Energy Efficient Buildings and Net Zero Energy Design

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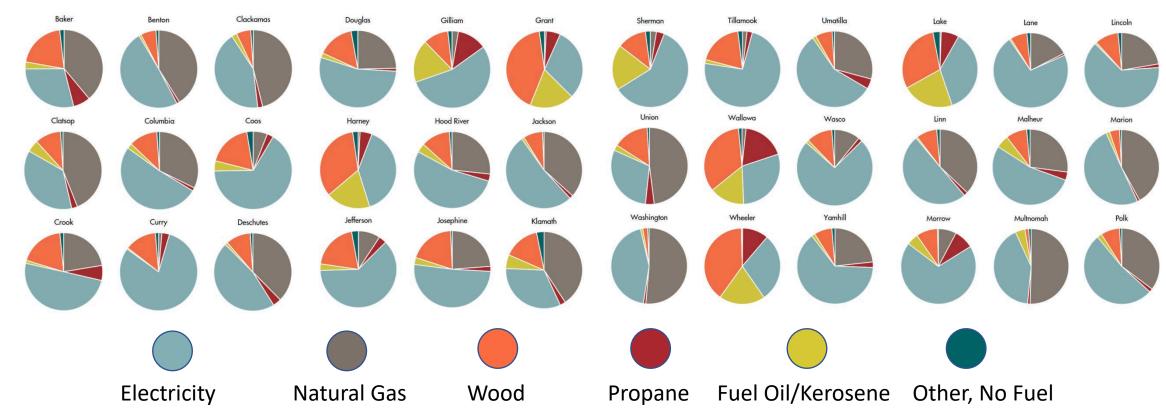
Director, NetZED Laboratory

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Hale Malama, Eugene, Oregon 2020

How Oregonians Heat Their Homes



The Oregon Department of Energy's 2020 Biennial Energy Report, November 1, 2020



Expanding Oregon's Capability





OREGON DEPARTMENT OF ENERGY







Aggressively Efficient Examples





Passive House

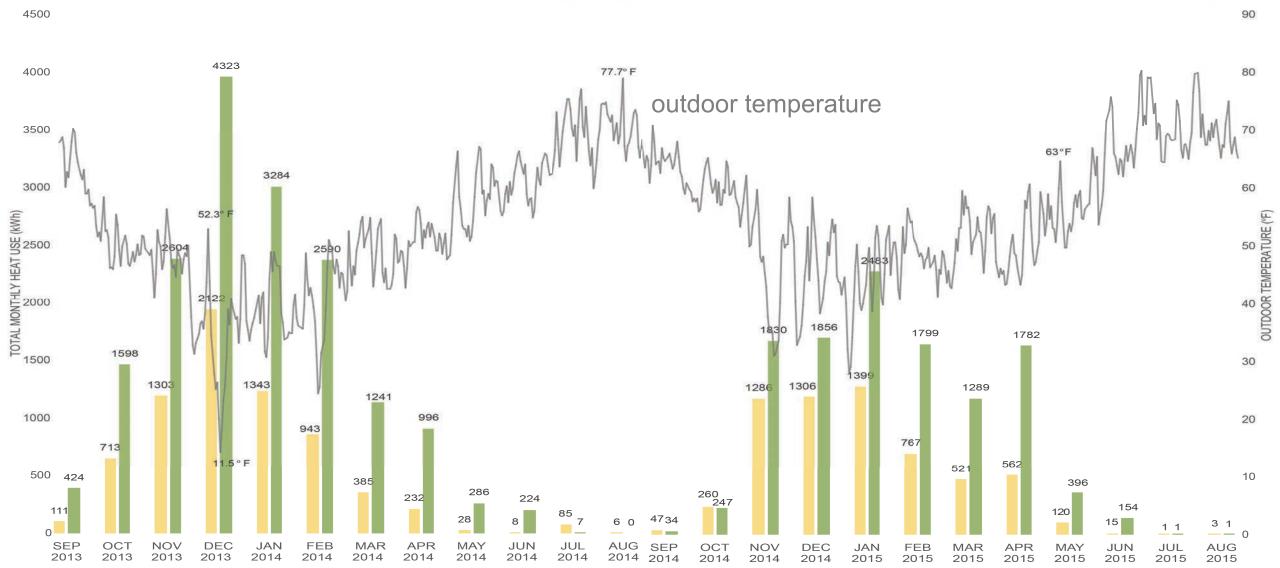
Earth Advantage

Stellar Apartments, Eugene, Oregon 2013



Space Heating Use: September 2013 – September 2015

SEP OCT NOV DEC JAN FEB MAR APR MAY JUN **JUL AUG** SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL **AUG** 74% 55% 50% 51% 59% 64% 69% 77% 90% 97% **0%** 0% 0% 0% 30% 30% 44% 57% 60% 68% 70% 90% 9% **0%**



Net Zero Energy Building Case Studies Commercial



Bullitt Center, Seattle, Washington 2013

Net Zero Energy Building Case Studies Schools



Hood River Music & Science Building, Hood River, Oregon 2010