REZONING

THE RENEWABLE ENERGY ZONING TOOL

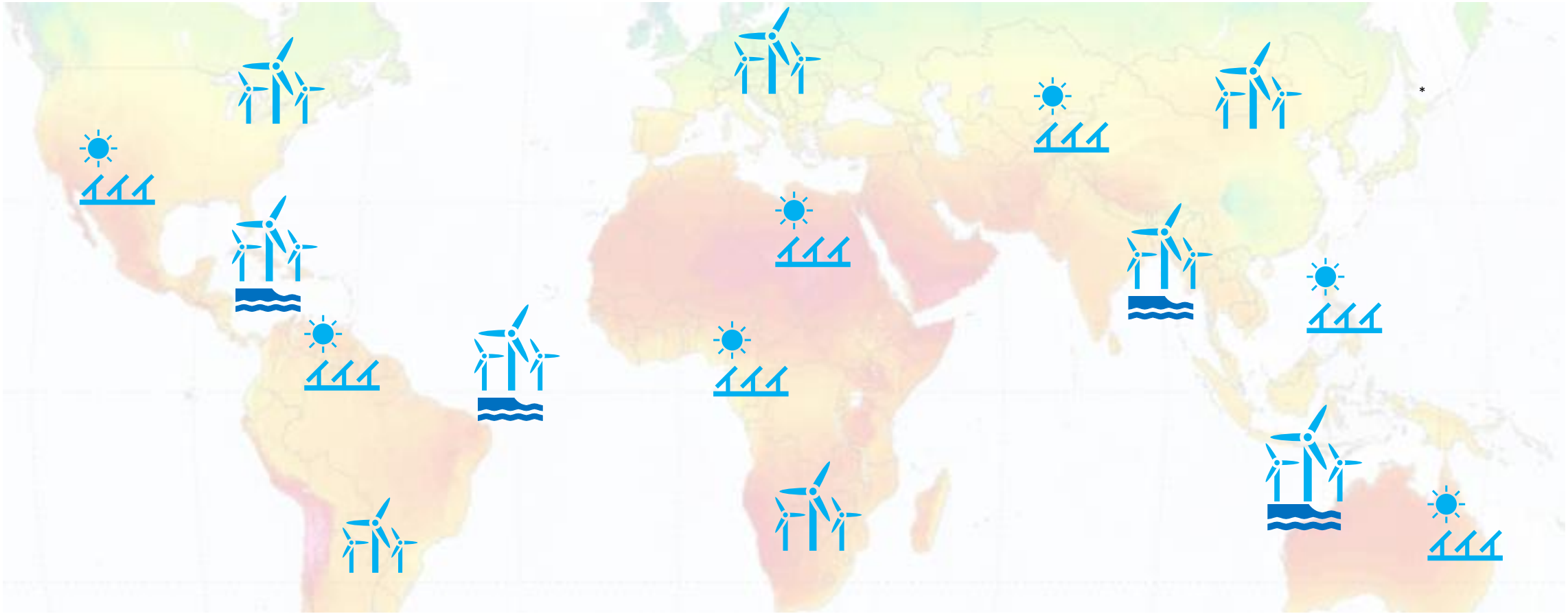
HTTPS://REZONING.ENERGYDATA.INFO/

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Spatial Planning for Renewable Energy Siting



* Photo: Recharge

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Assistant Professor
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Derilinx
DRIVE DECISION-MAKING. INSPIRE CHANGE

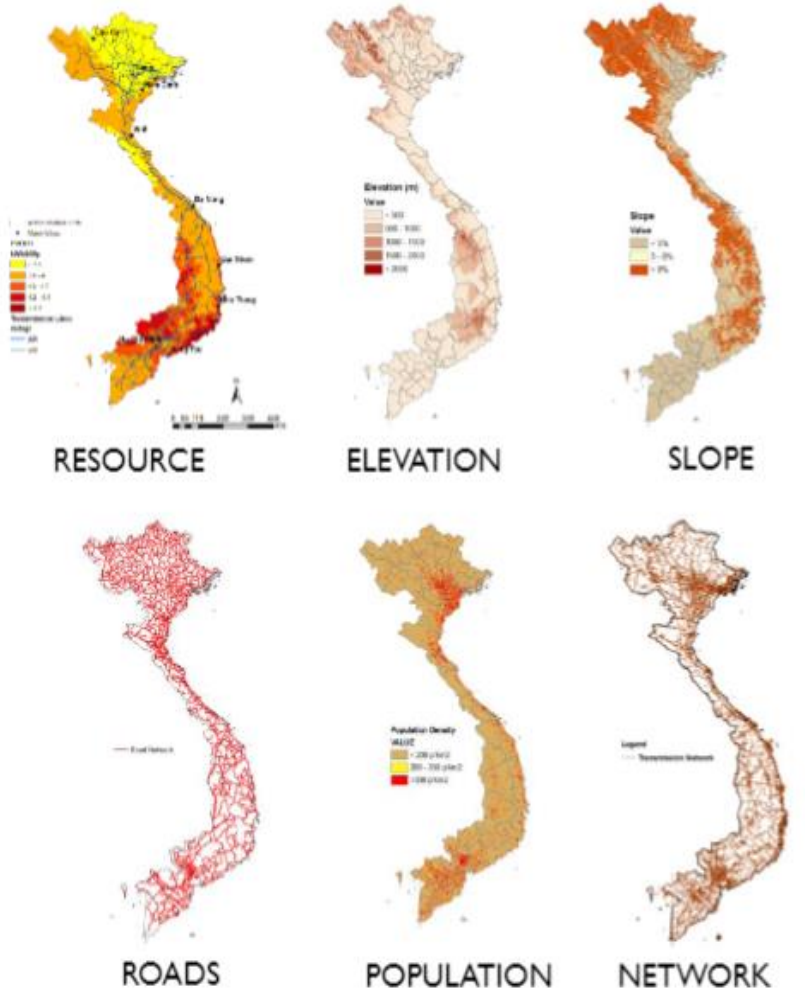
developmentSEED

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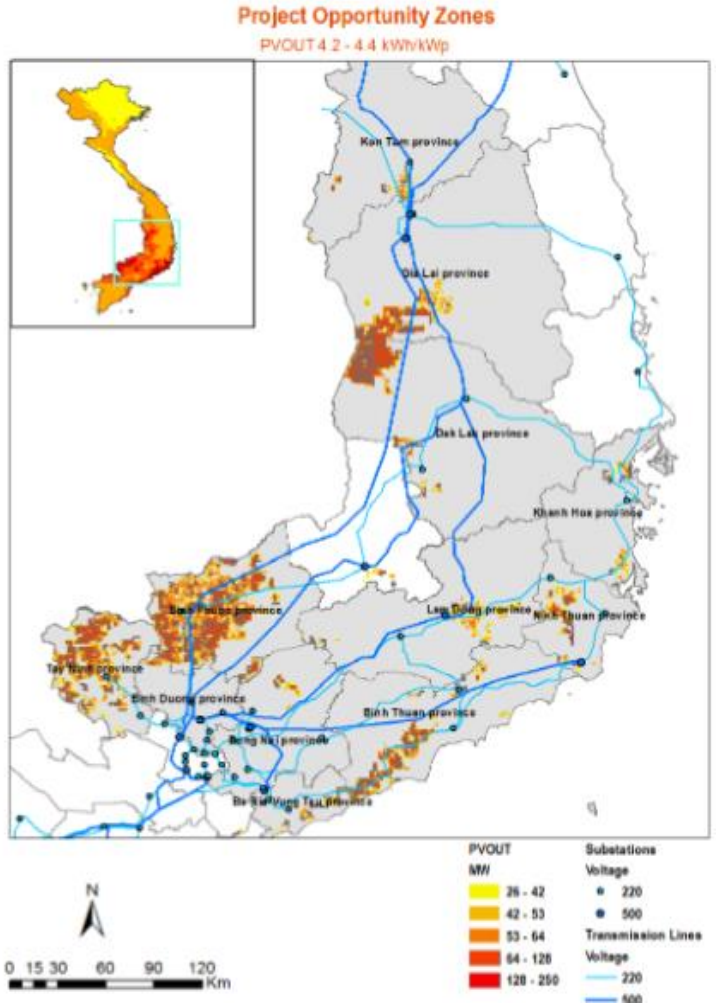
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SPATIAL PLANNING FOR RENEWABLE ENERGY



MAP RE
Multi-criteria Analysis for Planning
Renewable Energy



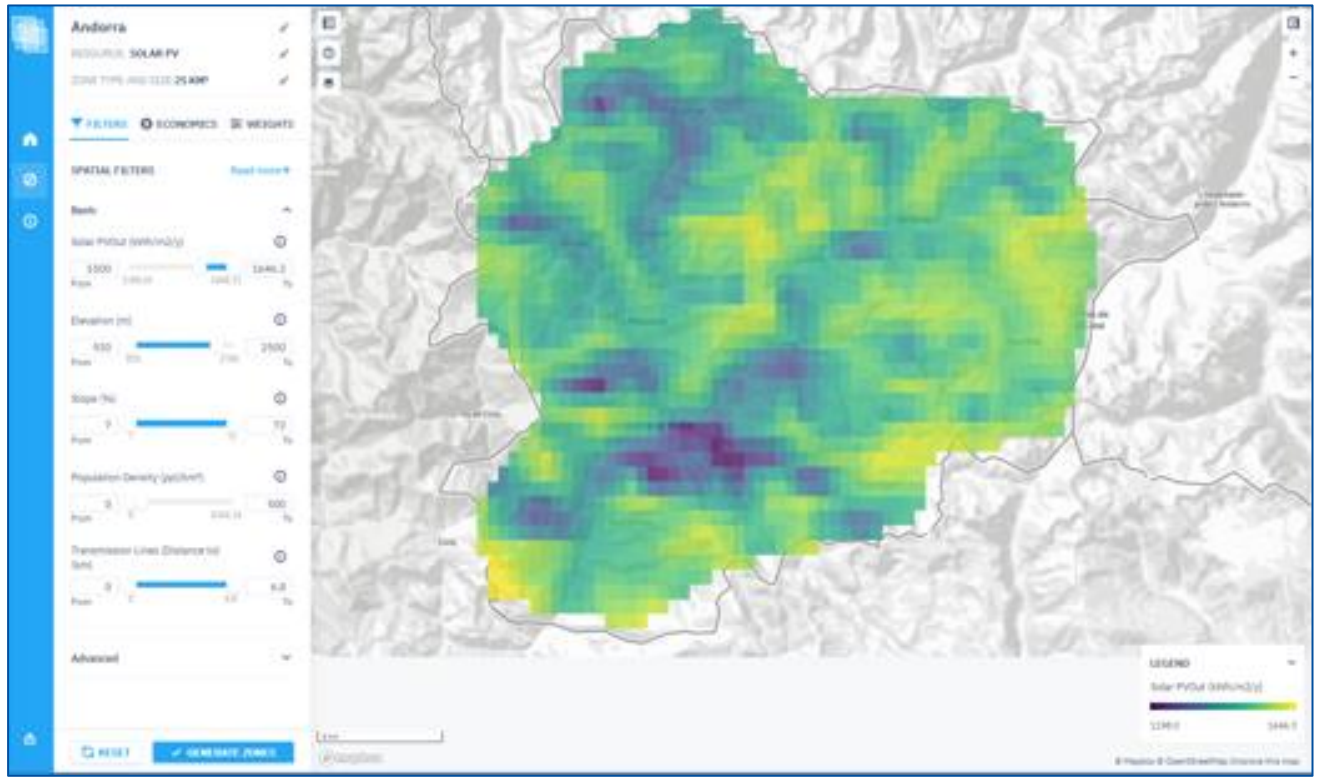
ESMAP

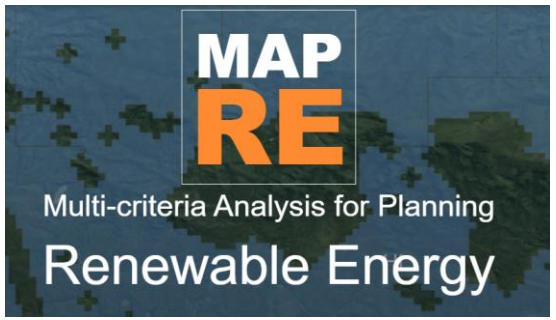
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FROM DESKTOP TO CLOUD

- Vietnam
- Afghanistan
- Ukraine
- Morocco
- Mongolia





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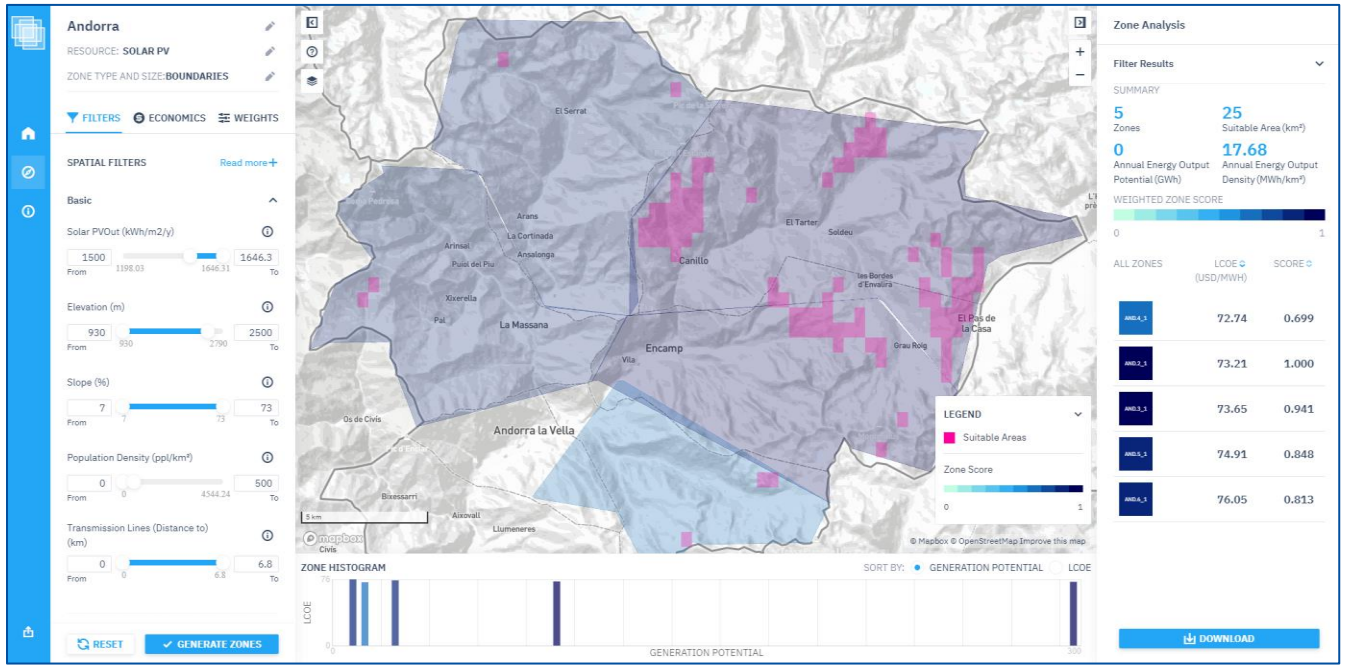
WHAT IS REZONING?

Interactive, web-based platform

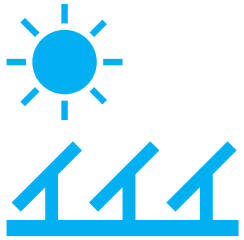
Identify, visualize, and rank zones for the development of RE projects

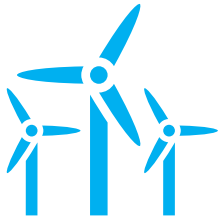
Custom spatial filters

Custom economic parameters



- Government officials
- Regulators
- Utilities
- Academia







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PUBLIC GLOBAL DATA SOURCES

Natural	Infrastructure	Environment	Cultural	Economic
Solar radiation	Roads	Protected Areas	UNESCO Sites	Capital expenditure for generation [USD/kW]
Wind Power	Airports	Ramsar sites		Fixed O&M costs [USD/MW/y]
Wind Capacity Factors for IEC 1/2/3	Transmission lines	Key Biodiversity Areas (KBA)		
Elevation	Power Plants	Ecologically or Biologically Significant Marine Areas		
Slope	Ports and Harbors			
Bathymetry				
Land Use, Land Cover				
Population Density				
Air Density				

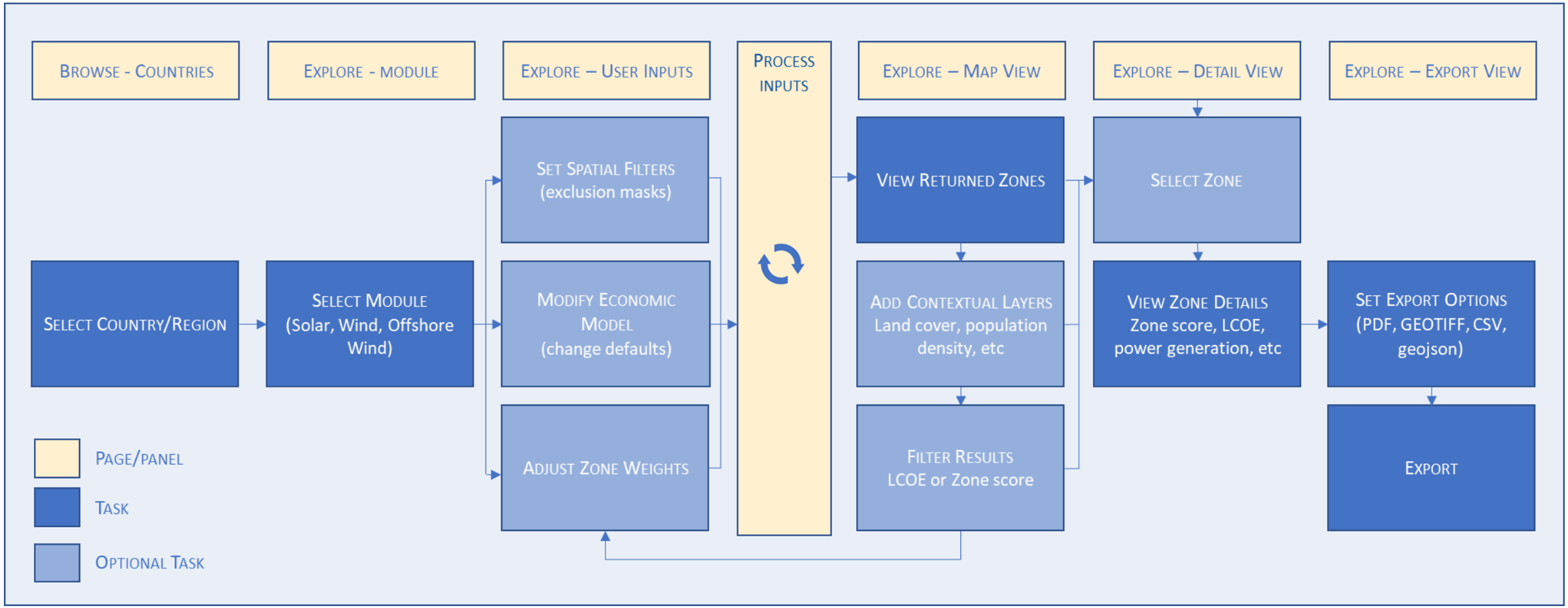
IRENA
International Renewable Energy Agency

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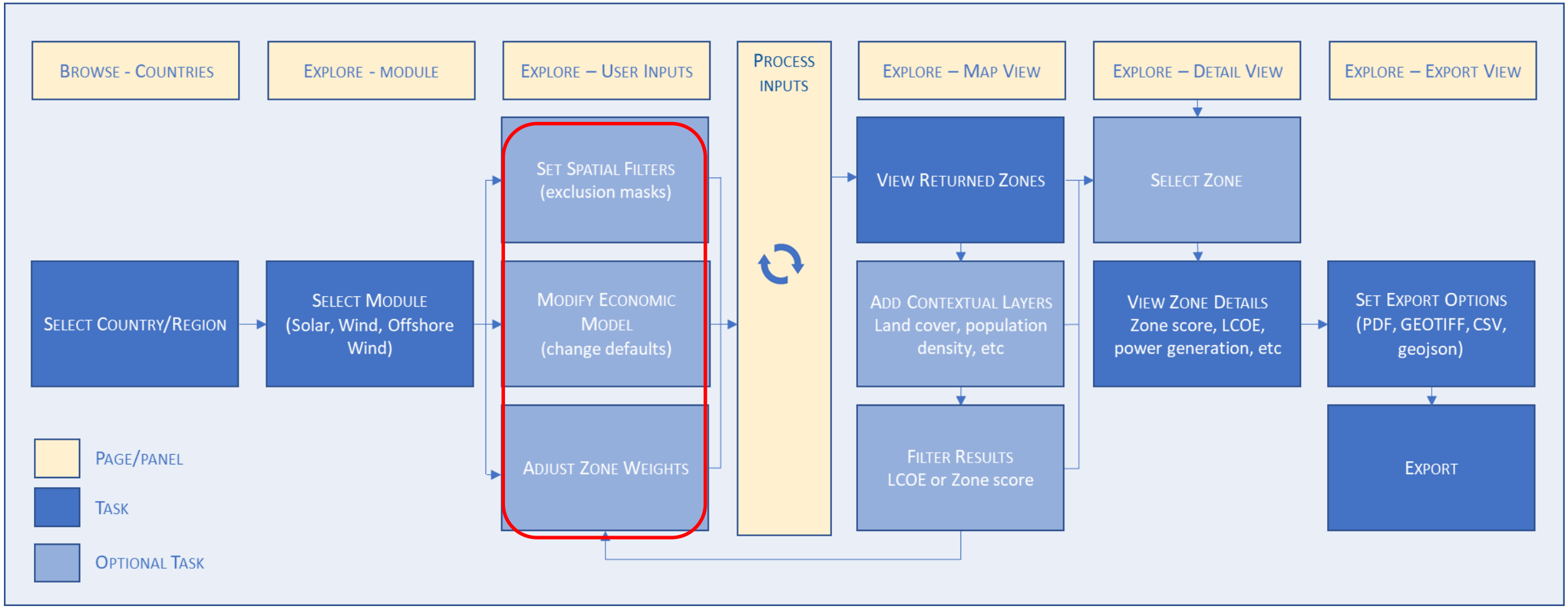
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User Flow

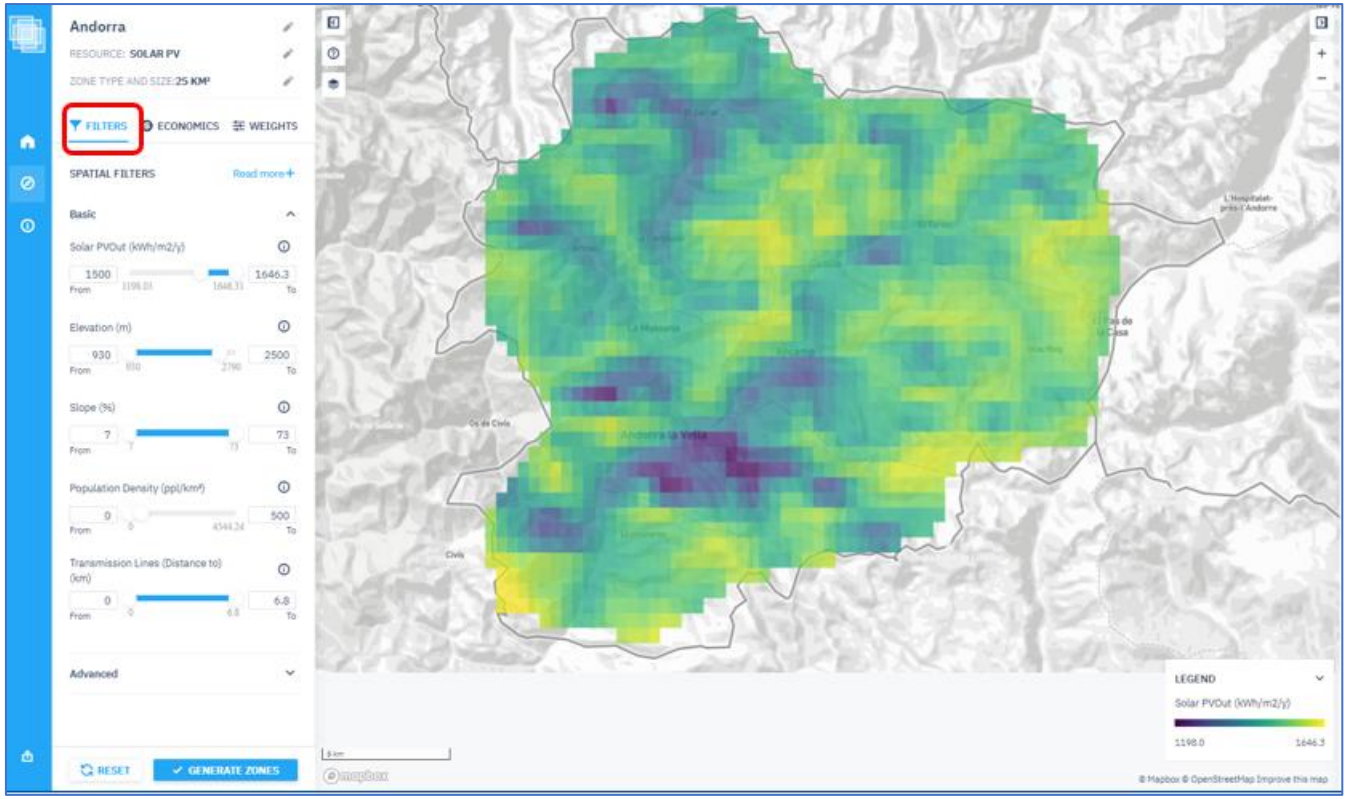

Browse - Countries
Explore - module
Explore – User Inputs
Process inputs
Explore – Map View
Explore – Detail View
Explore – Export View
Select Country/Region
Select Module (Solar, Wind, Offshore Wind)
Set Spatial Filters (exclusion masks)
Modify Economic Model (change defaults)
Adjust Zone Weights
View Returned Zones
Add Contextual Layers Land cover, population density, etc
Filter Results LCOE or Zone score
Select Zone
View Zone Details Zone score, LCOE, power generation, etc
Set Export Options (PDF, GEOTIFF, CSV, geojson)
Export
Page/panel
Task
Optional Task

User Flow

- **Default values** have been provided for all input parameters: spatial filters | economic parameters | zone weights



Spatial Filters



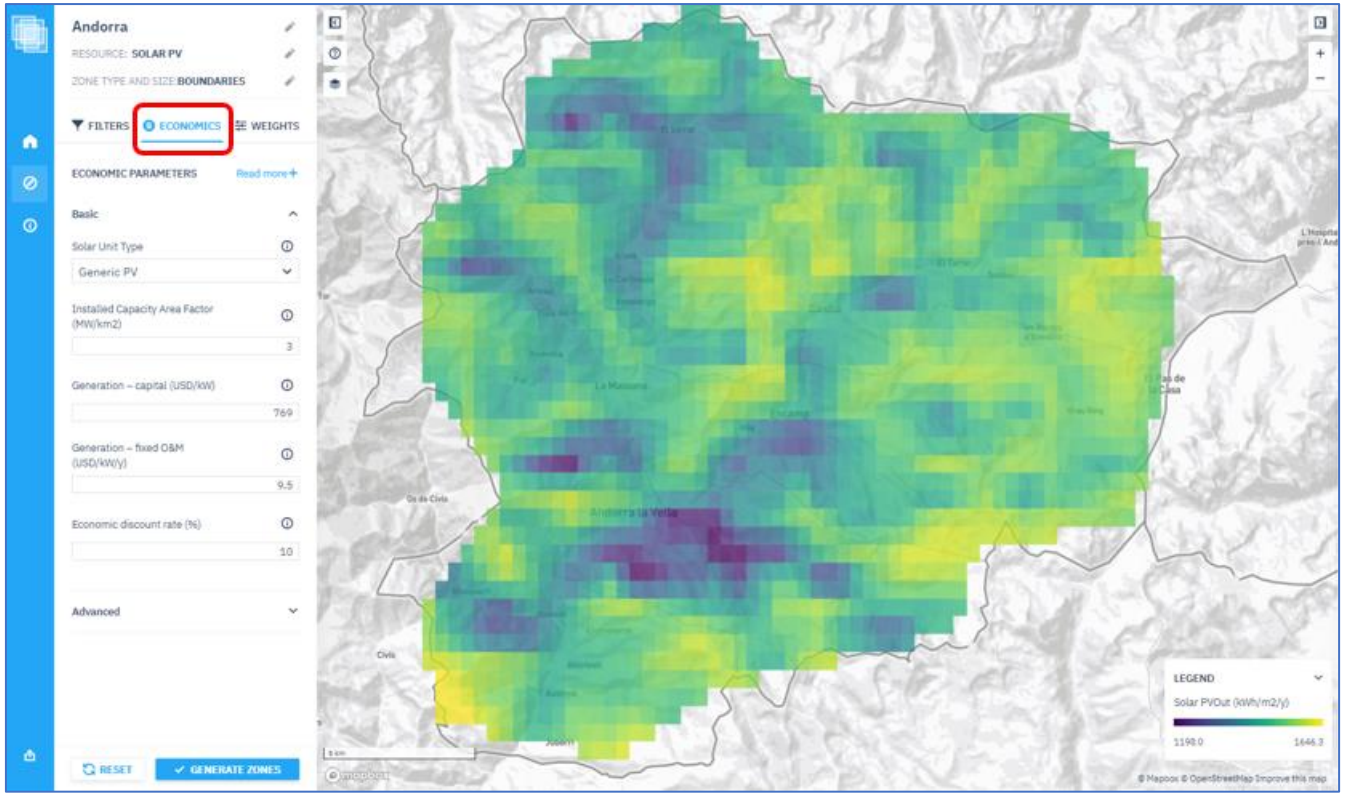
Basic Filters

- Solar PVOut
- Elevation
- Slope
- Population Density
- Distance from Transmission Lines

Advanced Filters

- Include/exclude Water Bodies
- Land Cover
- Distance to Roads/Airports
- Include/exclude Protected Areas
- Distance to UNESCO World Heritage Sites

Economic Model



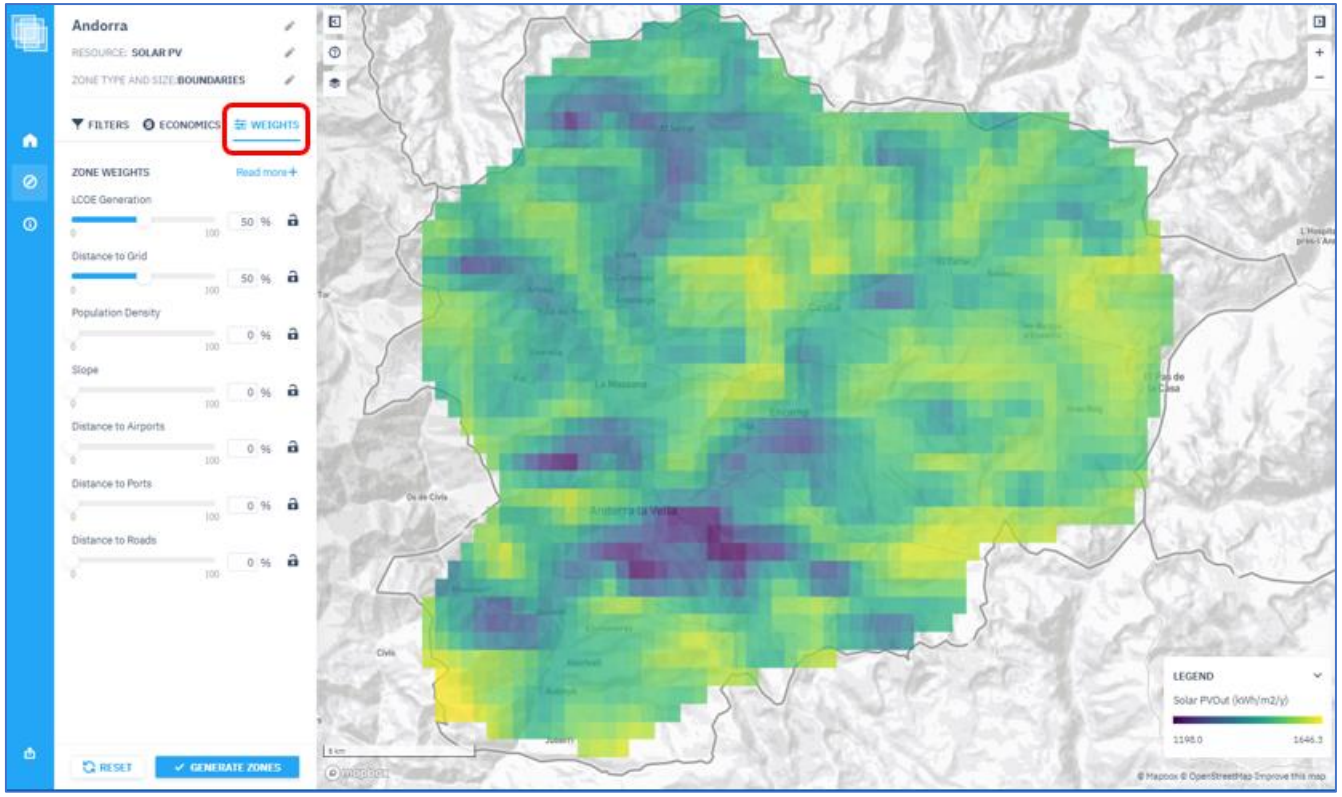
Basic Parameters

- Solar Unit Type
- Installed Capacity Area Factor
- Generation – capital
- Generation – fixed O&M
- Economic discount rate

Advanced Parameters

- Technical Loss Factor
- Unavailability Factor
- Generation – variable O&M
- Transmission – capital
- Transmission – fixed O&M
- Substation – capital
- Road – capital
- Road – fixed O&M
- Decommission rate
- Lifetime

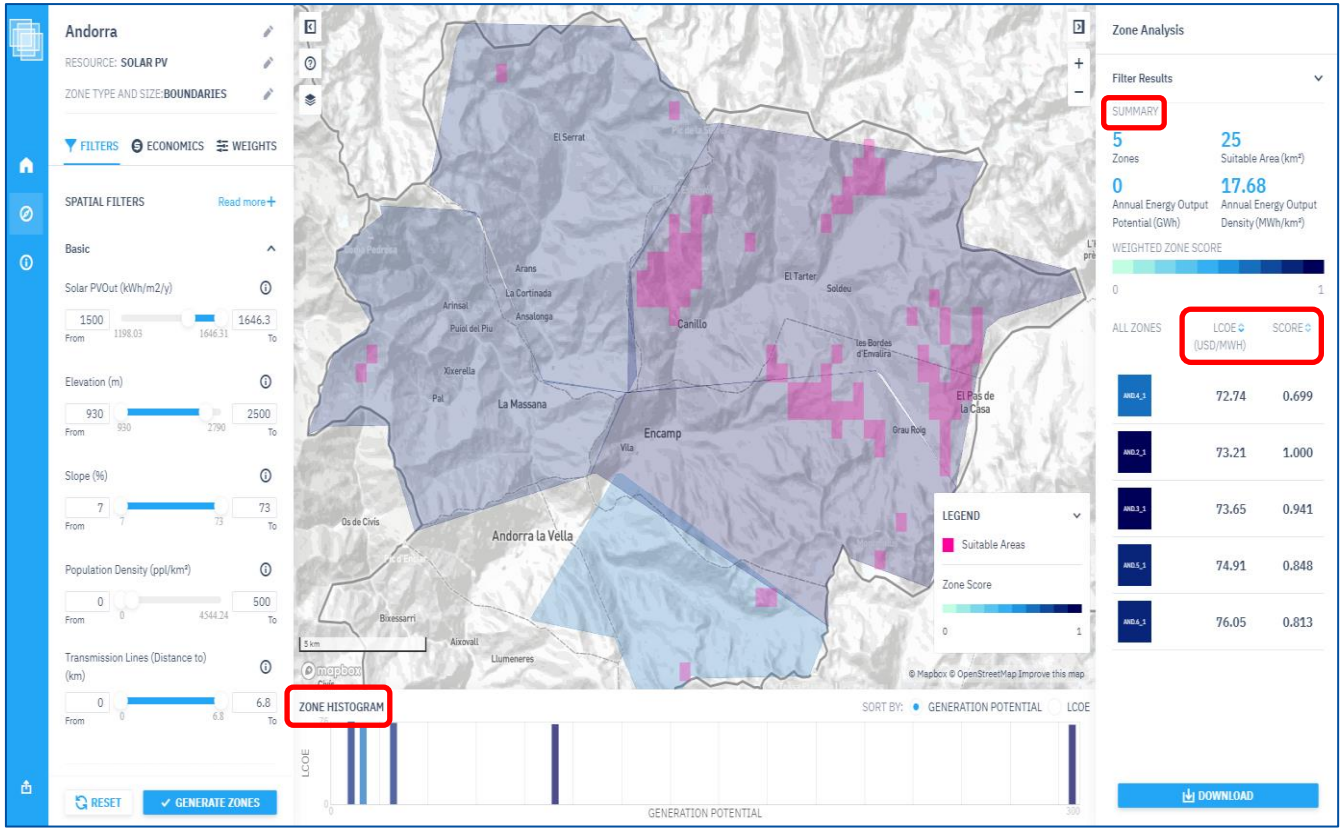
Zone Weights



Custom Weighting Parameters

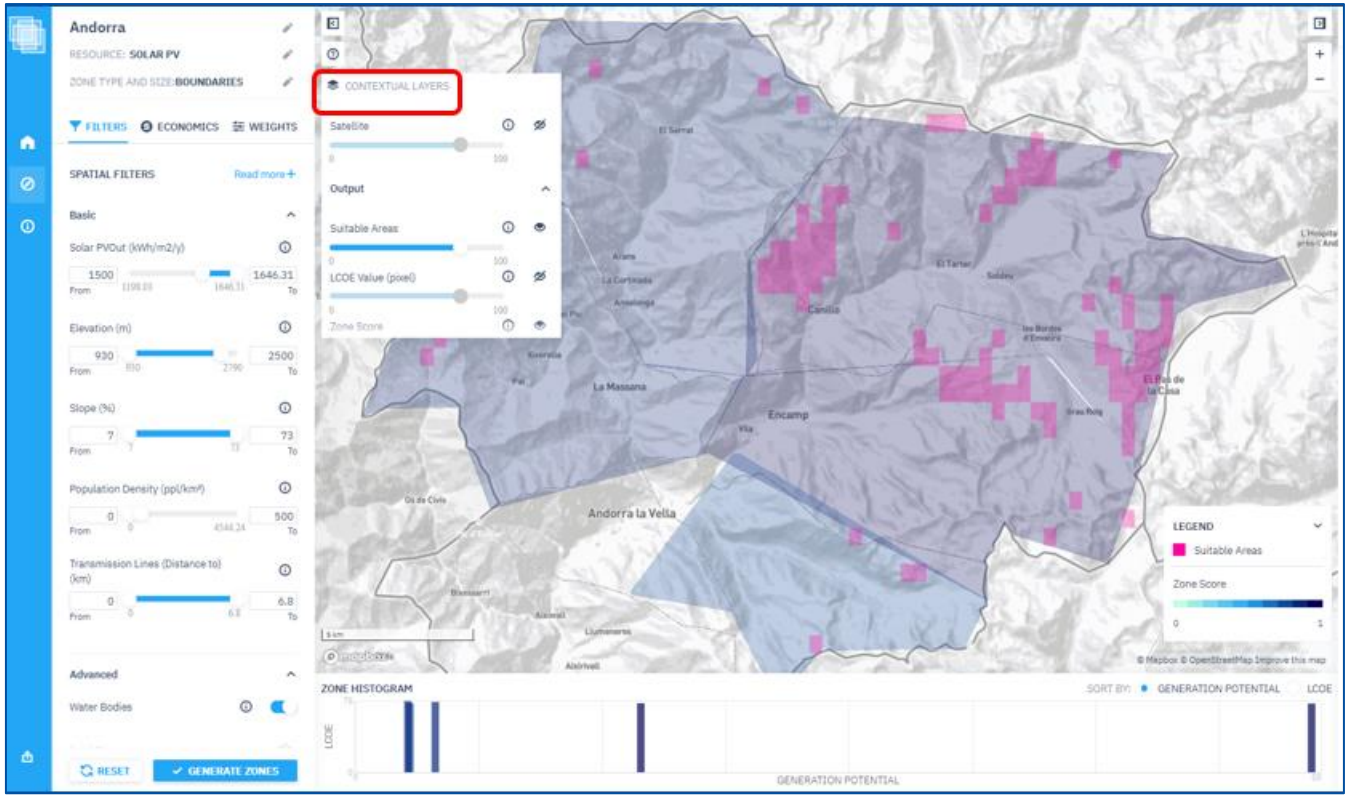
- LCOE Generation
- Distance to Grid
- Population Density
- Slope
- Distance to Airports
- Distance to Ports
- Distance to Roads

View Returned Zones



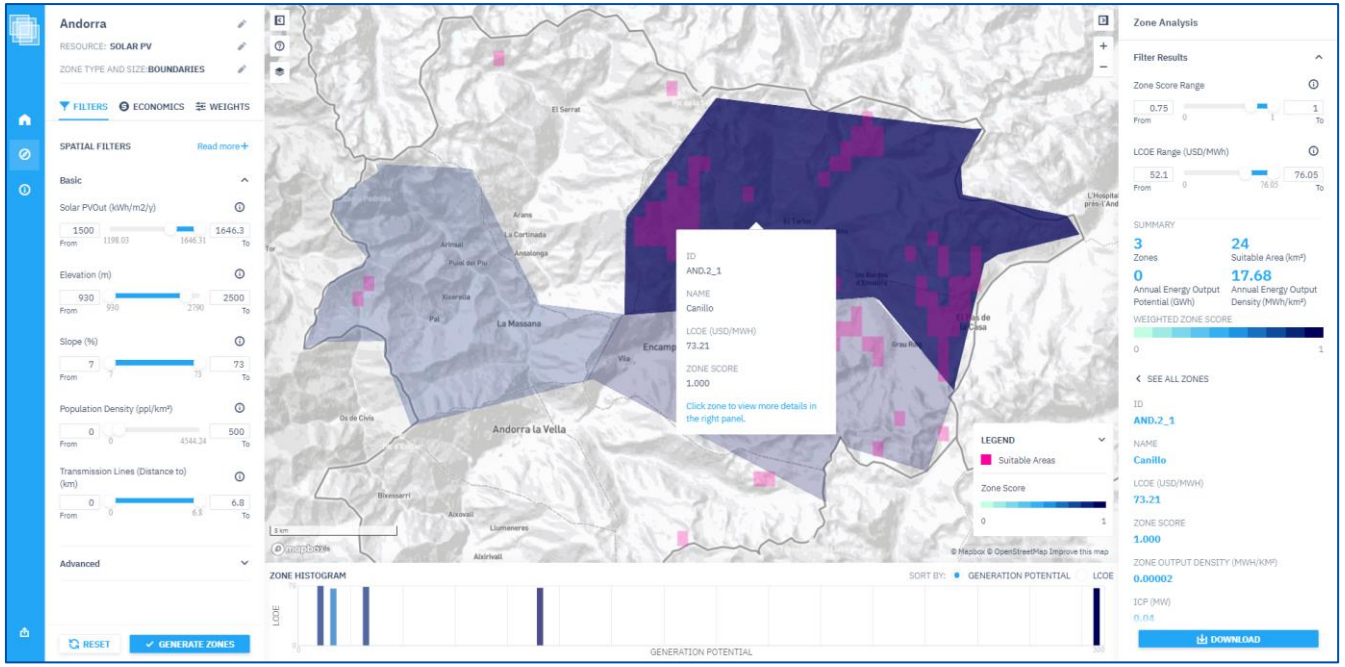
- Suitable zones are highlighted
- **Summary** calculated of suitable zones
- **LCOE/Zone Score** for each suitable zone
- **Zone histogram** of LCOE by Generation Potential or LCOE

Add Contextual Layers



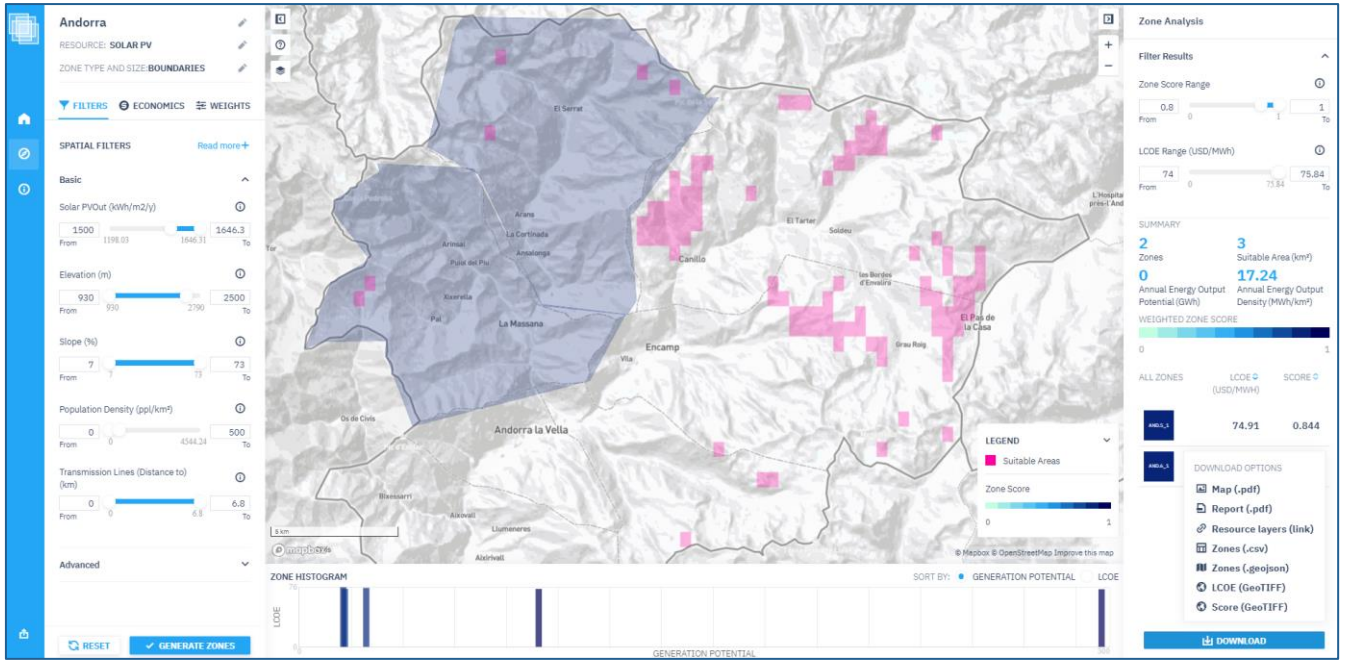
Output	Suitable areas LCOE Value Zone Score
Natural	Population Density Slope Land Cover Solar PVOut Elevation Water Bodies
Infrastructure	Airports Transmission lines Roads
Environment	Protected Areas
Cultural	UNESCO World Heritage sites
Additional	Global Horizontal Irradiation Global Tilted Irradiation Air Temperature

Detailed Zone Analysis



- **Filter Results** by Zone Score or LCOE values
- Drilldown to results for a single zone

Set Export Options



Download Options

- Map (.pdf)
- Report (.pdf)
- Resource layers (link)
- Zones (.csv)
- Zones (.geojson)
- LCOE (GeoTIFF)
- Score (GeoTIFF)

Data Sources

Natural		Infrastructure	
Solar radiation	GSA Solar data	Roads	globio.info
Wind Power	GWA Wind data	Airports	WB Data Catalog
Elevation	CGIARCSI	Transmission lines	energydata.info
Slope	GEBCO global elevation	Power Plants	World Resources Institute
Bathymetry	GEBCO global elevation	Ports and Harbors	Humdata.org
Land Use, Land Cover	FAO.ORG	**Environment**	
Population Density	ARCGIS	Protected Areas	WDPA - protected planet.net
Air Density	GWA Wind data	Ramsar sites	UNESCO.org
Cultural		Key Biodiversity Areas (KBA)	ibat-alliance.org
UNESCO Sites	WHC UNESCO.org	Ecologically or Biologically Significant Marine Areas	cbd.int

Thank you

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https://rezoning.energydata.info/

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