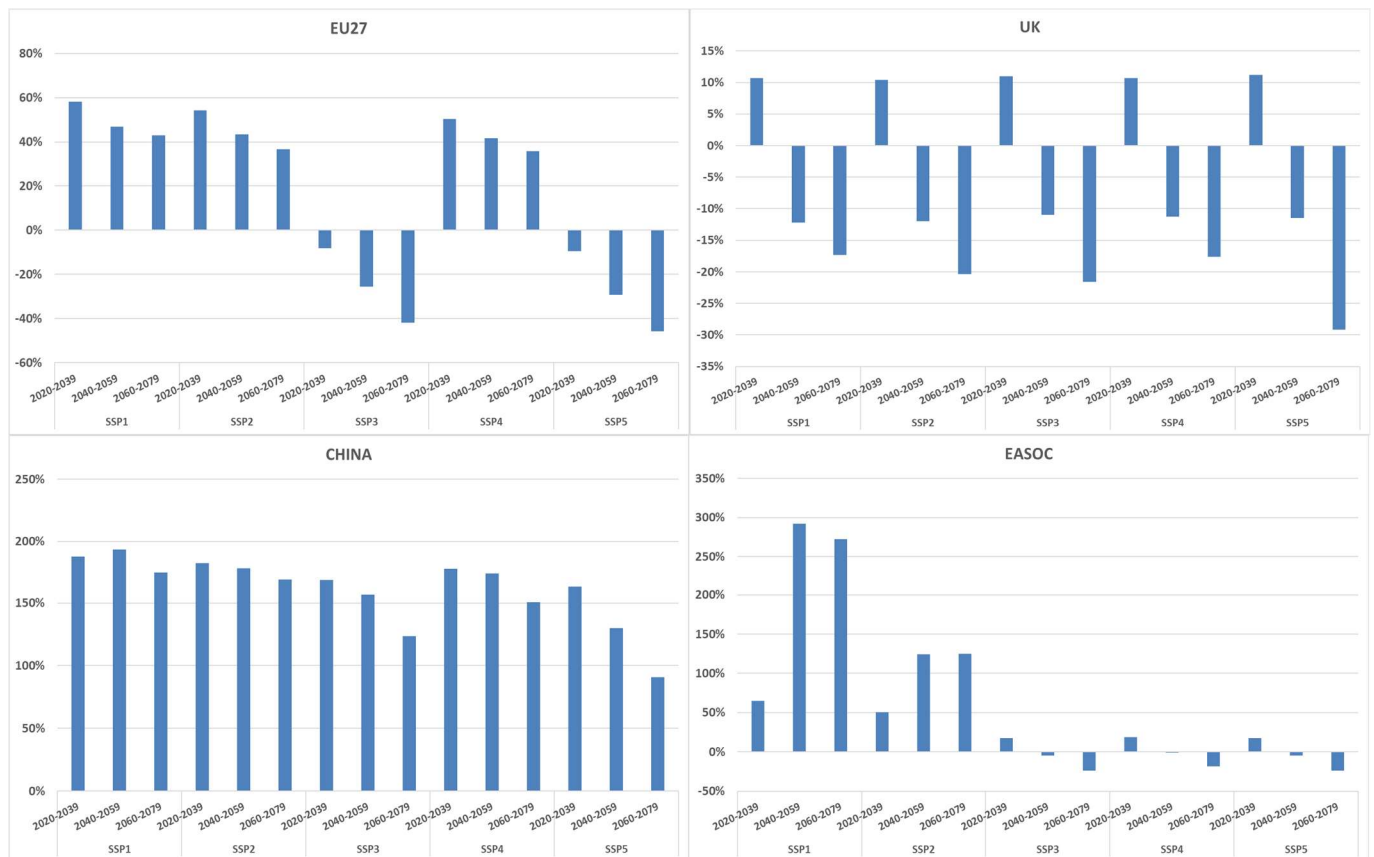


Supplementary Materials

Assessing hydropower potential under SSP's scenarios using integrated assessment modelling

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This document has some results of the IAM model that were too extensive to present in the original paper. The variables shown here are Hydropower Production, in graphic form (Figure S1), Precipitation (Table S1), Evapotranspiration (Table S2) and Share of each energy source group in percentage of the total energy (Table S3).



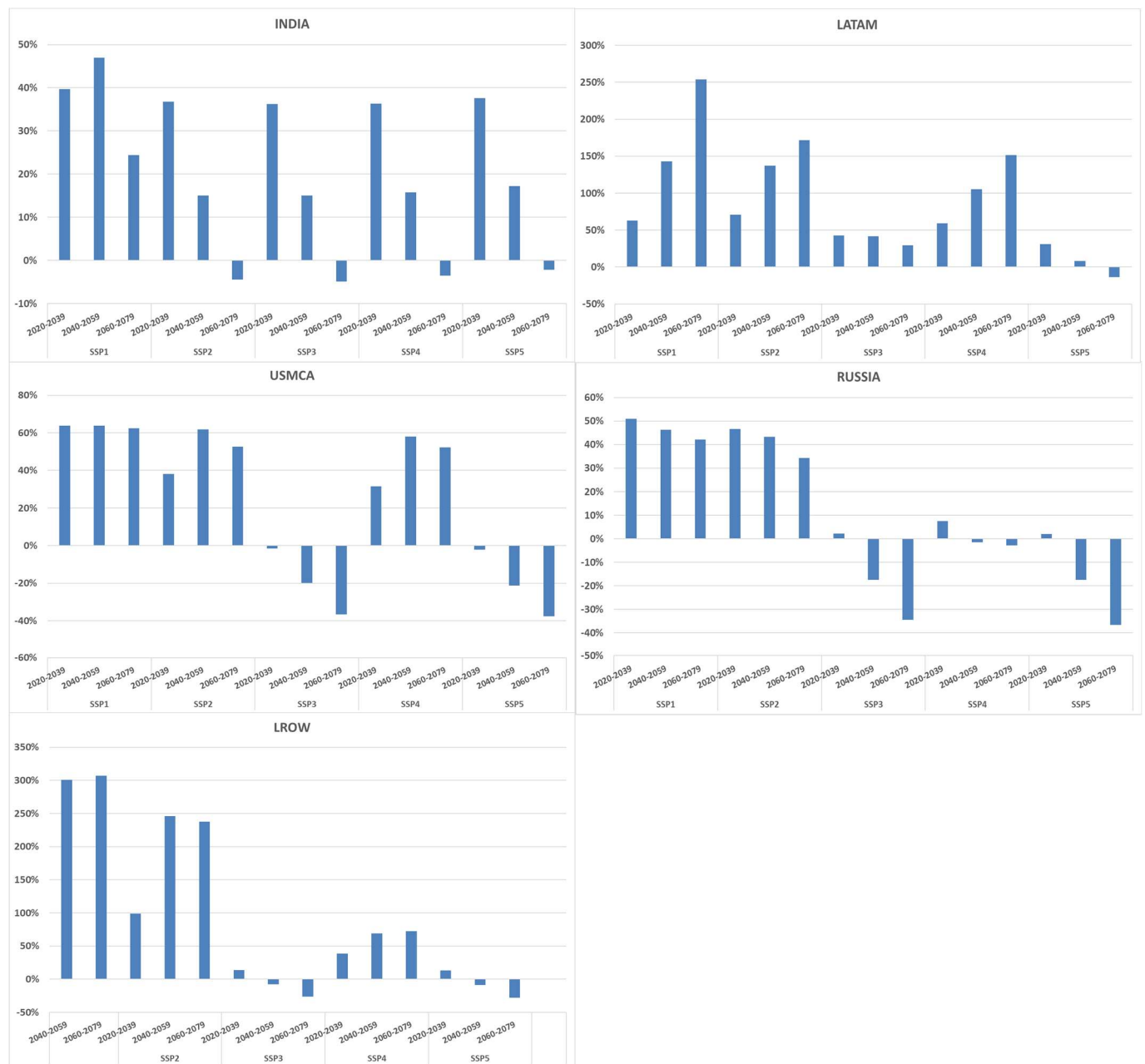


Figure S1 - Hydropower production changes, in percentage, compared with the historical period, for the SSP1, SSP2, SSP3, SSP4 and SSP5; for 2020-2039, 2040-2059 and 2060-2079; and for the 9 regions: EU27, UK, China, EASOC, India, LATAM, Russia, USMCA and LROW.

Table S1 – Precipitation changes for the nine regions

| | SSP1 | | | SSP2 | | | SSP3 | | | SSP4 | | | SSP5 | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 |
| EU27 | 0% | -1% | 0% | 0% | -1% | -1% | -1% | -1% | -4% | 0% | -1% | -1% | 0% | -2% | -4% |
| UK | 1% | 0% | 1% | 1% | 0% | 1% | 0% | 1% | 1% | 1% | 0% | 1% | 1% | 0% | 1% |
| CHINA | 4% | 6% | 8% | 2% | 5% | 6% | 1% | 2% | 4% | 2% | 5% | 6% | 3% | 7% | 10% |
| EASOC | 1% | 0% | 1% | 0% | 0% | 1% | 0% | 1% | 1% | 0% | 0% | 1% | 1% | 2% | 2% |
| INDIA | 6% | 9% | 10% | 4% | 6% | 9% | 4% | 5% | 9% | 4% | 6% | 9% | 6% | 9% | 15% |
| LATAM | 0% | -1% | -1% | -1% | -2% | -2% | -2% | -3% | -5% | -1% | -2% | -2% | -2% | -3% | -5% |
| RUSSIA | 4% | 6% | 7% | 4% | 7% | 9% | 3% | 6% | 10% | 4% | 7% | 9% | 5% | 9% | 14% |
| USMCA | 3% | 4% | 5% | 2% | 5% | 6% | 2% | 4% | 5% | 2% | 5% | 6% | 3% | 6% | 9% |
| LROW | 1% | 1% | 1% | 1% | 1% | 1% | 0% | 0% | -1% | 1% | 1% | 1% | 1% | 1% | 1% |

Table S2 – Evapotranspiration changes for the nine regions

| | SSP1 | | | SSP2 | | | SSP3 | | | SSP4 | | | SSP5 | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 | 2020-2039 | 2040-2059 | 2060-2079 |
| EU27 | 4% | 6% | 6% | 4% | 6% | 9% | 4% | 7% | 10% | 4% | 6% | 9% | 5% | 9% | 14% |
| UK | 2% | 3% | 4% | 3% | 4% | 5% | 2% | 4% | 6% | 3% | 4% | 5% | 3% | 5% | 9% |
| CHINA | 4% | 6% | 7% | 3% | 6% | 9% | 3% | 6% | 10% | 3% | 6% | 9% | 4% | 8% | 14% |
| EASOC | 2% | 3% | 3% | 2% | 3% | 5% | 2% | 4% | 6% | 2% | 3% | 5% | 2% | 4% | 7% |
| INDIA | 1% | 2% | 2% | 0% | 2% | 3% | 0% | 1% | 3% | 0% | 2% | 3% | 0% | 3% | 5% |
| LATAM | 2% | 3% | 3% | 2% | 3% | 5% | 2% | 4% | 6% | 2% | 3% | 5% | 2% | 5% | 8% |
| RUSSIA | 5% | 9% | 10% | 5% | 10% | 14% | 4% | 10% | 17% | 5% | 10% | 14% | 6% | 14% | 25% |
| USMCA | 4% | 6% | 7% | 4% | 7% | 10% | 3% | 7% | 12% | 4% | 7% | 10% | 5% | 10% | 16% |
| LROW | 2% | 3% | 4% | 2% | 4% | 6% | 2% | 4% | 7% | 2% | 4% | 6% | 3% | 5% | 9% |

Table S3 – Share of each energy source group in % of the total energy. Fossil includes Oil, Coal, Natural gas, and Nuclear; Renewable includes Hydropower, Solar, Wind, Geothermal, and Oceanic; and Bio & Organic, which includes Forestry products, Agriculture products, and Waste.

| SSP1 | HIST | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Fossil | 90% | 87% | 83% | 82% | 82% | 81% | 82% |
| Renewable | 2% | 6% | 9% | 10% | 10% | 11% | 11% |
| Bio & Organic | 8% | 8% | 8% | 8% | 8% | 8% | 7% |
| SSP2 | | | | | | | |
| Fossil | 90% | 88% | 86% | 86% | 86% | 87% | 87% |
| Renewable | 2% | 5% | 7% | 7% | 8% | 9% | 9% |
| Bio & Organic | 8% | 8% | 7% | 7% | 6% | 5% | 4% |
| SSP3 | | | | | | | |
| Fossil | 90% | 89% | 91% | 91% | 92% | 93% | 94% |
| Renewable | 2% | 4% | 3% | 2% | 2% | 2% | 3% |
| Bio & Organic | 7% | 7% | 7% | 6% | 6% | 5% | 3% |
| SSP4 | | | | | | | |
| Fossil | 90% | 88% | 88% | 88% | 88% | 89% | 90% |
| Renewable | 2% | 4% | 4% | 5% | 5% | 5% | 6% |
| Bio & Organic | 8% | 8% | 7% | 7% | 7% | 6% | 4% |
| SSP5 | | | | | | | |
| Fossil | 90% | 89% | 91% | 92% | 92% | 93% | 94% |
| Renewable | 3% | 3% | 3% | 2% | 2% | 2% | 2% |
| Bio & Organic | 7% | 7% | 7% | 6% | 6% | 5% | 4% |