed them for people, not cars?

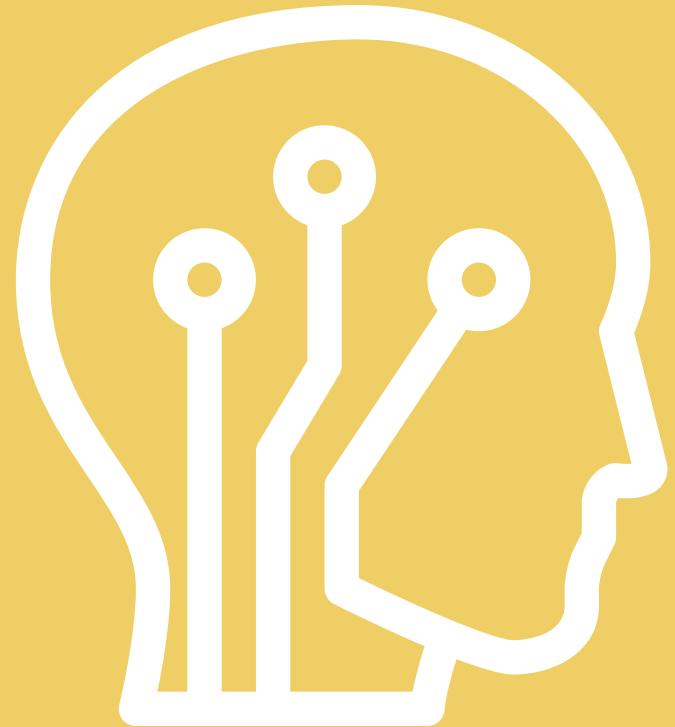
- Milan: “Open Streets Plan”: 22 miles for cycling and walking

Impact of Millennials (86 million) and Zoomers (67 million) with strong ethic of sustainability and high solar purchase interest

Flight to suburbs, countryside, and less populated areas

Self-sufficient, solar powered communities with smaller homes with shared commons and open spaces





# Thank you!

Sara Guterman

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