

| | | | | |
|----------------|------------------------|----------------------------------|------|------|
| Building Stock | NO National | National Housing Stock of Norway | Year | 2013 |
| Details | Basic case - year 2013 | | | |

Annotations to this sheet

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 |
| Dataset | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 | NO-N-Res.2013.00 1.01 |

Thermal Envelope Average Building

Basic data

| | TABULA average buildings | | | | | | | | | |
|--------------------------|--------------------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|
| Floor area TABULA | 146,0 | 146,0 | 181,0 | 202,0 | 184,0 | 568,0 | 1056,0 | 1824,0 | 1704,0 | 1608,0 |
| Floor area national | 167,6 | 184,2 | 235,8 | 203,3 | 191,9 | 766,9 | 1897,0 | 2860,2 | 1363,4 | 1061,9 |
| Number of dwellings | 1,18 | 1,21 | 1,45 | 1,44 | 1,27 | 11,66 | 30,24 | 39,20 | 19,47 | 13,20 |

Thermal envelope areas (external dimensions)

| | TABULA average buildings | | | | | | | | | |
|--------|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Roof | 84,0 | 84,0 | 160,0 | 135,0 | 122,0 | 163,0 | 304,0 | 606,0 | 490,0 | 462,0 |
| Wall | 186,0 | 187,0 | 172,0 | 226,0 | 199,0 | 552,0 | 932,0 | 968,0 | 884,0 | 856,0 |
| Window | 29,0 | 22,0 | 27,0 | 30,0 | 28,0 | 114,0 | 158,0 | 274,0 | 256,0 | 241,0 |
| Floor | 84,0 | 84,0 | 139,0 | 116,0 | 106,0 | 163,0 | 304,0 | 524,0 | 490,0 | 462,0 |

Original state / not refurbished fraction of the envelope area

| U-values of the original state | Building stock model - state indicators | | | | | | | | | |
|--------------------------------|---|------|------|------|------|------|------|------|------|------|
| Roof | 0,96 | 0,35 | 0,22 | 0,18 | 0,12 | 0,96 | 0,35 | 0,20 | 0,14 | 0,14 |
| Wall | 0,96 | 0,50 | 0,28 | 0,28 | 0,17 | 0,82 | 0,96 | 0,29 | 0,27 | 0,22 |
| Window | 2,50 | 2,60 | 1,90 | 2,40 | 1,20 | 2,50 | 2,60 | 1,90 | 1,60 | 1,20 |
| Floor | 0,96 | 0,35 | 0,21 | 0,25 | 0,15 | 0,96 | 0,57 | 0,27 | 0,14 | 0,15 |

Refurbishments (averages)

| Refurbished fraction of envelope areas | Building stock model - state indicators | | | | | | | | | |
|--|---|------------|------------|-----------|--|------------|------------|------------|-----------|--|
| Roof | 63% | 60% | 16% | 1% | | 65% | 62% | 21% | 1% | |
| Wall | 63% | 60% | 16% | 1% | | 65% | 62% | 21% | 1% | |
| Window | 63% | 60% | 16% | 1% | | 65% | 62% | 21% | 1% | |
| Floor | 63% | 60% | 16% | 1% | | 65% | 62% | 21% | 1% | |
| <i>Total (indicative)</i> | <i>63%</i> | <i>60%</i> | <i>16%</i> | <i>1%</i> | | <i>65%</i> | <i>62%</i> | <i>21%</i> | <i>1%</i> | |

| U-values of the refurbished fraction (averages) | Building stock model - state indicators | | | | | | | | | |
|---|---|------|------|------|--|------|------|------|------|---------|
| Roof | 0,33 | 0,21 | 0,16 | 0,15 | | 0,33 | 0,25 | 0,16 | 0,14 | W/(m²K) |
| Wall | 0,39 | 0,33 | 0,22 | 0,21 | | 0,41 | 0,29 | 0,17 | 0,16 | W/(m²K) |
| Window | 1,90 | 1,90 | 1,90 | 1,90 | | 1,90 | 1,90 | 1,90 | 1,20 | W/(m²K) |
| Floor | 0,32 | 0,21 | 0,17 | 0,25 | | 0,32 | 0,35 | 0,27 | 0,14 | W/(m²K) |

Energy Need for Heating TABULA

Utilisation

| | TABULA standard calculation procedure | | | | | | | | | |
|--------------------------|---------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Utilisation dataset | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH | EU.MUH |
| Internal temperature | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 | 20,0 |
| Reduction factor temp. | 0,93 | 0,94 | 0,96 | 0,95 | 1,00 | 0,94 | 0,94 | 0,98 | 0,99 | 1,00 |
| Air exchange rate (use) | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 |
| Internal heat sources | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 | 3,00 |
| Red. factor ext. shading | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 | 0,60 |
| Energy need for DHW | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 |

Climate

| | TABULA standard calculation procedure | | | | | | | | | |
|---------------------------------------|---------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Climate dataset | National | National | National | National | National | National | National | National | National | National |
| Base temperature | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 | 12,0 |
| Length of heating season | 249 | 249 | 249 | 249 | 249 | 249 | 249 | 249 | 249 | 249 |
| External temp. during HS | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 |
| Accum. temp. diff. ext. to int. temp. | 4532 | 4532 | 4532 | 4532 | 4532 | 4532 | 4532 | 4532 | 4532 | 4532 |

Envelope

| | TABULA standard calculation procedure | | | | | | | | | |
|-------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| Heat transfer by transmission | 232 | 172 | 170 | 199 | 99 | 657 | 1245 | 1196 | 960 | 777 |
| related to surface area | 0,61 | 0,46 | 0,34 | 0,39 | 0,22 | 0,66 | 0,73 | 0,50 | 0,45 | 0,38 |
| related to ref. floor area | 1,59 | 1,18 | 0,94 | 0,99 | 0,54 | 1,16 | 1,18 | 0,66 | 0,56 | 0,48 |

Annual energy balance building

| | TABULA standard calculation procedure | | | | | | | | | |
|-----------------------------|---------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Transmission heat losses | 160,6 | 121,0 | 97,5 | 102,0 | 58,4 | 118,9 | 121,0 | 70,2 | 60,9 | 52,7 |
| Ventilation heat losses | 68,8 | 69,8 | 53,0 | 70,4 | 73,7 | 52,4 | 52,4 | 54,6 | 55,1 | 55,6 |
| Usable solar gains | -20,1 | -15,4 | -15,3 | -15,2 | -12,5 | -20,2 | -15,3 | -15,4 | -13,3 | -12,3 |
| Usable internal gains | -16,8 | -17,0 | -17,0 | -17,0 | -17,2 | -16,8 | -17,0 | -17,0 | -17,2 | -17,2 |
| Energy need for heating | 192,6 | 158,4 | 118,3 | 140,1 | 102,3 | 134,3 | 141,1 | 92,4 | 85,5 | 78,7 |
| recovered by vent. system | | | | | | | | | | |
| Net energy need for heating | 192,6 | 158,4 | 118,3 | 140,1 | 102,3 | 134,3 | 141,1 | 92,4 | 85,5 | 78,7 |

| | | | | |
|----------------|------------------------|----------------------------------|------|------|
| Building Stock | NO National | National Housing Stock of Norway | Year | 2013 |
| Details | Basic case - year 2013 | | | |

Annotations to this sheet

| | | | | | | | | | | |
|---------------|-------|-------|---------|---------|-------|-------|-------|---------|---------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 |

Total Building Stock

| | | Building stock model - state indicators | | | | | | | | | | Total |
|---------------------|--------------------------------|---|---------|---------|---------|--------|---------|---------|---------|---------|--------|-----------|
| Number of buildings | 10 ⁰ | 397 300 | 243 276 | 371 112 | 216 889 | 24 323 | 13 597 | 3 684 | 3 455 | 8 560 | 1 535 | 1 283 731 |
| Number of dwellings | 10 ⁰ | 469 897 | 295 374 | 538 107 | 311 696 | 30 915 | 158 537 | 111 382 | 135 456 | 166 701 | 20 262 | 2 238 327 |
| Floor area national | 10 ⁶ m ² | 67 | 45 | 88 | 44 | 5 | 10 | 7 | 10 | 12 | 2 | 288 |
| Floor area TABULA | 10 ⁶ m ² | 58 | 36 | 67 | 44 | 4 | 8 | 4 | 6 | 15 | 2 | 244 |

Ventilation Systems with Heat Recovery

| | Building stock model - state indicators | | | | | | | | | |
|-------------|---|------|------|------|------|------|------|------|------|------|
| Occurrences | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% | 0,0% |

Heating Systems

Occurrences or Fractions of Produced Heat

| 1 | Oil | B | C | 4% | 4% | 1% | | | 10% | 10% | 4% | |
|-----------------|-------|-----------|---|------|------|------|------|------|------|------|------|------|
| 2 | Oil | B_NC | C | | | | | | | | | |
| 3 | Gas | B_NC | C | | | | | | | | | |
| 4 | Bio | B_WP | C | | | | | | | | | |
| 5 | Gas | B_C | C | | | | | | | | | |
| 6 | DH | TS | C | | | 2% | 2% | 1% | 11% | 11% | 7% | 19% |
| 7 | EI | E | D | 70% | 70% | 84% | 85% | 79% | 72% | | 84% | |
| 8 | EI | E_Immersi | D | | | | | | | 72% | | 76% |
| 9 | EI | HP | D | 16% | 16% | 7% | 7% | 13% | 2% | 2% | 2% | 2% |
| 10 | EI | HP_Air | C | | | | | | | | | |
| 11 | EI | HP_Ground | C | | | | | | | | | |
| 12 | Bio | OpenFire | D | | | | | | | | | |
| 13 | Bio | Stove_S | D | 10% | 10% | 6% | | | 5% | 5% | 3% | |
| 14 | Bio | Stove_S | D | | | | 6% | 7% | | | | 3% |
| 15 | Other | Solar | D | | | | | | | | | 3% |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| Sum | | | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| thereof central | | | | 4% | 4% | 3% | 2% | 1% | 21% | 21% | 11% | 19% |
| decentral | | | | 96% | 96% | 97% | 98% | 99% | 79% | 79% | 89% | 81% |
| Other Systems | | | | | | | | | | | | |

DHW Systems

Occurrences or Fractions of Produced Heat

| 1 | Oil | B_NC | C | | | | | | | | | |
|-----------------|-------|-----------|---|------|------|------|------|------|------|------|------|------|
| 2 | Gas | B_NC | C | | | | | | | | | |
| 3 | Gas | B_C | C | | | | | | | | | |
| 4 | Bio | B_WP | C | | | | | | | | | |
| 5 | DH | TS | C | | | | | | | | | |
| 6 | EI | E_Immersi | D | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 7 | EI | HP_Air | D | | | | | | | | | |
| 8 | EI | HP_Ground | D | | | | | | | | | |
| 9 | Other | Solar | D | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| Sum | | | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| thereof central | | | | | | | | | | | | |
| decentral | | | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Other Systems | | | | | | | | | | | | |



Average Buildings Delivered Energy for Space Heating

Building Stock **NO National** National Housing Stock of Norway Year 2013

Details Basic case - year 2013

Annotations to this sheet

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------|-------|-------|---------|---------|-------|-------|-------|---------|---------|-------|
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 |

Heating Systems

Heat demand / heat generation

TABULA standard calculation procedure

| | | | | | | | | | | | |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------------------------|
| Energy need for heating | 192,6 | 158,4 | 118,3 | 140,1 | 102,3 | 134,3 | 141,1 | 92,4 | 85,5 | 78,7 | kWh/(m ² a) |
| Net en. need for heating | 192,6 | 158,4 | 118,3 | 140,1 | 102,3 | 134,3 | 141,1 | 92,4 | 85,5 | 78,7 | kWh/(m ² a) |

Distribution + storage losses

TABULA system indicators

| | | | | | | | | | | | |
|-------------------|---|--|--|--|--|--|-----|--|-----|-----|------------------------|
| Central systems | C | | | | | | 0,4 | | 0,4 | 0,4 | kWh/(m ² a) |
| Decentral systems | D | | | | | | | | | | kWh/(m ² a) |

Auxiliary energy

TABULA system indicators

| | | | | | | | | | | | |
|---------------------------|---|--|--|--|--|-----|-----|-----|-----|-----|------------------------|
| Ventil. systems (average) | | | | | | | | | | | kWh/(m ² a) |
| Central systems | C | | | | | 5,5 | 5,5 | 5,5 | 5,5 | 5,5 | kWh/(m ² a) |
| Decentral systems | D | | | | | | | | | | kWh/(m ² a) |

Energy expenditure factors (fuels: related to gross calorific value)

TABULA system indicators

| | | | | | | | | | | | | |
|----|-------|------------|---|------|------|------|------|------|------|------|------|------|
| 1 | Oil | B | C | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 |
| 2 | Oil | B NC | C | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 |
| 3 | Gas | B NC | C | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 |
| 4 | Bio | B WP | C | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 |
| 5 | Gas | B C | C | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 |
| 6 | DH | TS | C | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 |
| 7 | EI | E | D | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| 8 | EI | E Immersic | D | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 |
| 9 | EI | HP | D | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 |
| 10 | EI | HP Air | C | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 |
| 11 | EI | HP Ground | C | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 |
| 12 | Bio | OpenFire | D | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 | 2,56 |
| 13 | Bio | Stove S | D | 1,56 | 1,56 | 1,56 | 1,56 | 1,56 | 1,56 | 1,56 | 1,56 | 1,56 |
| 14 | Bio | Stove S | D | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 | 1,30 |
| 15 | Other | Solar | D | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |

Delivered Energy

TABULA standard calculation procedure

| | | | | | | | | | | | | | | |
|----|-------|------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------|
| 1 | Oil | B | C | 227,3 | 186,9 | 139,6 | 165,4 | 120,8 | 158,5 | 167,0 | 109,0 | 101,5 | 93,4 | kWh/(m ² a) |
| 2 | Oil | B NC | C | 227,3 | 186,9 | 139,6 | 165,4 | 120,8 | 158,5 | 167,0 | 109,0 | 101,5 | 93,4 | kWh/(m ² a) |
| 3 | Gas | B NC | C | 213,8 | 175,9 | 131,3 | 155,6 | 113,6 | 149,1 | 157,1 | 102,5 | 95,4 | 87,8 | kWh/(m ² a) |
| 4 | Bio | B WP | C | 227,3 | 186,9 | 139,6 | 165,4 | 120,8 | 158,5 | 167,0 | 109,0 | 101,5 | 93,4 | kWh/(m ² a) |
| 5 | Gas | B C | C | 202,2 | 166,4 | 124,2 | 147,2 | 107,5 | 141,0 | 148,6 | 97,0 | 90,3 | 83,1 | kWh/(m ² a) |
| 6 | DH | TS | C | 196,5 | 161,6 | 120,6 | 143,0 | 104,4 | 137,0 | 144,4 | 94,2 | 87,7 | 80,7 | kWh/(m ² a) |
| 7 | EI | E | D | 192,6 | 158,4 | 118,3 | 140,1 | 102,3 | 134,3 | 141,1 | 92,4 | 85,5 | 78,7 | kWh/(m ² a) |
| 8 | EI | E Immersic | D | 196,5 | 161,6 | 120,6 | 143,0 | 104,4 | 137,0 | 143,9 | 94,2 | 87,3 | 80,3 | kWh/(m ² a) |
| 9 | EI | HP | D | 77,0 | 63,4 | 47,3 | 56,1 | 40,9 | 53,7 | 56,4 | 36,9 | 34,2 | 31,5 | kWh/(m ² a) |
| 10 | EI | HP Air | C | 77,0 | 63,4 | 47,3 | 56,1 | 40,9 | 53,7 | 56,6 | 36,9 | 34,4 | 31,7 | kWh/(m ² a) |
| 11 | EI | HP Ground | C | 60,2 | 49,5 | 37,0 | 43,8 | 32,0 | 42,0 | 44,2 | 28,9 | 26,9 | 24,7 | kWh/(m ² a) |
| 12 | Bio | OpenFire | D | 493,1 | 405,6 | 302,8 | 358,8 | 262,0 | 343,8 | 361,2 | 236,5 | 219,0 | 201,5 | kWh/(m ² a) |
| 13 | Bio | Stove S | D | 300,5 | 247,2 | 184,5 | 218,6 | 159,7 | 209,5 | 220,1 | 144,1 | 133,4 | 122,8 | kWh/(m ² a) |
| 14 | Bio | Stove S | D | 250,4 | 206,0 | 153,7 | 182,2 | 133,0 | 174,6 | 183,4 | 120,1 | 111,2 | 102,3 | kWh/(m ² a) |
| 15 | Other | Solar | D | | | | | | | | | | | kWh/(m ² a) |
| 16 | | | | | | | | | | | | | | kWh/(m ² a) |
| 17 | | | | | | | | | | | | | | kWh/(m ² a) |
| 18 | | | | | | | | | | | | | | kWh/(m ² a) |
| 19 | | | | | | | | | | | | | | kWh/(m ² a) |
| 20 | | | | | | | | | | | | | | kWh/(m ² a) |

Delivered Energy - weighted by frequencies

TABULA standard calculation procedure

| | | | | | | | | | | | | | | |
|----|-------|------------|---|-------|-------|------|-------|------|------|-------|------|------|------|------------------------|
| 1 | Oil | B | C | 9,1 | 7,5 | 1,4 | | | 15,8 | 16,7 | 4,4 | | | kWh/(m ² a) |
| 2 | Oil | B NC | C | | | | | | | | | | | kWh/(m ² a) |
| 3 | Gas | B NC | C | | | | | | | | | | | kWh/(m ² a) |
| 4 | Bio | B WP | C | | | | | | | | | | | kWh/(m ² a) |
| 5 | Gas | B C | C | | | | | | | | | | | kWh/(m ² a) |
| 6 | DH | TS | C | | | 2,4 | 2,9 | 1,0 | 15,1 | 15,9 | 6,6 | 16,7 | 15,3 | kWh/(m ² a) |
| 7 | EI | E | D | 134,8 | 110,9 | 99,3 | 119,1 | 80,9 | 96,7 | | 77,6 | | | kWh/(m ² a) |
| 8 | EI | E Immersic | D | | | | | | | 103,6 | | 66,3 | 61,0 | kWh/(m ² a) |
| 9 | EI | HP | D | 12,3 | 10,1 | 3,3 | 3,9 | 5,3 | 1,1 | 1,1 | 0,7 | 0,7 | 0,6 | kWh/(m ² a) |
| 10 | EI | HP Air | C | | | | | | | | | | | kWh/(m ² a) |
| 11 | EI | HP Ground | C | | | | | | | | | | | kWh/(m ² a) |
| 12 | Bio | OpenFire | D | | | | | | | | | | | kWh/(m ² a) |
| 13 | Bio | Stove S | D | 30,0 | 24,7 | 11,1 | | | 10,5 | 11,0 | 4,3 | | | kWh/(m ² a) |
| 14 | Bio | Stove S | D | | | | 10,9 | 9,3 | | | | 3,3 | 3,1 | kWh/(m ² a) |
| 15 | Other | Solar | D | | | | | | | | | | | kWh/(m ² a) |
| 16 | | | | | | | | | | | | | | kWh/(m ² a) |
| 17 | | | | | | | | | | | | | | kWh/(m ² a) |
| 18 | | | | | | | | | | | | | | kWh/(m ² a) |
| 19 | | | | | | | | | | | | | | kWh/(m ² a) |
| 20 | | | | | | | | | | | | | | kWh/(m ² a) |

Electricity production by CHP

TABULA standard calculation procedure

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|------------------------|
| | | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | | kWh/(m ² a) |



| | | | | |
|----------------|------------------------|----------------------------------|------|------|
| Building Stock | NO National | National Housing Stock of Norway | Year | 2013 |
| Details | Basic case - year 2013 | | | |

Annotations to this sheet

| | | | | | | | | | | |
|---------------|-------|-------|---------|---------|-------|-------|-------|---------|---------|-------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 |

DHW Systems

| | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|---------------------------------------|------------------------|
| Heat demand / heat generation | | | | | | | | | | | TABULA standard calculation procedure | |
| Energy need for DHW | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | 15,0 | kWh/(m ² a) |
| Distribution + storage losses | | | | | | | | | | | TABULA system indicators | |
| Central systems | C | 9,2 | 9,2 | 9,2 | 9,2 | 9,2 | 10,3 | 10,3 | 10,3 | 10,3 | 10,3 | kWh/(m ² a) |
| Decentral systems | D | | | | | | | | | | | kWh/(m ² a) |
| Auxiliary energy | | | | | | | | | | | TABULA system indicators | |
| Central systems | C | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | 0,8 | kWh/(m ² a) |
| Decentral systems | D | | | | | | | | | | | kWh/(m ² a) |

| | | | | | | | | | | | | |
|---|-------|------------|---|------|------|------|------|------|------|------|--------------------------|------|
| Energy expenditure factors (fuels: related to gross calorific value) | | | | | | | | | | | TABULA system indicators | |
| 1 | Oil | B NC | C | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 |
| 2 | Gas | B NC | C | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 | 1,11 |
| 3 | Gas | B C | C | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 | 1,05 |
| 4 | Bio | B WP | C | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 | 1,18 |
| 5 | DH | TS | C | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 |
| 6 | EI | E Immersio | D | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 | 1,02 |
| 7 | EI | HP Air | D | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 | 0,40 |
| 8 | EI | HP Ground | D | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 | 0,31 |
| 9 | Other | Solar | D | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
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| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
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| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|-------------------------|-------|------------|---|------|------|------|------|------|------|------|---------------------------------------|------|------------------------|
| Delivered Energy | | | | | | | | | | | TABULA standard calculation procedure | | |
| 1 | Oil | B NC | C | 28,5 | 28,5 | 28,5 | 28,5 | 28,5 | 29,8 | 29,8 | 29,8 | 29,8 | kWh/(m ² a) |
| 2 | Gas | B NC | C | 26,8 | 26,8 | 26,8 | 26,8 | 26,8 | 28,0 | 28,0 | 28,0 | 28,0 | kWh/(m ² a) |
| 3 | Gas | B C | C | 25,4 | 25,4 | 25,4 | 25,4 | 25,4 | 26,5 | 26,5 | 26,5 | 26,5 | kWh/(m ² a) |
| 4 | Bio | B WP | C | 28,5 | 28,5 | 28,5 | 28,5 | 28,5 | 29,8 | 29,8 | 29,8 | 29,8 | kWh/(m ² a) |
| 5 | DH | TS | C | 24,7 | 24,7 | 24,7 | 24,7 | 24,7 | 25,8 | 25,8 | 25,8 | 25,8 | kWh/(m ² a) |
| 6 | EI | E Immersio | D | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | kWh/(m ² a) |
| 7 | EI | HP Air | D | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | 6,0 | kWh/(m ² a) |
| 8 | EI | HP Ground | D | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | kWh/(m ² a) |
| 9 | Other | Solar | D | | | | | | | | | | kWh/(m ² a) |
| 10 | | | | | | | | | | | | | kWh/(m ² a) |
| 11 | | | | | | | | | | | | | kWh/(m ² a) |
| 12 | | | | | | | | | | | | | kWh/(m ² a) |
| 13 | | | | | | | | | | | | | kWh/(m ² a) |
| 14 | | | | | | | | | | | | | kWh/(m ² a) |
| 15 | | | | | | | | | | | | | kWh/(m ² a) |
| 16 | | | | | | | | | | | | | kWh/(m ² a) |
| 17 | | | | | | | | | | | | | kWh/(m ² a) |
| 18 | | | | | | | | | | | | | kWh/(m ² a) |
| 19 | | | | | | | | | | | | | kWh/(m ² a) |
| 20 | | | | | | | | | | | | | kWh/(m ² a) |

| | | | | | | | | | | | | | |
|---|-------|------------|---|------|------|------|------|------|------|------|---------------------------------------|------|------------------------|
| Delivered Energy - weighted by frequencies | | | | | | | | | | | TABULA standard calculation procedure | | |
| 1 | Oil | B NC | C | | | | | | | | | | kWh/(m ² a) |
| 2 | Gas | B NC | C | | | | | | | | | | kWh/(m ² a) |
| 3 | Gas | B C | C | | | | | | | | | | kWh/(m ² a) |
| 4 | Bio | B WP | C | | | | | | | | | | kWh/(m ² a) |
| 5 | DH | TS | C | | | | | | | | | | kWh/(m ² a) |
| 6 | EI | E Immersio | D | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | 15,3 | kWh/(m ² a) |
| 7 | EI | HP Air | D | | | | | | | | | | kWh/(m ² a) |
| 8 | EI | HP Ground | D | | | | | | | | | | kWh/(m ² a) |
| 9 | Other | Solar | D | | | | | | | | | | kWh/(m ² a) |
| 10 | | | | | | | | | | | | | kWh/(m ² a) |
| 11 | | | | | | | | | | | | | kWh/(m ² a) |
| 12 | | | | | | | | | | | | | kWh/(m ² a) |
| 13 | | | | | | | | | | | | | kWh/(m ² a) |
| 14 | | | | | | | | | | | | | kWh/(m ² a) |
| 15 | | | | | | | | | | | | | kWh/(m ² a) |
| 16 | | | | | | | | | | | | | kWh/(m ² a) |
| 17 | | | | | | | | | | | | | kWh/(m ² a) |
| 18 | | | | | | | | | | | | | kWh/(m ² a) |
| 19 | | | | | | | | | | | | | kWh/(m ² a) |
| 20 | | | | | | | | | | | | | kWh/(m ² a) |

| | | | | | | | | | | | | | |
|--------------------------------------|--|--|--|--|--|--|--|--|--|--|---------------------------------------|--|------------------------|
| Electricity production by CHP | | | | | | | | | | | TABULA standard calculation procedure | | |
| | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | kWh/(m ² a) |
| | | | | | | | | | | | | | kWh/(m ² a) |



| | | | | |
|----------------|------------------------|----------------------------------|------|------|
| Building Stock | NO National | National Housing Stock of Norway | Year | 2013 |
| Details | Basic case - year 2013 | | | |

Annotations to this sheet

Total Building Stock

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | |
|-------------------|--------------------------------|-------|---------|---------|-------|-------|-------|---------|---------|-------|-------|-----|
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 | | |
| Floor area TABULA | 10 ⁶ m ² | 58 | 36 | 67 | 44 | 4 | 8 | 4 | 6 | 15 | 2 | 244 |

All energy quantities in **GWh/a**

Heating Systems

| Heat Demand for Heating | TABULA standard calculation procedure / projection to building stock | | | | | | | | | | Total |
|--------------------------|--|-------|-------|-------|-----|-------|-----|-----|-------|-----|--------|
| Energy need for heating | 11 172 | 5 627 | 7 944 | 6 140 | 458 | 1 037 | 549 | 582 | 1 248 | 194 | 34 952 |
| Net en. need for heating | 11 172 | 5 627 | 7 944 | 6 140 | 458 | 1 037 | 549 | 582 | 1 248 | 194 | 34 952 |
| Produced heat | 11 172 | 5 627 | 7 944 | 6 140 | 458 | 1 037 | 549 | 582 | 1 249 | 194 | 34 953 |

| Delivered Energy TABULA | TABULA standard calculation procedure / projection to building stock | | | | | | | | | | Sum |
|---|--|--|--|--|--|--|--|--|--|--|-----|
| 1 Oil B C 527 266 94 0 0 122 65 27 0 0 1 101 | | | | | | | | | | | |
| 2 Oil B_NC C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 3 Gas B_NC C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 4 Bio B_WP C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 5 Gas B_C C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 6 DH TS C 0 0 162 125 5 116 62 42 243 38 793 | | | | | | | | | | | |
| 7 El E D 7 820 3 939 6 673 5 219 362 747 0 489 0 0 25 249 | | | | | | | | | | | |
| 8 El E_Immersic D 0 0 0 0 0 0 403 0 967 151 1 521 | | | | | | | | | | | |
| 9 El HP D 715 360 222 172 24 8 4 5 10 2 1 522 | | | | | | | | | | | |
| 10 El HP_Air C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 11 El HP_Ground C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 12 Bio OpenFire D 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 13 Bio Stove_S D 1 743 878 744 0 0 81 43 27 0 0 3 515 | | | | | | | | | | | |
| 14 Bio Stove_S D 0 0 0 479 42 0 0 0 0 49 8 577 | | | | | | | | | | | |
| 15 Other Solar D 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 16 | | | | | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| Not specified systems 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| Auxiliary energy 0 0 0 0 0 9 4 4 15 3 35 | | | | | | | | | | | |
| CHP electr. production 0 | | | | | | | | | | | |

DHW Systems

| Heat Demand for DHW | TABULA standard calculation procedure / projection to building stock | | | | | | | | | | Total |
|---------------------|--|-----|-------|-----|----|-----|----|----|-----|----|-------|
| Energy need for DHW | 870 | 533 | 1 008 | 657 | 67 | 116 | 58 | 95 | 219 | 37 | 3 659 |
| Produced heat | 870 | 533 | 1 008 | 657 | 67 | 116 | 58 | 95 | 219 | 37 | 3 659 |

| Delivered Energy TABULA | TABULA standard calculation procedure / projection to building stock | | | | | | | | | | Total |
|---|--|--|--|--|--|--|--|--|--|--|-------|
| 1 Oil B_NC C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 2 Gas B_NC C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 3 Gas B_C C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 4 Bio B_WP C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 5 DH TS C 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 6 El E_Immersic D 887 543 1 028 670 68 118 60 96 223 38 3 732 | | | | | | | | | | | |
| 7 El HP_Air D 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 8 El HP_Ground D 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 9 Other Solar D 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
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| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | | | | | | | | | | | |
| Not specified systems 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| Auxiliary energy 0 0 0 0 0 0 0 0 0 0 0 0 | | | | | | | | | | | |
| CHP electr. production 0 | | | | | | | | | | | |

Building Stock **NO National** National Housing Stock of Norway Year **2013**
 Details Basic case - year 2013
 Annotations to this sheet

| Total Building Stock | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total | |
|----------------------|--------------------------------|-------|---------|---------|-------|-------|-------|---------|---------|-------|-------|-----|
| Building type | SUH.1 | SUH.2 | SUH.3-4 | SUH.5-6 | SUH.7 | MUH.1 | MUH.2 | MUH.3-4 | MUH.5-6 | MUH.7 | | |
| Floor area TABULA | 10 ⁶ m ² | 58 | 36 | 67 | 44 | 4 | 8 | 4 | 6 | 15 | 2 | 244 |

Total Heat Need and Final Energy All energy quantities in **GWh/a** Heating + DHW

| Simplified TABULA projection | fuels related to gross calorific value (TABULA standard) | | | | | TABULA standard calculation procedure projection to building stock | | | | | Total | per m ² |
|------------------------------|--|---------------|-------|-------|------|--|-----|---------------------|-----------------------|------------------|--------|--------------------|
| | Net heat need | Produced heat | Gas | Oil | Coal | Bio | DH | El (incl. aux. en.) | Other / not specified | Sum final energy | | |
| Net heat need | 12 042 | 6 160 | 8 952 | 6 797 | 525 | 1 153 | 607 | 677 | 1 467 | 231 | 38 611 | 158 |
| Produced heat | 12 042 | 6 160 | 8 952 | 6 797 | 525 | 1 153 | 608 | 677 | 1 468 | 231 | 38 613 | 158 |
| Gas | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oil | 527 | 266 | 94 | 0 | 0 | 122 | 65 | 27 | 0 | 0 | 1 101 | 5 |
| Coal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bio | 1 743 | 878 | 744 | 479 | 42 | 81 | 43 | 27 | 49 | 8 | 4 092 | 17 |
| DH | 0 | 0 | 162 | 125 | 5 | 116 | 62 | 42 | 243 | 38 | 793 | 3 |
| El (incl. aux. en.) | 9 423 | 4 843 | 7 923 | 6 061 | 454 | 882 | 471 | 594 | 1 216 | 192 | 32 060 | 131 |
| Other / not specified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sum final energy | 11 693 | 5 986 | 8 923 | 6 666 | 500 | 1 202 | 641 | 690 | 1 507 | 238 | 38 046 | 156 |
| per m ² | 202 | 169 | 133 | 152 | 112 | 156 | 165 | 110 | 103 | 96 | | |
| CHP electr. production | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Separate individual model or total metered consumption

| Separate individual model or total metered consumption | fuels related to net calorific value factors for conversion to gross calorific value (TABULA standard) | | | | | Individual building stock model | | | | | Total | per m ² |
|--|--|---------------|-------|-------|-------|---------------------------------|-----|-------|-----------------------|------------------|--------|--------------------|
| | Net heat need | Produced heat | Gas | Oil | Coal | Bio | DH | El | Other / not specified | Sum final energy | | |
| Net heat need | 12 677 | 4 749 | 7 804 | 5 650 | 319 | 1 025 | 693 | 1 280 | 1 463 | 128 | 35 789 | 147 |
| Produced heat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gas | 1,09 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oil | 1,05 | 812 | 361 | 528 | 0 | 92 | 66 | 98 | 0 | 0 | 1 958 | 8 |
| Coal | 1,05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bio | 1,05 | 2 363 | 886 | 1 452 | 1 040 | 58 | 200 | 135 | 244 | 274 | 6 677 | 27 |
| DH | | 26 | 104 | 154 | 118 | 109 | 2 | 14 | 24 | 26 | 589 | 2 |
| El | | 9 707 | 3 637 | 5 965 | 4 273 | 238 | 821 | 555 | 1 003 | 1 126 | 27 423 | 112 |
| Other / not specified | | 1 207 | 452 | 742 | 531 | 30 | 17 | 11 | 20 | 23 | 3 035 | 12 |
| Sum final energy | 14 115 | 5 441 | 8 841 | 5 963 | 435 | 1 132 | 782 | 1 390 | 1 449 | 136 | 39 683 | 163 |
| per m ² | 243 | 153 | 132 | 136 | 97 | 147 | 201 | 221 | 99 | 55 | | |
| CHP electr. production | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Ratio of individual model or total metered consumption to simplified TABULA projection (TABULA balance calibration factors)

| | Ratio of individual model or total metered consumption to simplified TABULA projection (TABULA balance calibration factors) | | | | | | | | | | Total |
|------------------------|---|------|------|------|-------|------|------|------|------|------|-------|
| Net heat need | 105% | 77% | 87% | 83% | 61% | 89% | 114% | 189% | 100% | 55% | 93% |
| Produced heat | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Gas | | | | | | | | | | | |
| Oil | 162% | 143% | 592% | | | 80% | 108% | 377% | | | 187% |
| Coal | | | | | | | | | | | |
| Bio | 143% | 106% | 206% | 229% | 146% | 260% | 332% | 944% | 593% | 334% | 172% |
| DH | | | 95% | 94% | 2342% | 2% | 23% | 57% | 11% | 29% | 74% |
| El | 103% | 75% | 75% | 70% | 52% | 93% | 118% | 169% | 93% | 51% | 86% |
| Other | | | | | | | | | | | |
| Sum final energy | 121% | 91% | 99% | 89% | 87% | 94% | 122% | 201% | 96% | 57% | 104% |
| CHP electr. production | | | | | | | | | | | |