



# CLIMATE SUMMIT

WHAT IF IT'S  
A BIG HOAX AND  
WE CREATE A BETTER  
WORLD FOR NOTHING?

- ENERGY INDEPENDENCE
- PRESERVE RAINFORESTS
- SUSTAINABILITY
- GREEN JOBS
- LIVABLE CITIES
- RENEWABLES
- CLEAN WATER, AIR
- HEALTHY CHILDREN
- ETC. ETC.













## Comparison of Energy Efficiency

|                           | <u>Riverdale NZE</u>                                  | <u>90s house</u> | <u>70s house</u> |
|---------------------------|---|------------------|------------------|
| Wall construction:        | double 2x4  | single 2x6       | single 2x4       |
| <b><u>Insulation:</u></b> |   |                  |                  |
| — ceiling                 | R-100   | R-28 to 34       | R-12             |
| — walls                   | R-56  | R-20             | R-8              |
| — basement walls:         | R-56  | R-8 (upper part) | nothing          |
| — basement floor:         | R-24  | nothing          | nothing          |
| Windows:                  | 3-glazed (S)<br>4-glazed (N,E,W)<br>low-e, argon fill | 2-glazed         | 2-glazed         |
| Air leakage rate:         | 0.5 AC/hour   | 4 to 6 AC/hour   | 5 to 7 AC/hour   |
| Ventilation system:       | heat recovery<br>80% efficient                        | none             | none             |

Figure 2. A performance / design comparison of the Riverdale homes versus past “typical” Canadian homes.



# Active Solar Water and Space Heating System

- very efficient Zen flat-plate solar collectors (Belgium)
- 17 000 litres of water storage in basement
- 7 collectors per side, 19 m<sup>2</sup> of area
- Vertical tilt
  - to eliminate snow cover in winter
  - maximise winter gain
  - maximise reflected snow



Figure 3. A few details of the active solar heat and hot water system of the Riverdale Duplex houses.

















































Results  
To-Date  
Sept. 2008



| Array                    | JX Crystal 3S | Solar Wd 165 | Sharp 170    | Solar Wd 165 |
|--------------------------|---------------|--------------|--------------|--------------|
| Panels                   | 12 @ 180W     | 16 @ 165W    | 16 @ 170W    | 16 @ 165W    |
| Configuration            | 2160W 2-axis  | 2640W 2-axis | 2720W 2-axis | 2640W fixed  |
| Cost (equip)             | \$19,409      | \$22,489     | \$23,449     | \$16,619     |
| Capacity<br>Factor       | 12.3%         | 17.5%        | 17.1%        | 12.6%        |
| Payback* @<br>\$0.50/KWH | 16.7 – 21.8   | 11.1 – 14.5  | 11.5 – 14.9  | 11.4 – 14.8  |

\* For equipment only – with 30% labor added







































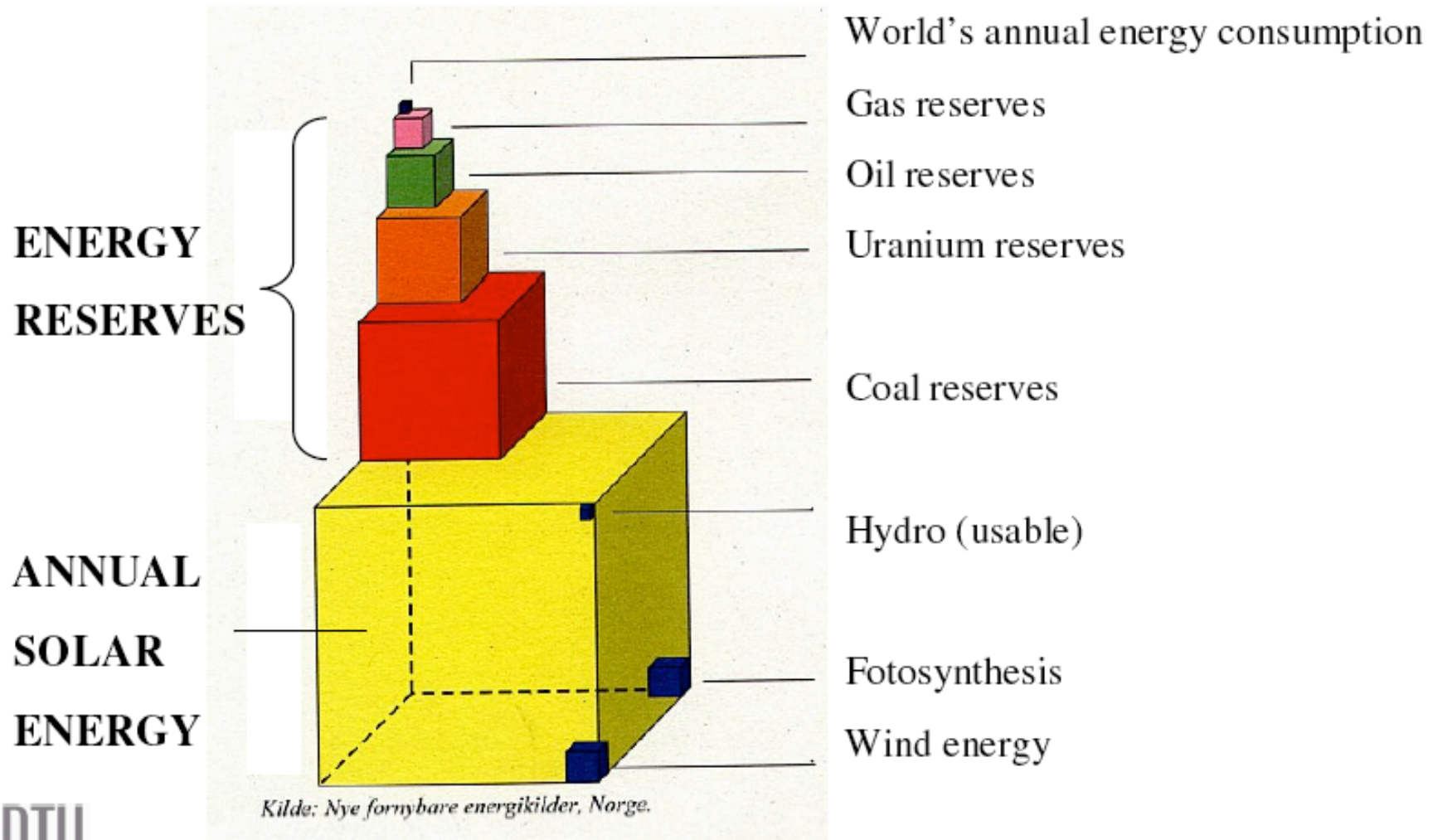








# World Energy Resources





### YEARLY SOLAR RADIATION ON SOUTH FACING SURFACE IN SISIMIUT

