The Nature Conservancy

Advanced spatial mapping and renewables acceleration areas

How effective implementation can become a game-changer for the European energy transition

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Key messages and recommendations:

1. Europe-wide there is enough land for low-conflict Renewable Energy deployment - but this requires a holistic approach with careful planning, smart siting, and thorough stakeholder engagement.
2. Renewables Acceleration Areas can be a game changer for meeting EU and global climate and energy goals, if implemented as part of a scientific and credible spatial planning process for renewable energy deployment.
3. Adequate monitoring of the designation and implementation of Renewables Acceleration Areas and spatial mapping for Renewables deployment will be needed to ensure Member States are equipped and supported to deliver within the deadlines set by the Renewable Energy Directive and to ensure stakeholder engagement and acceptance.

In order to tackle climate change, more renewable energy will need to be deployed rapidly, and developments may occur in crowded or contested places. EU-wide, there is enough low conflict land to meet the EU 2030 renewable energy targets – but to avoid risks of conflict over land-use and negative impacts on species, ecosystems and communities, a smart siting approach must be adopted. The implementation of the revised EU Renewable Energy Directive (RED)'s provisions on renewables mapping and Renewables Acceleration Areas is an opportunity for Member States to adopt smart siting approaches in order to accelerate renewable energy deployment while delivering for biodiversity and communities.

TNC welcomes the inclusion in the RED of the concept of Renewables Acceleration Areas (RAAs), as well as the commitment in the Wind Power Action Plan to deliver dedicated, new Guidance to help Member States navigate the designation process. We believe RAAs, if well carried out, can be a robust tool to ensure we meet both our climate and biodiversity goals, by fast-tracking planning for renewables in areas of low-conflict risk for biodiversity.

We believe the Guidance to Member States on designation of RAAs can have benefits for accelerating renewable energy generation within the EU and support smooth implementation of the RED. The Guidance should encourage avoiding having potentially 27 different approaches and methodologies for designating RAAs. It should address the important variables, such as priority habitats and migratory species, that should be taken into account from the outset. It should also inform Member States' authorities on how to identify suitable sites and map socio-ecological land uses. Furthermore, it should address stakeholder participation and consultation throughout the designation process as an integral part of the smart siting approach, so as to build confidence with stakeholder groups, local communities, and indigenous peoples, that there are clear, credible and consistent criteria being used for designation. This can help build acceptance and minimise the risk of lengthy court challenges and delays in project development.

TNC has developed a **Handbook** for spatial planning practitioners and experts to support mapping exercises in Europe. This guide could help inform the implementation of key provisions from the RED and actions under the Wind Power Action Plan, notably on the designation of Renewable Acceleration Areas and the Commission's upcoming Guidance, as well as on spatial mapping for renewables Member States are expected to submit by May 2025.

This policy briefing first outlines and summarises the key steps of TNC's smart siting methodology (as contained in the Handbook) and then sets out several policy recommendations addressed to the European Commission in order to inform the Guidance on RAAs and further potential next steps.

TNC methodology for mapping a Sustainable Renewable Energy Transition

In addition to the example set out in the case study below, TNC has considerable experience globally with developing approaches for siting renewables in harmony with nature and local communities. The 'Site Renewables Right' methodology was first pioneered in the U.S. to identify areas where renewables can be developed while still conserving important wildlife habitats and natural areas at the same time. This methodology has since been rolled out in other parts of the world, including in India and in Europe, where we have applied our smart siting approach in the Southeast Europe region to propose low-conflict land for solar and wind development and protect important ecosystems. So far, we have demonstrated tailor-made applications of our smart siting approach in Croatia, Serbia and in North Macedonia.

Analysis carried out by TNC shows that there is sufficient low conflict land to exceed the current as well as the newly agreed EU 2030 Renewable Energy target: our assessments suggests that low-conflict converted landcover types have the potential to generate 6.5 million GWh of solar and 3.5 million GWh for wind across Europe – which equals roughly 5-26 times total solar renewable targets and 2-4 times total wind energy targets. To achieve this potential, careful planning and smart siting must be employed, as at sub-regional or local level the potential for land-use conflicts persists. Indeed, if development patterns focus solely on maximizing development potential, it could potentially impact approximately 1,800-11,000 km^2 of natural and agricultural lands for solar development and roughly 37,000-88,000 km^2 for wind development, and may not even be materialised due to environmental and community objections.

TNC is therefore calling for renewable energy developments more widely to focus on low-conflict converted landcover areas and avoid high-biodiversity value areas (such as protected areas and migratory species routes) as well as high-risk conflict areas tied to socio-cultural values (e.g., indigenous lands or cultural monuments), and strategic economic sectors like agriculture and tourism).

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We invite the EU Commission to consider the recommendations and examples offered within TNC's Handbook for Mapping a Sustainable Renewable Energy Transition[1] which includes the following critical steps of mapping and identifying potential low-conflict areas for siting renewable energy projects that could prove useful to EU Member States' public authorities when undertaking the mapping and drawing up the plans for renewable acceleration areas:

RE suitability and priority mapping

Anticipating where future renewable development may occur first requires identifying those lands suitable for wind or solar development – separately for both technologies. Often labeled as **constraint mapping**, lands are excluded from development based on **economic** (e.g., low winds, limited sunshine, large distances from transmission or distribution network), **administrative** (e.g., zoning restrictions, protected area regulations), and/or **biophysical factors** (e.g., steep slopes, rocky ground). Once unsuitable lands are excluded, the next step is to examine how the different criteria influence RE development and use these to rank the remaining suitable lands;

Identify and map environmental or biological conservation values in the region

We identify and map ecological or cultural/social values (in step 3) as part of creating a **conflicts map**. Understanding what and where critical ecological values are in a region is vital to proactively consider additional landscape conflicts, clarify tradeoffs, and strategize how to guide emerging energy development towards a more low-impact future. This requires identifying and synthesizing those critical values in a spatially explicit manner. Wide and accurate stakeholders' engagement in this process is key to identify and fill in potential data gaps, which is a considerable challenge observed in our work across different European countries. As a first step, we consider sensitivity of existing land use and land cover classes to development and include additional critical environmental and biological values (e.g., habitats) as necessary;

Identify and map cultural/social values in the region

Given a wide range of cultural and geographical diversity, the types of social dimensions to prioritize can vary by region due to social conditions at a local and/or national level (e.g., political, economic, demographic, cultural). In this section, we present some broad thematic categories, which can aid in identifying preferential areas that meet the criteria of lower social impact risks and suggest corresponding data types to consider for renewable energy siting. This step also requires engagement with local stakeholders to understand what cultural/social values are important and identifying how these values can be used to provide informative data in avoiding RE siting conflicts;

Bring it together

Understanding pathways to meet future energy goals and finding low-conflict lands with high development potential: In the final step, future energy goals, possible development scenarios, and estimated land requirements are identified. This is vital to establish whether development targets can be met on low-conflict areas and where they cannot, to understand the scale and tradeoffs in potential impacts to important environmental and social/cultural values represented by different development scenarios.

1 Handbook for Mapping a Sustainable Renewable Energy Transition: https://www.nature.org/content/dam/tnc/nature/en/documents/Europe_Energy_Practitioners_Guide.pdf

These steps are further outlined and detailed in the full Practitioners' Handbook.

Recommendations to EU Policy-makers:

The European Commission's Guidance on RAAs should recommend that Member States apply credible, science-based methodologies when designating RAAs

While we recognise that there are varying contexts across the EU for the designation on Renewable Acceleration Areas, and that some Member States have already taken steps under national legislation to designate areas for accelerating renewable energy deployments while others have published studies and looking into more guidance at the EU level to make them into official laws, we believe there is considerable benefit to ensuring greater consistency across the EU in the underlying principles and methodologies used for identifying these Renewables Acceleration Areas.

TNC is calling on the European Commission to ensure its Guidance provides Member States with further clarity on the provisions and recommendations already contained in the Renewable Energy Directive. Importantly, whether the approach taken by Member States to map, assess, determine and designate RAAs is centrally guided or led on by local and regional authorities, the baseline for any designation should be that it is based on scientifically recognised methodologies for spatial planning and mapping of renewable energy deployment.

The European Commission should include guiding steps for identifying low-conflict areas building on existing methodologies, sharing best practices for geospatial mapping, list relevant socio-ecological land use indicators, as well as steps for ensuring stakeholder and local community participation and consultation. The Guidance should consider and recognise that there are varying contexts across the EU but draw on commonly recognised best practice in renewables siting.

The European Commission should set out a process for ensuring adequate monitoring and follow-up of the RAA designation process

While the Guidance is expected to be issued in April 2024, the process for renewable energy spatial mapping and designation of RAAs does not stop there, with deadlines in May 2025 and February 2026 respectively. In order to ensure MS are appropriately supported throughout this process, we recommend the Commission regularly assesses MS progress on the designation of RAAs in line with the requirements set out in the RED.

To support the Commission, in addition to the Member States expert groups, we recommend the establishment of a multi-stakeholder expert group on renewables permitting and mapping, to support the renewable transition and bring together all implicated stakeholders, including NGOs, researchers and industry actors. This multi-stakeholder expert group could complement the work carried out by the MS expert group, and further assist with the implementation of RED provisions on permitting, mapping, and RAA designation. This would ensure greater buy-in from all concerned stakeholders.

Internationalisation of EU policies on renewable mapping and RAAs

More than 130 countries, led by the EU, committed to tripling renewable energy capacity globally by 2030 at COP28 in December 2023. This call was also included in the Outcome document of the Cop (Outcome of the first global stocktake).

In order for this target to be achieved, an ambitious acceleration of renewable energy deployment will need to take place globally. We believe the EU should build on the global leadership it showed in driving the adoption of this goal by showcasing actions that can be taken to deploy renewables in harmony with nature and communities. Demonstrating leadership on methodologies for appropriately siting renewables has the potential to provide a concrete example of EU action and defuse concerns over land-use conflicts that discussions of renewable expansion could create, showing that the EU is taking these concerns seriously and working to address them.

The Guidance developed by the EU on mapping, permitting, and RAAs could form the basis for an initiative that brings together internationally-recognised best practice for siting renewables, which could help alleviate concerns around the impacts that renewable energy expansion globally could create.

For further reading:

- Power of Place: supporting energy planners and policymakers in the US execute net-zero strategies that maximize benefits for climate, nature, and people
- TNC Six Pathways to a clean and green energy buildout
- Mining the Sun: Benefits of Solar Energy on Former Mine Sights
- SiteRight India tool with specific modules on biodiversity and community engagement
- TNC Europe Handbook for Renewable Energy Practitioners
- TNC's Site Renewables Right work in Southeast Europe

Contact

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