Energy Community Sustainability Forum

Part I – Environmental assessments of hydropower plants: The dos and don'ts

27 June 2019 | Vienna, Austria

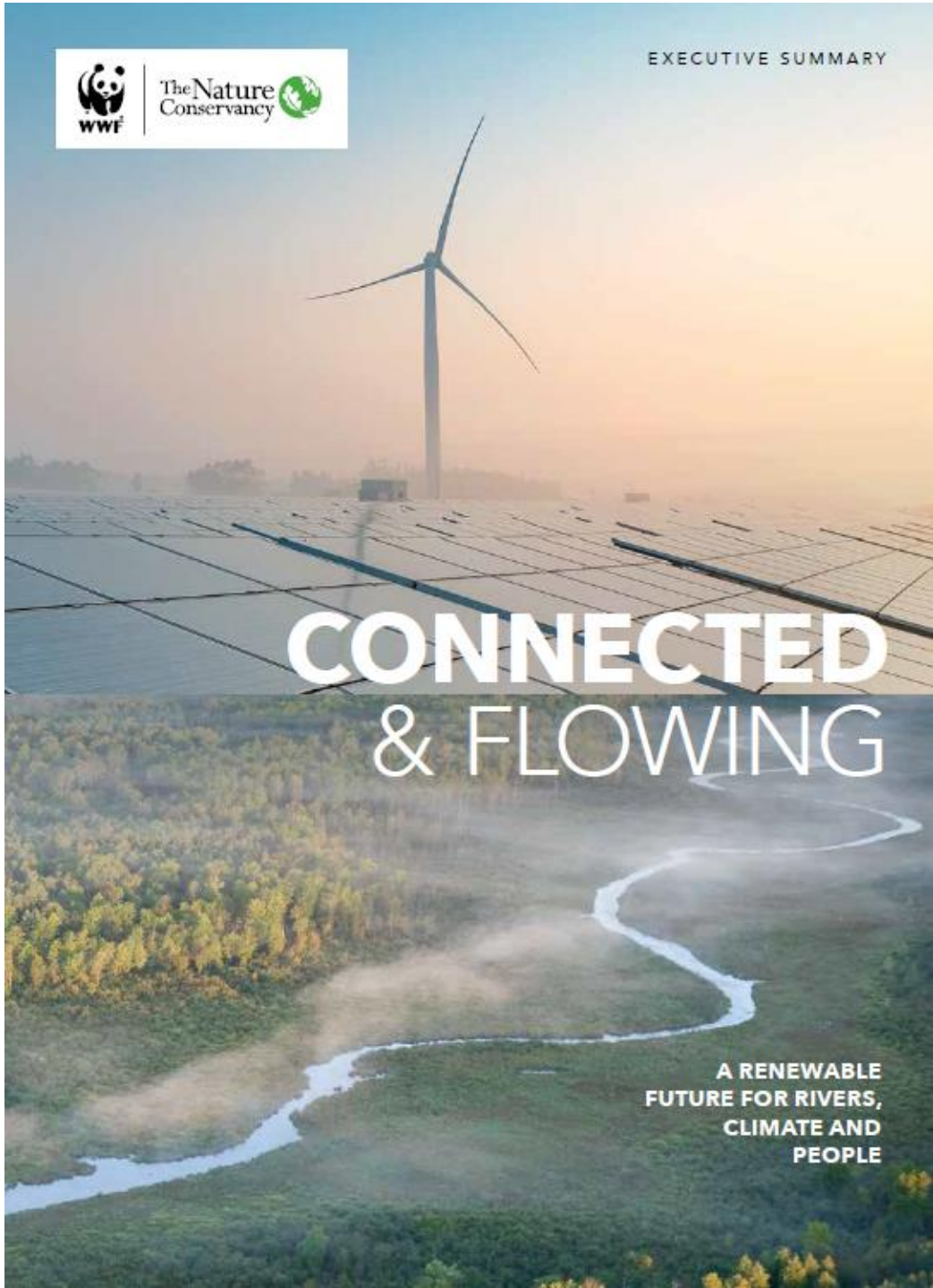
The Nature Conservancy

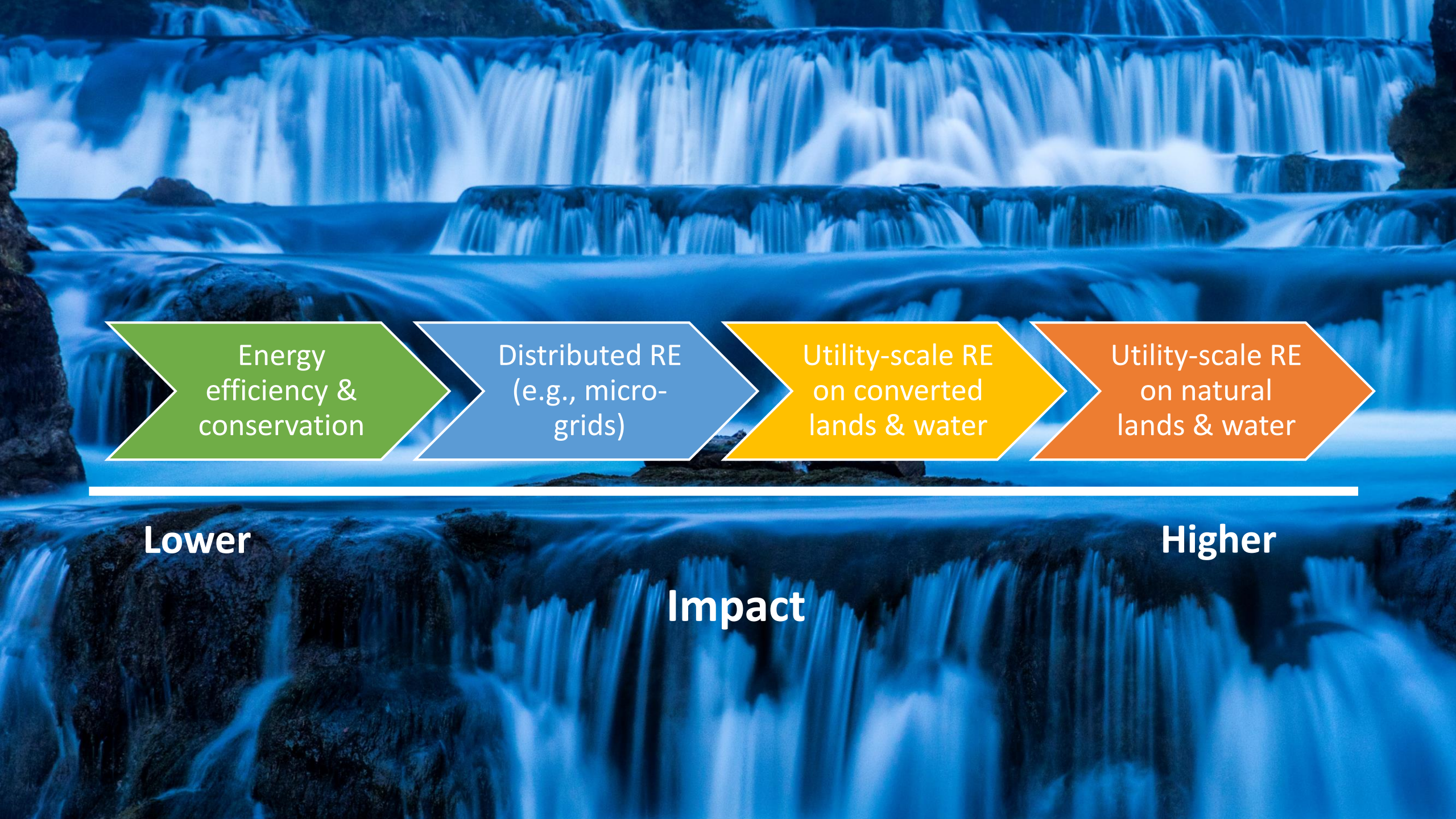
Connected and Flowing

A commitment to reduce impacts on free-flowing rivers

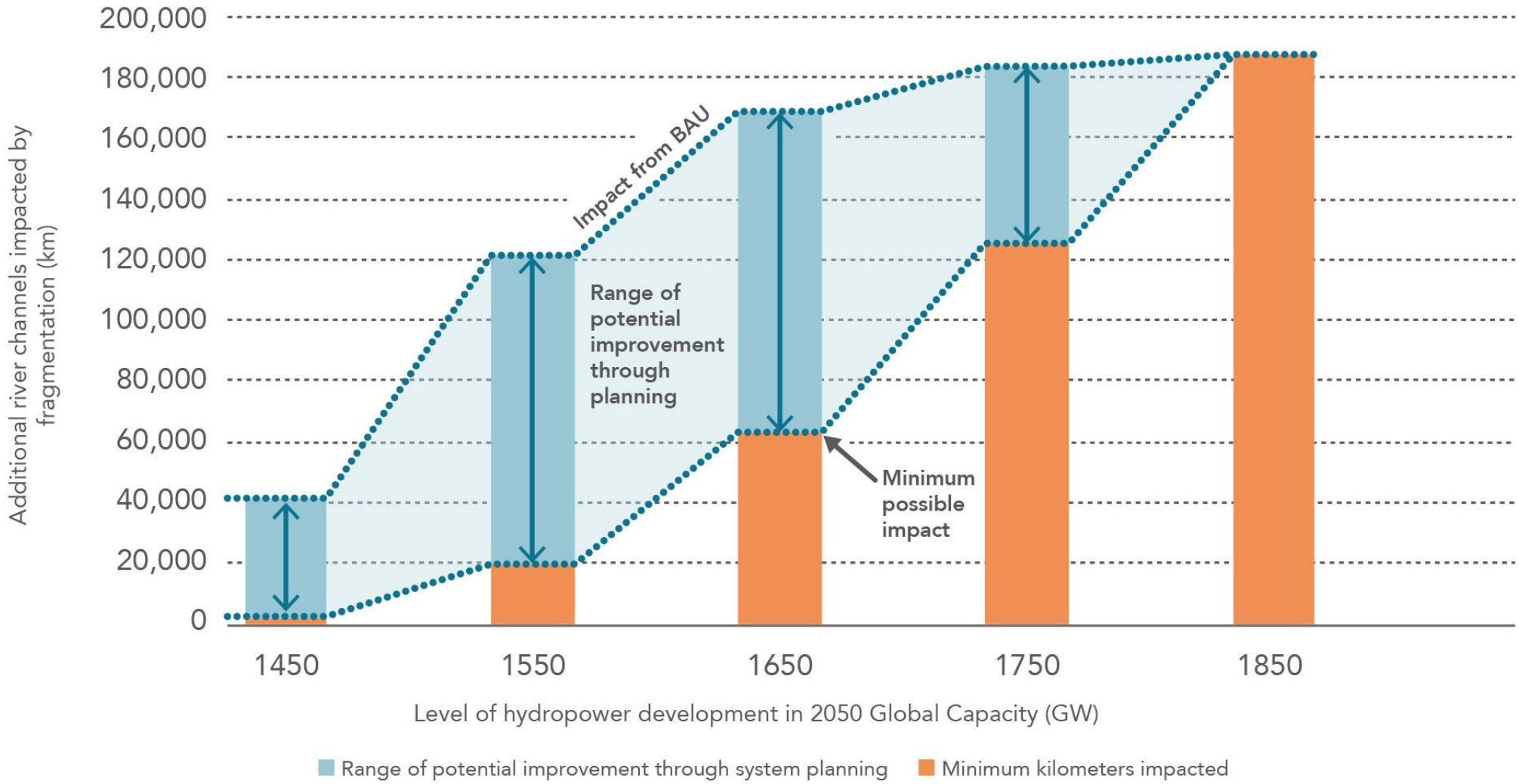
- Joint Statement issued at World Hydropower Congress: “The world faces a fundamental challenge: meet the growing global demand for affordable electricity to power economies and eradicate poverty, while drastically reducing carbon emissions and safeguarding the world’s rivers, wetlands, and forests and the communities that depend on them…”

- *Connected and Flowing*: https://www.nature.org/en-us/explore/newsroom/wwf-tnc-free-flowing-rivers/




Energy efficiency & conservation
Distributed RE (e.g., micro-grids)
Utility-scale RE on converted lands & water
Utility-scale RE on natural lands & water
Lower
Higher
Impact

5.1. Hydropower expansion and impact on rivers



CALIFORNIA: Path to 100%

Integrating Land Conservation and Renewable Energy Goals in California:

A Study of Costs and Impacts Using the Optimal Renewable Energy Build-Out (ORB) Model

TNC-CA assisted the California Public Utilities Commission (CPUC) to create a low-impact approach in California's Integrated Resource Planning process.

- The CPUC constrains the supply curves that inform the IRP using ecological and land use data.
- In total, the CPUC has removed over 45 million acres of California from planning assumptions.
- One of the first IRP in the USA that addresses siting of future energy development.

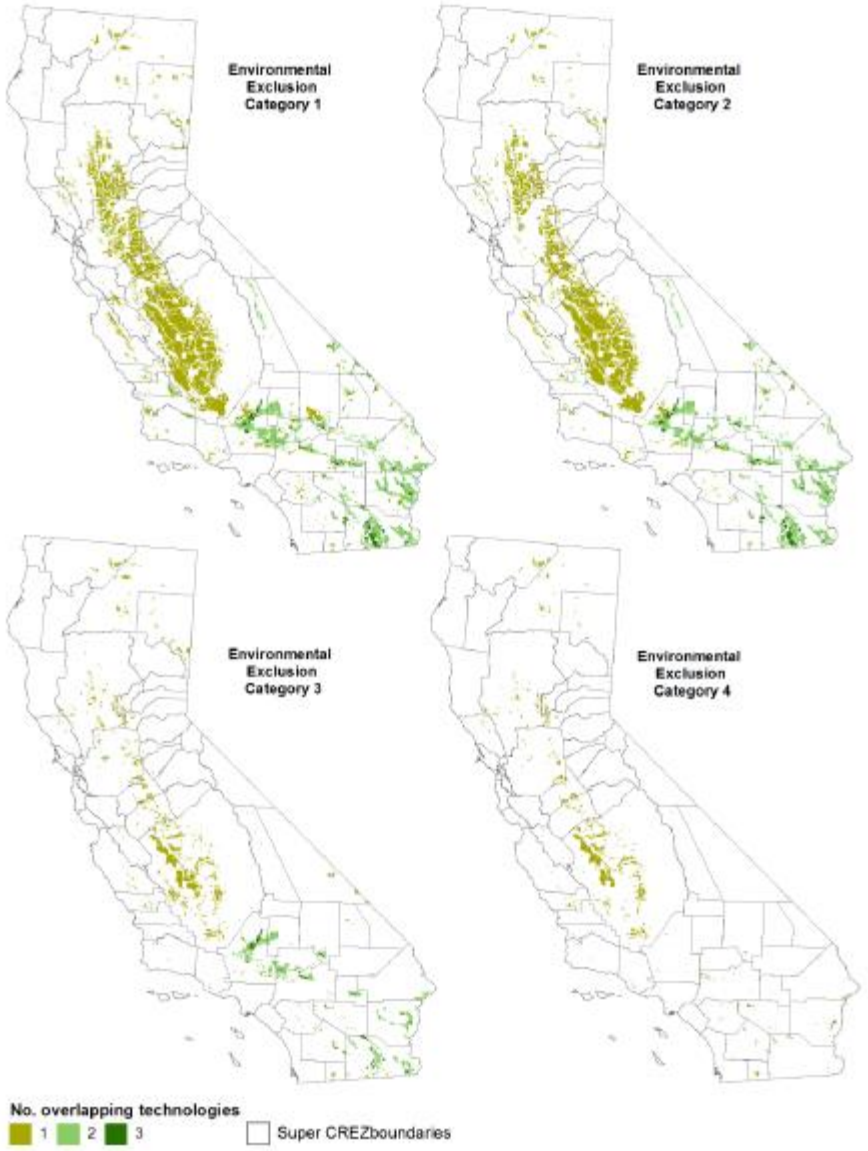


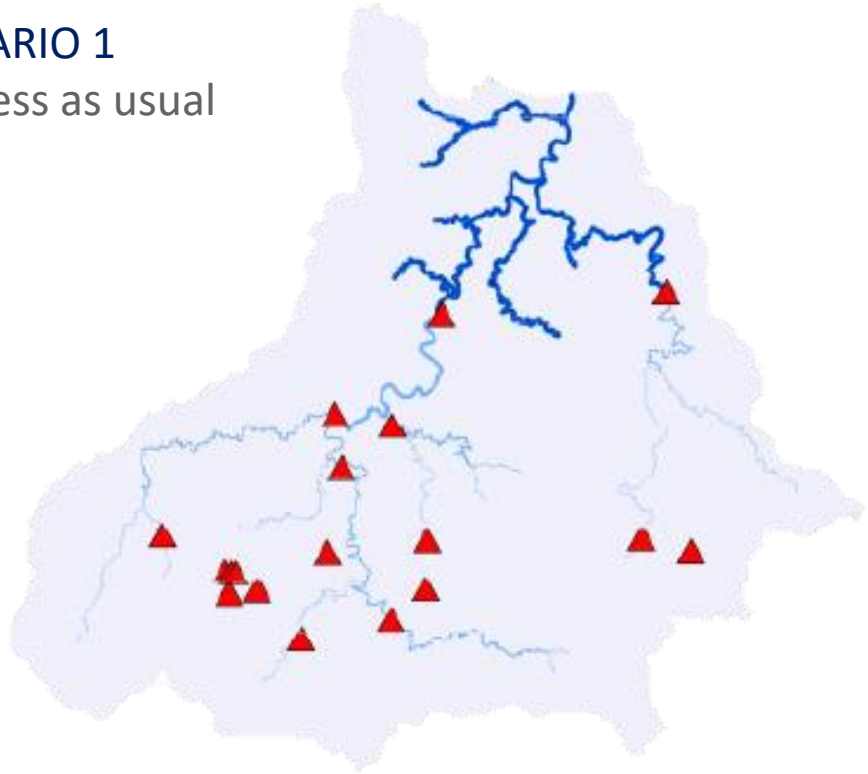
Figure 2. Suitable sites for the development of wind, solar PV, solar CSP, and geothermal.
Colors indicate the number of technologies for which an area is suitable. For example, dark green areas are those that are suitable for any possible combination of three out of the four technologies (i.e., wind, solar PV, solar CSP). The maps show suitable sites for Category 1 through 4 Environmental Exclusion Levels, with Category 1 being legal baseline exclusions and Category 4 having the most extensive exclusion criteria.

MEXICO: Coatzacoalcos River Basin

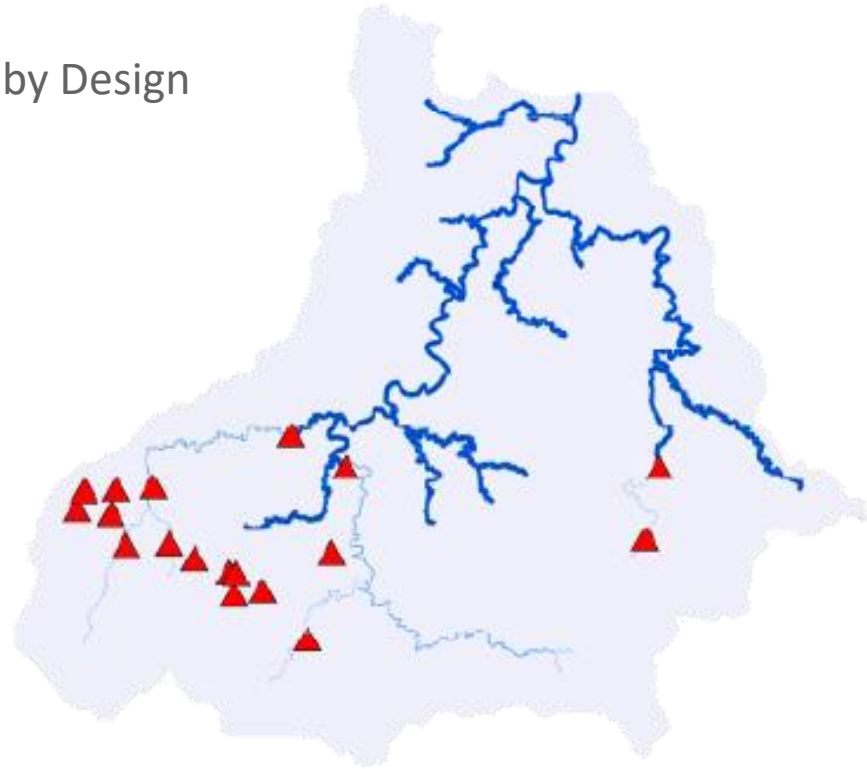
Planned Dams

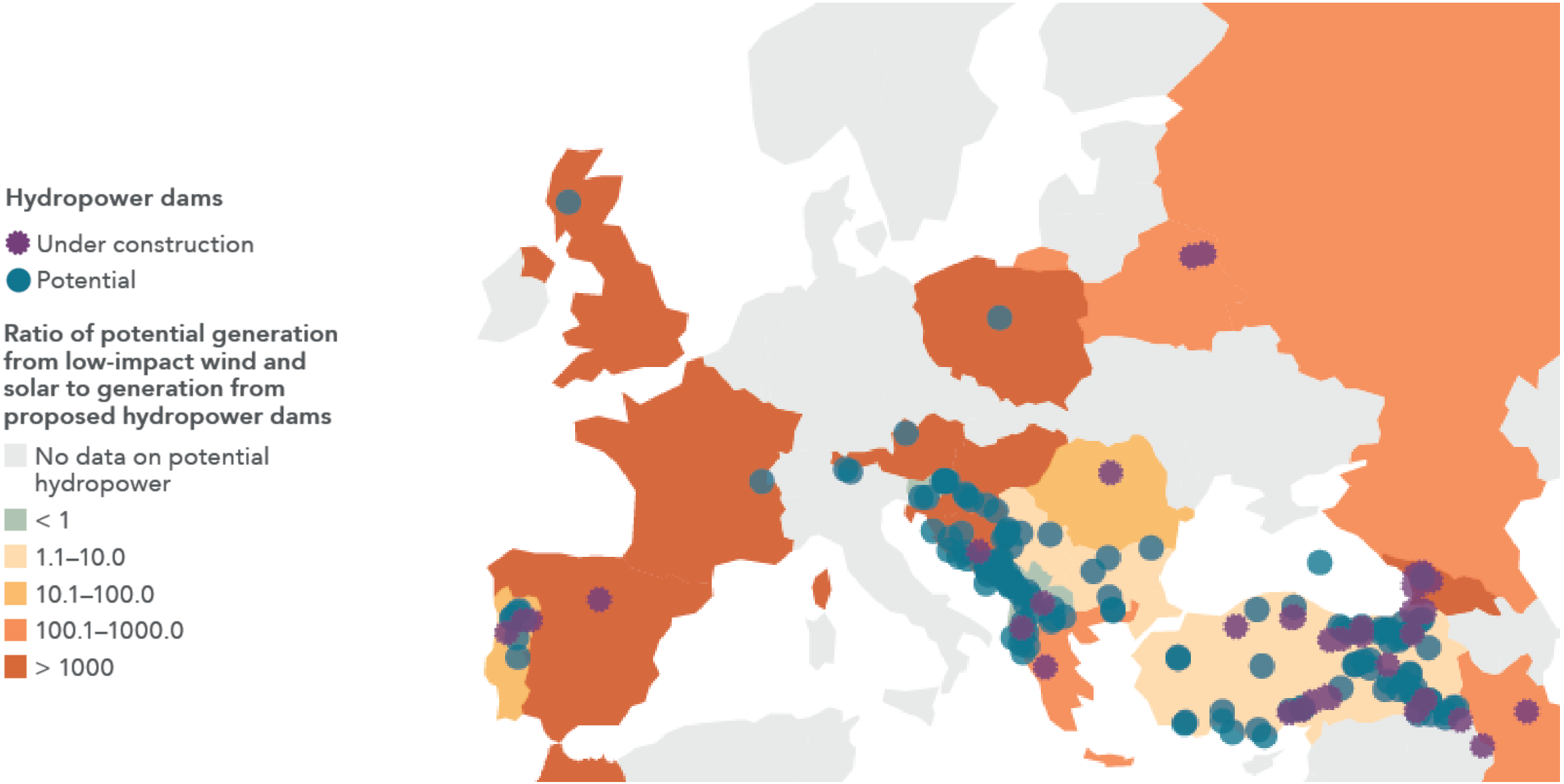
Longest Connected Network

SCENARIO 1
Business as usual



SCENARIO 2
Hydropower by Design




Hydropower dams
Under construction
Potential
Ratio of potential generation from low-impact wind and solar to generation from proposed hydropower dams
No data on potential hydropower
< 1
1.1–10.0
10.1–100.0
100.1–1000.0
> 1000

Croatian Electricity Sector Scoping Assessment

Energy Institute Hrvoje Požar | Zagreb | May 2019 |

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The Nature Conservancy

Advancing a renewable energy revolution for the benefit of people and nature.

nature.org

https://www.nature.org/en-us/explore/newsroom/wwf-tnc-free-flowing-rivers/