


An aerial photograph of a rural property in the Sierra Foothills, California. The image shows a dirt road winding through a landscape of dry grass and scattered trees. Several buildings are visible, including a large brown-roofed house, a smaller white-roofed structure, and a red-roofed building. The terrain is hilly and appears to be a mix of residential and agricultural land.

Pathways to Net Zero Housing

Richard DeBusman
Sierra Foothills, California
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An aerial photograph of a rural landscape. In the center, there is a large farmstead with several buildings, including a large brown-roofed structure and a smaller white building. The surrounding area consists of dry, yellowish-brown fields and some green trees. The overall scene is a typical agricultural setting.

“We all need to develop serious resource plans, particularly energy policies. There is little time to waste.”

-Jeremy Grantham, Co-Founder, GMO LLC

-http://www.gmo.com/websitecontent/JGLetterALL_1Q11.pdf









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System Cost

% \$18,170

| | AC W | DC W | min/day | hrs/day | D/Wk | A WH/w | D WH/w | PV only | Sys tot |
|------------------------------|------|------|---------|---------|------|--------|--------|---------|---------|
| Kitchen/Dining | | | | | | | | | |
| lites, under cab L 6(10) | 80 | | | 1 | 7 | 420 | | 1% | \$193 |
| lites, under cab R 4(10) | 40 | | | 1 | 7 | 280 | | 1% | \$129 |
| lites, over sink 2(15) | 30 | | | 1.5 | 7 | 315 | | 1% | \$145 |
| K lites, oven | 40 | | 1 | | 7 | 5 | | 0% | \$2 |
| lites, island range 2(15) | 30 | | 10 | | 7 | 35 | | 0% | \$16 |
| vent, island range | 80 | | | 0.5 | 7 | 280 | | 1% | \$129 |
| dishwasher | 200 | | 45 | | 7 | 1,050 | | 3% | \$483 |
| toaster | 800 | | 1 | | 5 | 67 | | 0% | \$31 |
| mixer, kitchenaid | 325 | | 5 | | 2 | 54 | | 0% | \$25 |
| juicer | 200 | | 5 | | 2 | 33 | | 0% | \$15 |
| microwave | 1400 | | 10 | | 5 | 1,167 | | 3% | \$537 |
| DR lites | 25 | | | 0.25 | 7 | 44 | | 0% | \$20 |
| UR Sfrst 19 cu ft refer | | 380 | | | 7 | | 2,660 | 7% | \$1,226 |
| Utility room | | | | | | | | | |
| UR Sfrst 10 cu ft freezer | | 690 | | | 7 | | 4,830 | 12% | \$2,224 |
| washer, Neptune stackable | 726 | | | 1 | 3 | 2,178 | | 8% | \$1,003 |
| dryer, Neptune stackable | 400 | | | 1 | 2 | 800 | | 2% | \$368 |
| lites | 20 | | 10 | | 7 | 23 | | 0% | \$11 |
| Master bedroom/bath | | | | | | | | | |
| MBR lites, ceiling | 15 | | 5 | | 7 | 9 | | 0% | \$4 |
| MBR lites, reading | 15 | | | 4 | 7 | 420 | | 1% | \$193 |
| BR, fans (2) (summer) | | 72 | | 8 | 0 | | 0 | 0% | \$0 |
| MBA lites, vanity 4(15) | 60 | | 10 | | 7 | 70 | | 0% | \$32 |
| MBA lites, toilet | 100 | | 10 | | 7 | 117 | | 0% | \$54 |
| MBA vent, toilet | 100 | | 10 | | 7 | 117 | | 0% | \$54 |
| Guest bedroom / bath | | | | | | | | | |
| BR lites, ceiling | 15 | | 5 | | 7 | 9 | | 0% | \$4 |
| BR lites, reading | 15 | | | 4 | 7 | 420 | | 1% | \$193 |
| BA lites, vanity 4(15) | 60 | | 10 | | 7 | 70 | | 0% | \$32 |
| BA lites, toilet | 100 | | 10 | | 7 | 117 | | 0% | \$54 |
| BA vent, toilet | 100 | | 10 | | 7 | 117 | | 0% | \$54 |
| Living room | | | | | | | | | |
| computer lap, hers | 20 | | | 1 | 5 | 100 | | 0% | \$46 |
| LR lites, track 4(15) | 60 | | | 1 | 7 | 420 | | 1% | \$193 |
| LR lites, reading | 15 | | | 4 | 7 | 420 | | 1% | \$193 |
| LR fan | | 36 | | 2 | 5 | | 360 | 1% | \$106 |
| LR TV 27" | 130 | | | 4 | 7 | 3,640 | | 26% | \$4,735 |
| LR DTV/DVD/VCR | 20 | | | 4 | 7 | 560 | | 1% | \$258 |
| Office/study | | | | | | | | | |
| Office/Study lites, reading | 15 | | | 2 | 5 | 150 | | 0% | \$69 |
| Office/Study lites, overhead | 15 | | 10 | | 7 | 18 | | 0% | \$8 |
| computer lap, his | 20 | | | 2 | 5 | 200 | | 1% | \$92 |
| Office/Study fan (summer) | | 36 | | 8 | 0 | | 0 | 0% | \$0 |
| Misc | | | | | | | | | |

A large array of solar panels is installed on a hillside, viewed from a low angle looking up. The panels are tilted and reflect the warm light of the setting sun. The sky is a mix of blue and orange, with wispy clouds and several white contrails. In the background, a valley with green fields and a few buildings is visible under the soft glow of the sunset. The overall scene conveys a sense of clean energy and sustainable living in a natural setting.

Thank you