**Jaccard similarity of interventions  (n = 372 scenarios)**

Legend scale: 0.00  0.25  0.50  0.75  1.00

The heatmap is a symmetric 32 × 32 matrix. Rows are listed top-to-bottom; columns left-to-right follow the order: (1) Agricultural technology and efficiency, (2) Agricultural trade policies, (3) Building technology and efficiency, (4) CDR constraints, (5) Diet changes, (6) Electrification subsidies, (7) Energy constraints, (8) Energy lifestyle changes, (9) Energy subsidies and incentives, (10) Energy taxes, (11) Energy technology and efficiency, (12) Energy trade policies, (13) Equal burden sharing, (14) Forestation, (15) Fossil fuel phase out, (16) Greenhouse gas emission markets, (17) Industry technology and efficiency, (18) Lower non energy demand, (19) Nature protection, (20) Negative emission technologies, (21) Nuclear energy, (22) Recycling and reduced waste, (23) Reduced food waste, (24) Renewable energy, (25) Restoration, (26) Slower infrastructure expansion, (27) Sustainable agricultural intensification, (28) Sustainable forest management, (29) Traditional bioenergy phase out, (30) Transport lifestyle changes, (31) Transport technology and efficiency, (32) Universal access to basic needs and services.

| Row intervention | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Universal access to basic needs and services | 0.07 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0.04 | 0.64 | 0 | 0.05 | 1 | 0 | 0 | 0 | 0 | 0.35 | 0 | 0.06 | 0 | 0 | 0.05 | 0.08 | 0.05 | 0 | 1 | 0.09 | 0.5 | 0 | 0.19 | 0 | 1 |
| Transport technology and efficiency | 0.19 | 0.21 | 0.22 | 0.11 | 0.11 | 0.05 | 0.01 | 0.14 | 0 | 0.24 | 0.2 | 0 | 0.05 | 0.18 | 0.19 | 0.13 | 0.06 | 0.18 | 0.18 | 0.11 | 0.01 | 0.5 | 0.16 | 0.18 | 0 | 0 | 0 | 0 | 0.24 | 0.42 | 1 | 0 |
| Transport lifestyle changes | 0.16 | 0.25 | 0.14 | 0 | 0.18 | 0.03 | 0.01 | 0.21 | 0.17 | 0.3 | 0.15 | 0.19 | 0 | 0.08 | 0.1 | 0.08 | 0.16 | 0.2 | 0.12 | 0.05 | 0 | 0.27 | 0.26 | 0.13 | 0 | 0.19 | 0 | 0.15 | 0.3 | 1 | 0.42 | 0.19 |
| Traditional bioenergy phase out | 0.16 | 0.38 | 0.1 | 0.07 | 0.11 | 0.15 | 0.02 | 0.09 | 0.06 | 0.85 | 0.08 | 0 | 0.07 | 0.13 | 0.19 | 0.1 | 0 | 0 | 0.13 | 0.09 | 0 | 0.24 | 0.21 | 0.16 | 0 | 0 | 0.14 | 0 | 1 | 0.3 | 0.24 | 0 |
| Sustainable forest management | 0.1 | 0.1 | 0 | 0 | 0.05 | 0 | 0 | 0.04 | 0.56 | 0 | 0.08 | 0.5 | 0 | 0 | 0 | 0.01 | 0.36 | 0 | 0.11 | 0.01 | 0.03 | 0.09 | 0.09 | 0.09 | 0 | 0.5 | 0.15 | 1 | 0 | 0.15 | 0 | 0.5 |
| Sustainable agricultural intensification | 0.16 | 0.14 | 0 | 0 | 0.04 | 0.05 | 0.01 | 0 | 0.12 | 0.14 | 0.01 | 0.09 | 0.04 | 0.04 | 0.04 | 0.05 | 0.32 | 0 | 0.08 | 0.02 | 0 | 0.28 | 0.07 | 0.06 | 0 | 0.09 | 1 | 0.15 | 0.14 | 0 | 0 | 0.09 |
| Slower infrastructure expansion | 0.07 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0.04 | 0.64 | 0 | 0.05 | 1 | 0 | 0 | 0 | 0 | 0.35 | 0 | 0.06 | 0 | 0 | 0.05 | 0.08 | 0.05 | 0 | 1 | 0.09 | 0.5 | 0 | 0.19 | 0 | 1 |
| Restoration | 0.02 | 0.24 | 0 | 0 | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0.14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Renewable energy | 0.34 | 0.11 | 0.65 | 0.04 | 0.29 | 0.04 | 0.54 | 0.62 | 0.07 | 0.14 | 0.79 | 0.05 | 0.05 | 0.15 | 0.73 | 0.27 | 0.07 | 0.02 | 0.41 | 0.37 | 0.31 | 0.15 | 0.21 | 1 | 0 | 0.05 | 0.06 | 0.09 | 0.16 | 0.13 | 0.18 | 0.05 |
| Reduced food waste | 0.46 | 0.26 | 0.2 | 0 | 0.37 | 0.05 | 0.13 | 0.23 | 0.11 | 0.21 | 0.19 | 0.08 | 0.03 | 0.08 | 0.22 | 0.12 | 0.08 | 0.03 | 0.27 | 0.11 | 0.06 | 0.16 | 1 | 0.21 | 0.14 | 0.08 | 0.07 | 0.09 | 0.21 | 0.26 | 0.16 | 0.08 |
| Recycling and reduced waste | 0.3 | 0.25 | 0.15 | 0.08 | 0.09 | 0.03 | 0 | 0.09 | 0.05 | 0.24 | 0.16 | 0.05 | 0 | 0.13 | 0.13 | 0.12 | 0.23 | 0.05 | 0.18 | 0.08 | 0 | 1 | 0.16 | 0.15 | 0 | 0.05 | 0.28 | 0.09 | 0.24 | 0.27 | 0.5 | 0.05 |
| Nuclear energy | 0.1 | 0.03 | 0.35 | 0 | 0.24 | 0 | 0.42 | 0.33 | 0.04 | 0 | 0.29 | 0 | 0.08 | 0.02 | 0.34 | 0.06 | 0.03 | 0 | 0.14 | 0.05 | 1 | 0 | 0.06 | 0.31 | 0 | 0 | 0 | 0.03 | 0 | 0 | 0.01 | 0 |
| Negative emission technologies | 0.17 | 0.07 | 0.29 | 0.01 | 0.06 | 0.03 | 0 | 0.26 | 0.25 | 0.03 | 0.09 | 0.33 | 0 | 0.06 | 0.53 | 0.31 | 0.39 | 0.03 | 0.21 | 1 | 0.05 | 0.08 | 0.11 | 0.37 | 0 | 0 | 0.02 | 0.01 | 0.09 | 0.05 | 0.11 | 0 |
| Nature protection | 0.33 | 0.17 | 0.33 | 0.03 | 0.31 | 0.02 | 0.23 | 0.28 | 0.09 | 0.13 | 0.36 | 0.06 | 0.03 | 0.15 | 0.35 | 0.19 | 0.08 | 0 | 1 | 0.21 | 0.14 | 0.18 | 0.27 | 0.41 | 0.03 | 0.06 | 0.08 | 0.11 | 0.13 | 0.12 | 0.18 | 0.06 |
| Lower non energy demand | 0.01 | 0 | 0.04 | 0 | 0.03 | 0.09 | 0 | 0.04 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0.01 | 0.03 | 0.04 | 1 | 0 | 0 | 0 | 0.05 | 0.03 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0.2 | 0.18 | 0 |
| Industry technology and efficiency | 0.16 | 0.04 | 0.03 | 0 | 0.05 | 0.04 | 0 | 0.05 | 0.41 | 0 | 0.08 | 0.35 | 0.08 | 0.02 | 0.02 | 0.05 | 1 | 0.04 | 0.08 | 0.03 | 0.03 | 0.23 | 0.08 | 0.07 | 0 | 0.35 | 0.32 | 0.36 | 0 | 0.16 | 0.06 | 0.35 |
| Greenhouse gas emission markets | 0.18 | 0.07 | 0.16 | 0.03 | 0.15 | 0.03 | 0.1 | 0.18 | 0.01 | 0.1 | 0.27 | 0 | 0.03 | 0.32 | 0.19 | 1 | 0.05 | 0.03 | 0.19 | 0.39 | 0.06 | 0.12 | 0.12 | 0.27 | 0 | 0 | 0.05 | 0.01 | 0.1 | 0.08 | 0.13 | 0 |
| Fossil fuel phase out | 0.3 | 0.12 | 0.85 | 0.02 | 0.28 | 0.03 | 0.69 | 0.69 | 0.02 | 0.19 | 0.64 | 0 | 0.03 | 0.12 | 1 | 0.19 | 0.02 | 0.01 | 0.35 | 0.31 | 0.34 | 0.13 | 0.22 | 0.73 | 0 | 0 | 0.04 | 0 | 0.19 | 0.1 | 0.19 | 0 |
| Forestation | 0.11 | 0.1 | 0.08 | 0 | 0.05 | 0.02 | 0.04 | 0.05 | 0.02 | 0.14 | 0.12 | 0 | 0.05 | 1 | 0.12 | 0.32 | 0.02 | 0 | 0.15 | 0.53 | 0.02 | 0.13 | 0.08 | 0.15 | 0 | 0 | 0.04 | 0 | 0.13 | 0.08 | 0.18 | 0 |
| Equal burden sharing | 0.02 | 0 | 0.02 | 0 | 0.02 | 0.17 | 0.02 | 0 | 0.12 | 0.07 | 0.01 | 0 | 1 | 0.05 | 0.03 | 0.03 | 0.08 | 0 | 0.03 | 0.06 | 0.08 | 0 | 0.03 | 0.05 | 0 | 0 | 0.04 | 0 | 0.07 | 0 | 0.05 | 0 |
| Energy trade policies | 0.07 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0.04 | 0.64 | 0 | 0.05 | 1 | 0 | 0 | 0 | 0 | 0.35 | 0 | 0.06 | 0 | 0 | 0.05 | 0.08 | 0.05 | 0 | 1 | 0.09 | 0.5 | 0 | 0.19 | 0 | 1 |
| Energy technology and efficiency | 0.3 | 0.08 | 0.7 | 0.04 | 0.27 | 0.02 | 0.55 | 0.74 | 0.06 | 0.07 | 1 | 0.05 | 0.01 | 0.12 | 0.64 | 0.27 | 0.08 | 0.03 | 0.36 | 0.33 | 0.29 | 0.16 | 0.19 | 0.79 | 0 | 0.05 | 0.01 | 0.08 | 0.08 | 0.15 | 0.2 | 0.05 |
| Energy taxes | 0.16 | 0.38 | 0.1 | 0 | 0.11 | 0.02 | 0.09 | 0.06 | 0 | 1 | 0.07 | 0 | 0.07 | 0.14 | 0.19 | 0.1 | 0 | 0 | 0.13 | 0.09 | 0 | 0.24 | 0.21 | 0.14 | 0 | 0 | 0.14 | 0 | 0.85 | 0.3 | 0.24 | 0 |
| Energy subsidies and incentives | 0.11 | 0.05 | 0 | 0 | 0.06 | 0.13 | 0.02 | 0.04 | 1 | 0.06 | 0.06 | 0.64 | 0.12 | 0.02 | 0.02 | 0.01 | 0.41 | 0 | 0.09 | 0.03 | 0.04 | 0.05 | 0.11 | 0.07 | 0 | 0.64 | 0.12 | 0.56 | 0.06 | 0.17 | 0 | 0.64 |
| Energy lifestyle changes | 0.26 | 0.08 | 0.75 | 0 | 0.33 | 0.02 | 0.65 | 1 | 0.04 | 0.09 | 0.74 | 0.04 | 0 | 0.05 | 0.69 | 0.18 | 0.05 | 0.04 | 0.28 | 0.25 | 0.33 | 0.09 | 0.23 | 0.62 | 0 | 0.04 | 0 | 0.04 | 0.09 | 0.21 | 0.14 | 0.05 |
| Energy constraints | 0.18 | 0 | 0.73 | 0 | 0.22 | 0.02 | 1 | 0.65 | 0.02 | 0.02 | 0.55 | 0 | 0.02 | 0.04 | 0.69 | 0.1 | 0 | 0 | 0.23 | 0.26 | 0.42 | 0 | 0.13 | 0.54 | 0 | 0 | 0.01 | 0 | 0.02 | 0.01 | 0.01 | 0 |
| Electrification subsidies | 0.03 | 0 | 0.01 | 0.18 | 0.02 | 1 | 0.02 | 0.02 | 0.13 | 0.02 | 0.02 | 0 | 0.17 | 0.02 | 0.03 | 0.03 | 0.04 | 0.09 | 0.02 | 0.03 | 0 | 0.03 | 0.05 | 0.04 | 0 | 0 | 0.05 | 0 | 0.15 | 0.03 | 0.05 | 0 |
| Diet changes | 0.3 | 0.19 | 0.29 | 0 | 1 | 0.02 | 0.22 | 0.33 | 0.06 | 0.11 | 0.27 | 0.04 | 0.02 | 0.05 | 0.28 | 0.15 | 0.05 | 0.03 | 0.31 | 0.06 | 0.24 | 0.09 | 0.37 | 0.29 | 0.15 | 0.04 | 0.04 | 0.05 | 0.11 | 0.18 | 0.11 | 0.04 |
| CDR constraints | 0.03 | 0 | 0.02 | 1 | 0 | 0.18 | 0 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0 | 0.02 | 0.03 | 0 | 0 | 0.03 | 0.01 | 0 | 0.08 | 0 | 0.04 | 0 | 0 | 0 | 0 | 0.07 | 0 | 0.11 | 0 |
| Building technology and efficiency | 0.28 | 0.09 | 1 | 0.02 | 0.29 | 0.01 | 0.73 | 0.75 | 0 | 0.1 | 0.7 | 0 | 0.02 | 0.08 | 0.85 | 0.16 | 0.03 | 0.04 | 0.33 | 0.29 | 0.35 | 0.15 | 0.2 | 0.65 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.14 | 0.22 |
| Agricultural trade policies | 0.2 | 1 | 0.09 | 0 | 0.19 | 0 | 0 | 0.08 | 0.05 | 0.38 | 0.08 | 0 | 0 | 0.1 | 0.12 | 0.07 | 0.04 | 0 | 0.17 | 0.07 | 0.03 | 0.25 | 0.26 | 0.11 | 0.24 | 0 | 0.14 | 0.1 | 0.38 | 0.25 | 0.21 | 0 |
| Agricultural technology and efficiency | 1 | 0.2 | 0.28 | 0.03 | 0.3 | 0.03 | 0.18 | 0.26 | 0.11 | 0.16 | 0.3 | 0.07 | 0.02 | 0.11 | 0.3 | 0.18 | 0.16 | 0.01 | 0.33 | 0.17 | 0.1 | 0.3 | 0.46 | 0.34 | 0.02 | 0.07 | 0.16 | 0.1 | 0.16 | 0.16 | 0.19 | 0.07 |

Louvain clusters of interventions with jaccard similarity >0.7 (n = 235 scenarios)