

Electrification and Public Health in Buildings

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BUILDINGS ACCOUNT FOR

46%

OF TOTAL CO² EMISSIONS IN THE US



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BUILDINGS & CARBON

BUILDINGS
ACCOUNT FOR

75%

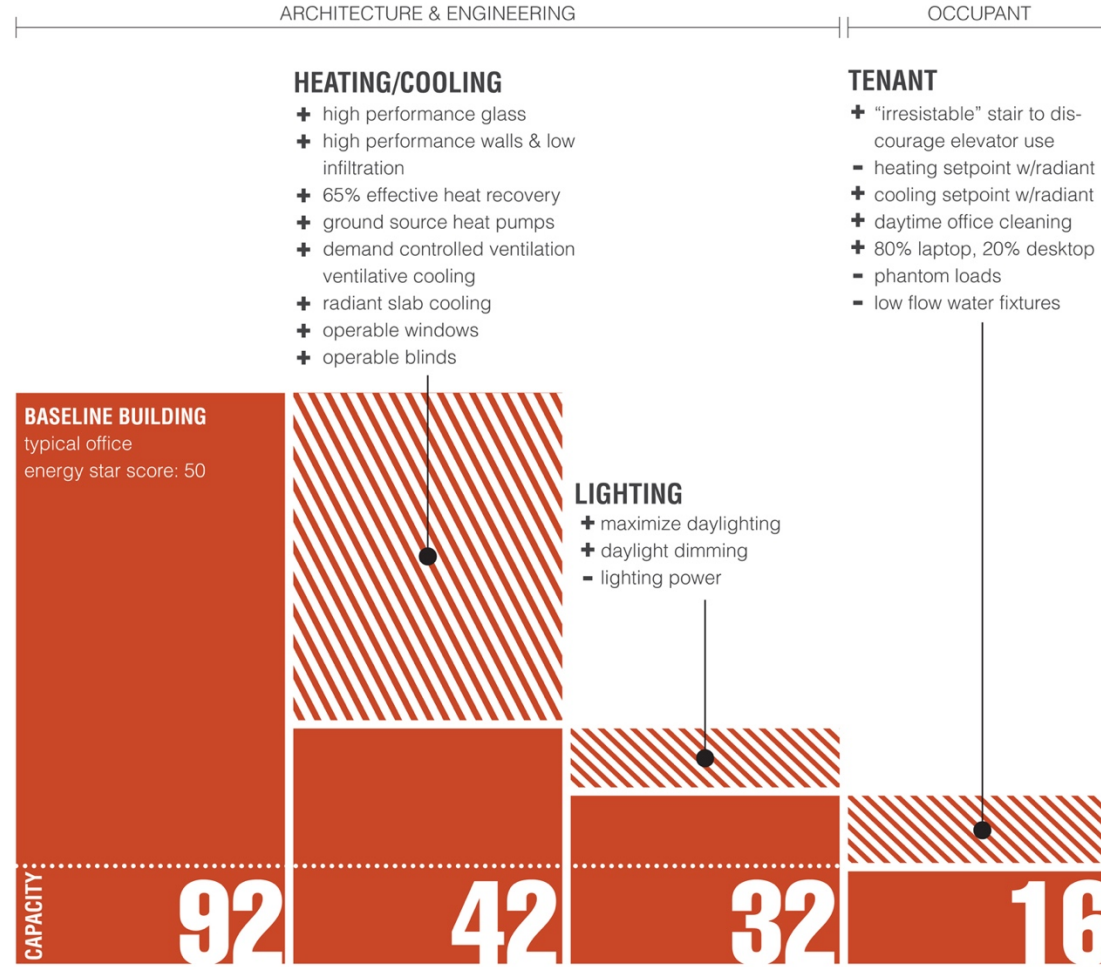
OF TOTAL
ELECTRICAL USE
IN THE US



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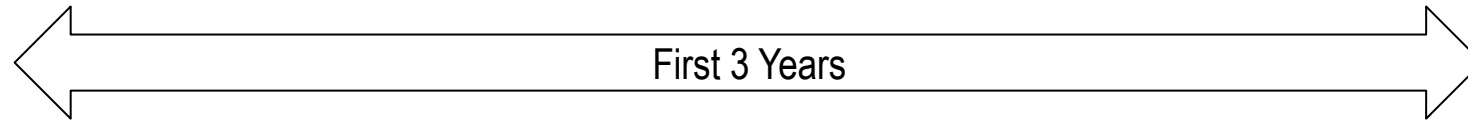
BUILDINGS & ELECTRICITY



BUILDING ENERGY USE INTENSITY(EUI): ENERGY CONSUMPTION PER FLOOR AREA

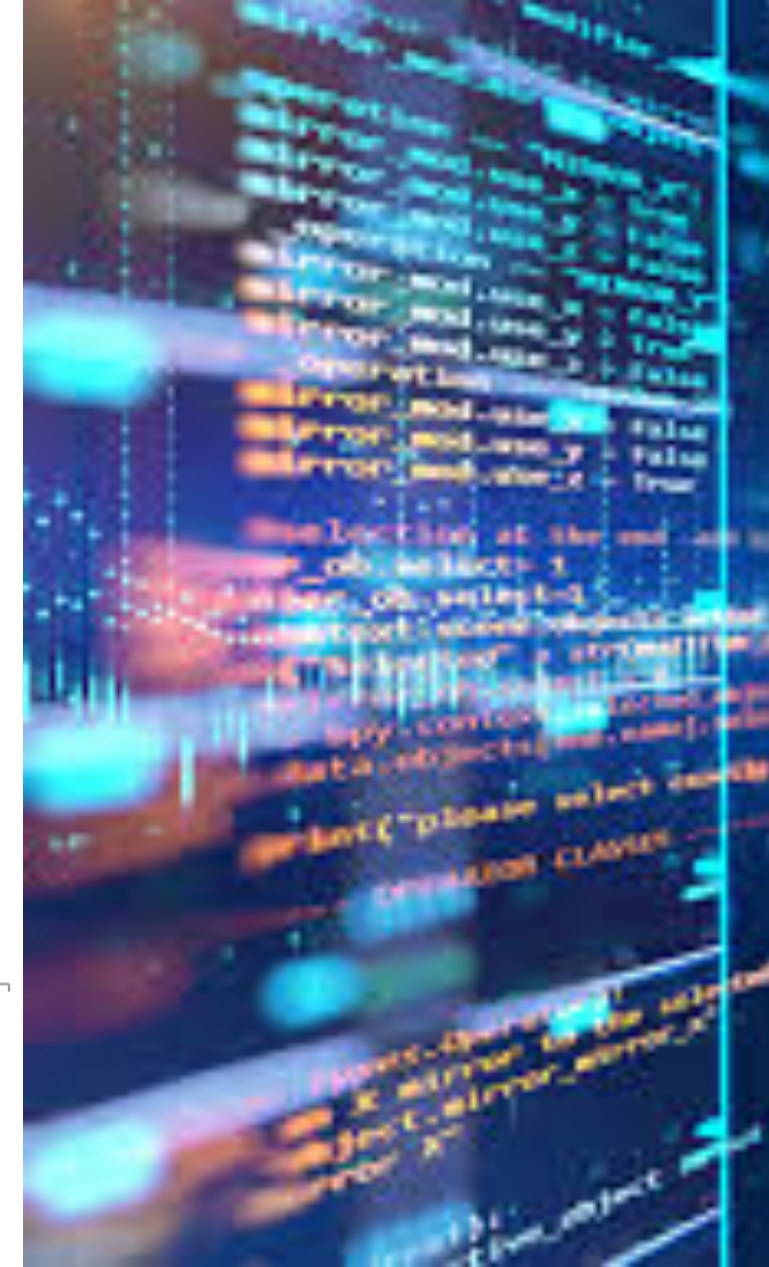
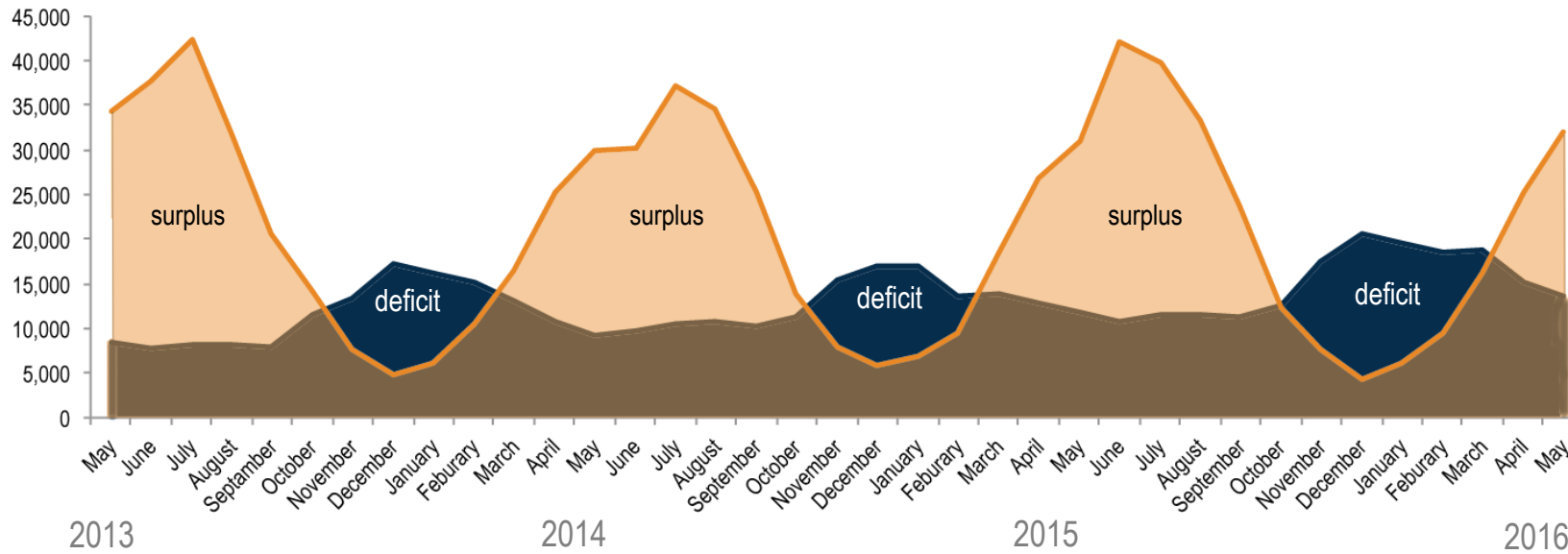
THE PATH TO NET ZERO ENERGY

Bullitt Center Energy ACTUAL Energy Production & Usage



Energy Produced	749,993 kWhr
Energy Used	- 469,114 kWhr
Net Production	+280,849 kWhr

60% Net Positive over 3 years



'Bleak' U.N. Report on a Planet in Peril Looms Over New Climate Talks



A gas flare at a Shell refinery in Norco, La. Drew Angerer/Getty Images



By Somini Sengupta

Nov. 26, 2019



Tens of thousands of deaths linked to weak US air pollution rules - study

Researchers linked nine causes of death with a certain type pollution when reviewing medical records of deceased veterans



▲ About 200,000 Americans are thought to die from air pollution each year, but scientists previously couldn't pinpoint the specific causes of death for almost half of those people. Photograph: Jeff Zehnder/Alamy

US air pollution rules could be hugely insufficient in preventing deaths, experts are concluding from a new study of the likely causes of death of 4.5 million veterans.

Published in the peer-reviewed journal *Lancet*, the research finds that 99% of

FACT 8:

Particulate pollution is the greatest external risk to human health.

The WHO has set a guideline of $10 \mu\text{g}/\text{m}^3$ as the safe level of long-term average particulate pollution. Relative to what life expectancy would be if all areas complied with this guideline, if current particulate pollution levels persist, today's global population will lose a total of 12.8 billion years of life directly due to particulate pollution. If the entire planet permanently met the WHO guideline, the average person would live 1.8 years longer, extending life expectancy to 74 years.

To put this in perspective, first-hand cigarette smoke leads to a reduction in global average life expectancy of about 1.6 years; alcohol and drugs reduce life expectancy by 11 months; unsafe water and sanitation take off 7 months; and HIV/AIDS, 4 months. Conflict and terrorism take off 22 days. So, the impact of particulate pollution on life expectancy is comparable to that of smoking, twice that of alcohol and drug use, three times that of unsafe water, five times that of HIV/AIDS, and 29 times that of conflict and terrorism.²³

What accounts for particulate pollution's enormous overall impact? The key difference is that residents of polluted areas can do very little to avoid particulate pollution, since everyone breathes the air. In contrast, it is possible to quit smoking and take precautions against diseases. Thus, air pollution affects many more people than any of these other conditions: 75 percent of the global population, or 5.5 billion people, live in areas where $\text{PM}_{2.5}$ exceeds the WHO guideline. So, although other risks such as HIV/AIDS, tuberculosis, or war have a larger impact among the affected, they affect far fewer people. For example, the Global Burden of Disease estimates that those who died from HIV/AIDS in 2016 died prematurely by an average of 51.8 years. However, since the 36 million people affected by the disease is tiny compared to the 5.5 billion people breathing polluted air, the overall impact of air pollution is much greater.



Greenstone and Qing Fan, *Introducing the Air Quality Life Index*, Energy Policy Institute at the University of Chicago, Nov, 2018

Indoor & Outdoor Particulate Matter
Impacts Public Health
both acute & chronic factors



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ENERGY -> AIR QUALITY



CONVERGING CRISES



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POLICY IN ACTION!



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