Pilot project:
Integrated planning for sustainable wind and solar siting in Zadar country (Croatia)

Dragana Mileusnić, TNC
Ana Kojaković, consultant

Energy Community
11th Renewable Energy Coordination Group
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The Nature Conservancy

Since 1951, The Nature Conservancy has worked to protect the lands and waters on which all life depends.

Grounded in Science
400 scientists and 3,600 staff

Place-Based
72 countries and all 50 United States

A Lasting Legacy
Millions of acres protected, thousands of miles of rivers conserved, and 100+ marine projects
Accelerating clean energy development:
Get in the Zone: Identify areas where renewable energy buildout can be accelerated

01 Development Potential

02 Designate pre-approved zones in low-impact areas

03 Accelerate approval process for developers

Incorporate these considerations into identifying areas for renewable development
Pilot project for Zadar county (Croatia)

Aims and objectives

**Aims**
- Implementation of the measures related to RES siting defined by *NECP(OIE-2, MEN-17)* and *Strategy and action plan for nature protection 2017-2025*
  - Support national climate and sustainable development policies
  - Facilitate investments in solar and wind power plants

**Objectives**
- To define a methodology for development of wind and solar sensitivity maps
  - a baseline for spatial planning and strategic impact assessment
  - sustainable use of natural resources and nature conservation
- To implement the methodology on the national scale
  - upon endorsement and verification of the piloting results by the relevant stakeholders
The integrated planning approach…

- **Analysis of existing approaches based on scientific evidence**
  - Country specific status of the environment (biodiversity, natural resources, land use principles)
  - Indicator based-approach
  - Potential environmental impacts related to the technology

- **Collection and analysis of the existing/available data**
  - Legal constraints
  - Biodiversity data
  - Environmental data
  - Infrastructure

- **Stakeholder consultation**
  - Relevant public authorities on the national and county level
  - Experts in specific fields (birds, large carnivores, bats, habitats, technology experts….)
  - NGOs active in biodiversity conservation and nature protection
**STEP 1 – EXCLUSION ZONES**
Based on legal constraints related to spatial planning, nature protection, agriculture, forestry, water management and infrastructure laws and regulations (e.g. national parks, infrastructure corridors, municipalities...)

**STEP 2 – HIGH SENSITIVITY ZONES (PRECAUTIONARY PRINCIPLE)**
Based on the vulnerability of species and habitats to potential impacts arising from solar PV and wind power plants

**STEP 3 – SENSITIVITY LEVEL OF THE REMAINING AREA**
Based on the MCA using sensitivity indicators in 3 main categories: biodiversity, natural resources, socio-economic aspects
Solar PV Plants: Suitability and Sensitivity
Solar PP Suitability

Outside: Exclusion zones, VH, H, M Sensitivity levels

= 22,529 ha → 1,126 ha (5%) = 555 MW
Wind Power Plants: Suitability and Sensitivity
Wind PP Suitability
Outside: Exclusion zones, VH, H Sensitivity areas
= 8,451 hectares
= 563 MW
...can be achieved with a sustainable siting of WPP and SPP

Zadar County’s potential

1,118 MW
Suitable solar 555 MW
Suitable wind 563 MW

VS

Croatia’s target

2,132 MW
Solar target 768 MW
Wind target 1,346 MW

52%
of Croatia’s 2030 solar and wind targets can be met in Zadar County only.

72% of the solar target
41% of the wind target

500,000 households could be powered
1/3 of all Croatian households
8X all of Zadar County’s households

431,350 metric tonnes of CO₂ emissions could potentially be avoided annually

...
Lessons learnt and recommendations

**Challenges**

- Data
  - Part of the spatial data not up-to date
  - Different spatial resolution of datasets
  - Lack of, or partial availability, of certain data
- Limited engagement of external experts
  - Institutional and/or formal reasons
  - Limited budget
  - COVID-19

**Limitations of results**

The sensitivity maps are guidance...

- Zones of high sensitivity
- Spatial resolution of sensitivity maps (9ha raster)
- Maps can be used as guidance – in field verification needed

**Recommendations for the next steps**

- **Institutionalization**
  - Formal endorsement of the methodology by the relevant authorities (MESD, MPPCSA)
  - Strengthening of stakeholder engagement (public and local authorities, scientist, NGOs/CSOs, private sector – WPP and SPP operators and developers)
  - Establishment and maintenance of the information database
  - Upscaling – implementation of the NECP and Biodiversity Strategy measures: development of national sensitivity and suitability maps
- **Technical upgrades**
  - Verification of the sensitivity maps (e.g. monitoring data, on-site/field check points)
  - Increased resolution of the maps (e.g. 1 ha raster)
  - Program for targeted field research and data collection

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Thank you for your attention!

More information is available from.....

Full report

Briefing paper

News feature

zfistrek@eihp.hr and d.mileusnic@tnc.org