



BUILDING A WORLD OF DIFFERENCE®



Звіт підготовлений для:



Розробник Звіту:



ПРОГРАМА ФІНАНСУВАННЯ АЛЬТЕРНАТИВНОЇ ЕНЕРГЕТИКИ В УКРАЇНІ
(USELF)

Стратегічний екологічний аналіз:

Звіт з визначення обсягів та складу робіт

Січень 2011 р.



Ecoline EA Centre

Ukraine Sustainable Energy Lending Facility (USELF) Strategic Environmental Review (SER)



Objectives of Strategic Environmental Review (SER)

- The European Bank for Reconstruction and Development (EBRD) launched the Ukraine Sustainable Energy Lending Facility (USELF)
- USELF commissioned a Strategic Environmental Review (SER) of renewable energy technologies in optimal areas of Ukraine
- The purpose of the SER is to lay out a path for later environmental reviews of specific renewable energy projects within Ukraine
- Types of renewable projects:

Biogas

Biomass

Small Hydro

Solar

Wind



SER Approach

- No Legislative requirement in Ukraine for SER
- EBRD Environmental and Social Policy requires compliance with EU Directives and national law for projects and programmes funded by EBRD
- SER aligned with EU SEA Directive (2001/42/EC), UK SEA Guidance and Ukraine OVNS
- The SER uses objectives developed through scoping for each environmental topic to describe, analyse and compare environment effects



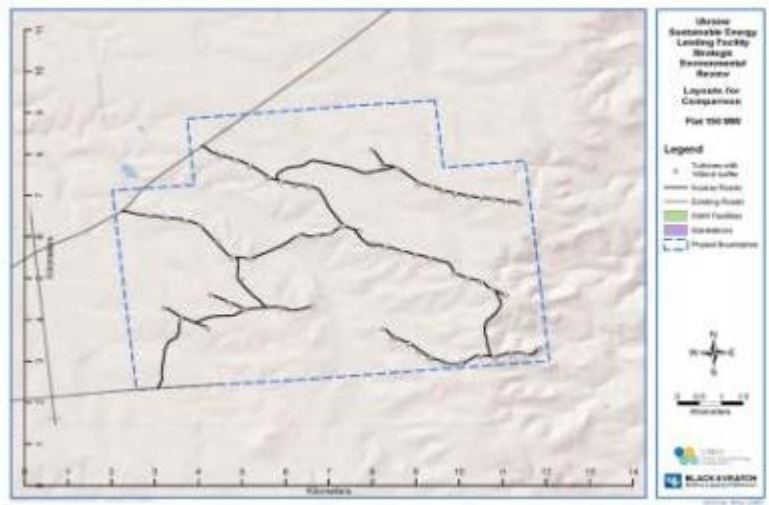
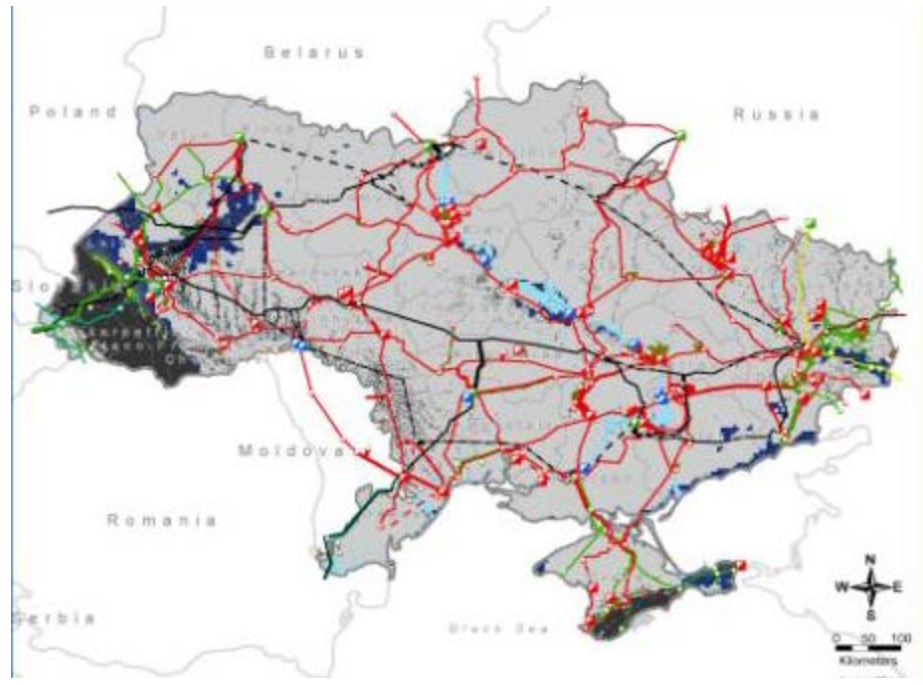
Energy Production in Ukraine

- The demand for electricity is expected to double between 2005 and 2030
- The majority of power generation relies on thermal power stations (64%), nuclear (26%) & large hydropower (9%).
- Renewable energy (excluding large hydro) accounts for <1%
- Government of Ukraine is seeking to significantly increase renewable energy capacity through the Green Tariff mechanism

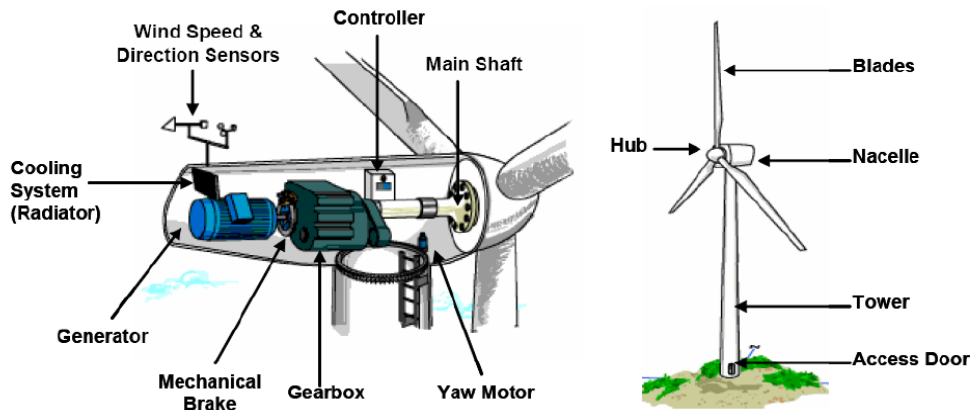


Assessment Scenarios

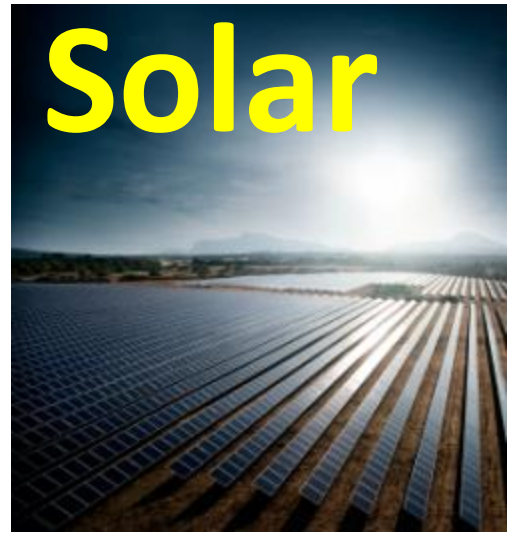
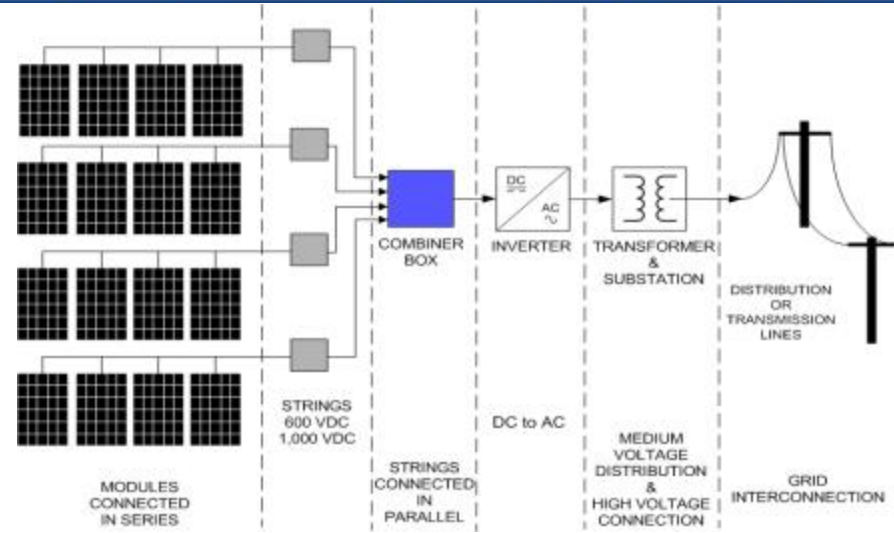
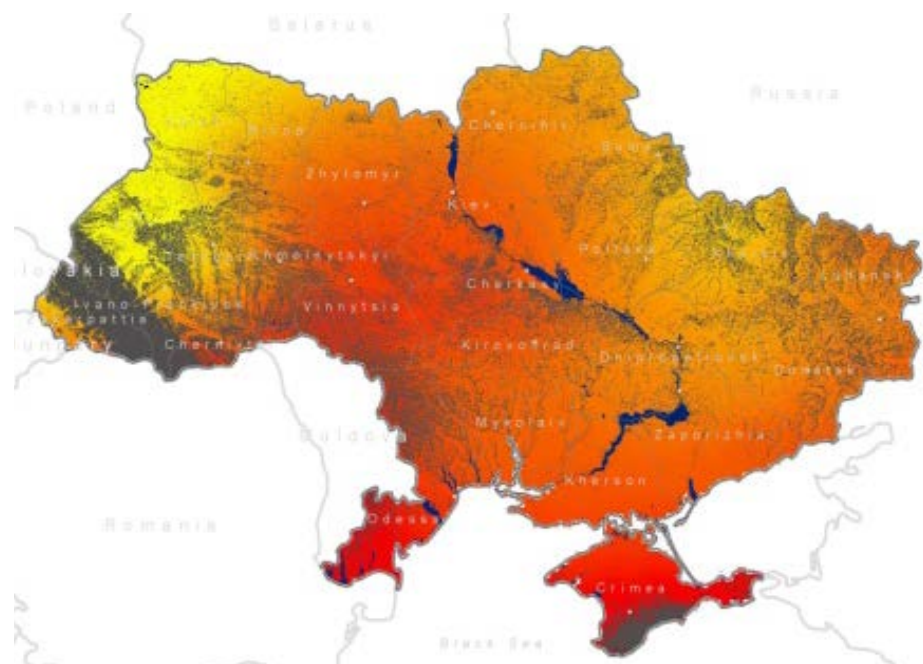
- The SER has developed five renewable energy scenarios to identify the potential significant environment effects.
- The scenarios consider:
 - Technology characteristics and likely construction activities;
 - Areas of good potential for renewables development;
 - Geographical constraints;
 - Existing infrastructure; and,
 - Transmission constraints
- An estimate of the potential scale of potential energy generation (MW) has been made for each scenario with a focus on those areas which are technically suitable for development



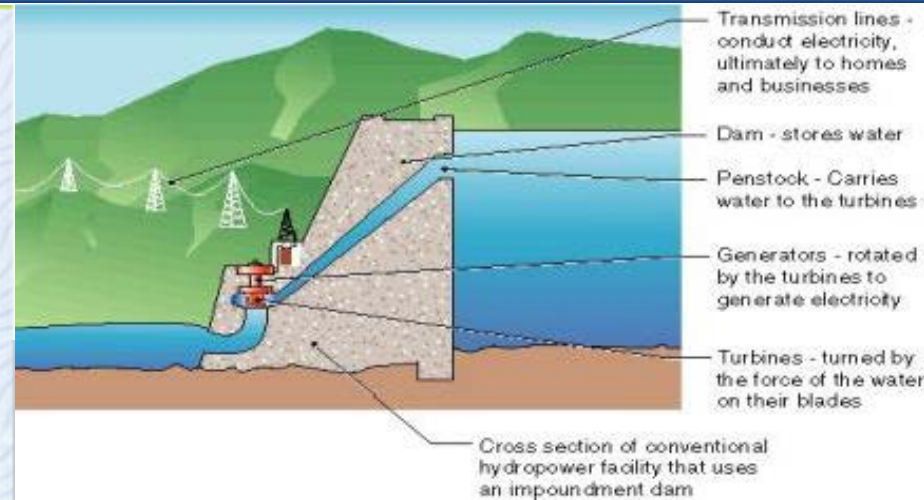
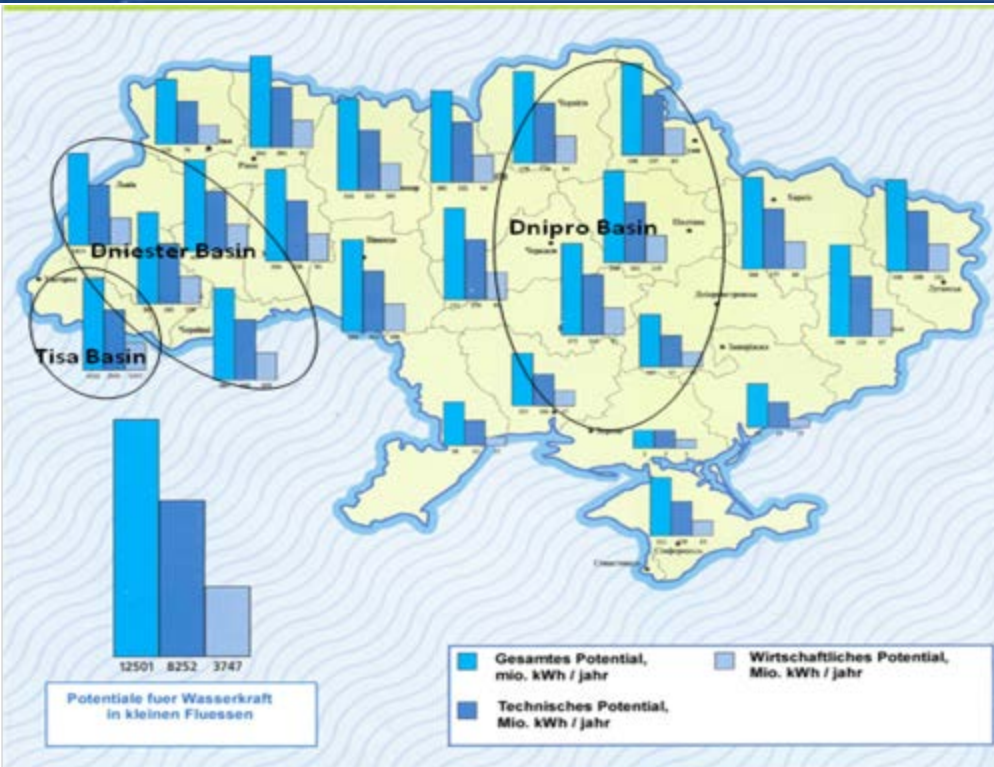
Wind



Modern turbines (2- 3MW) in farms sizes of small <20MW to large >150MW)⁶



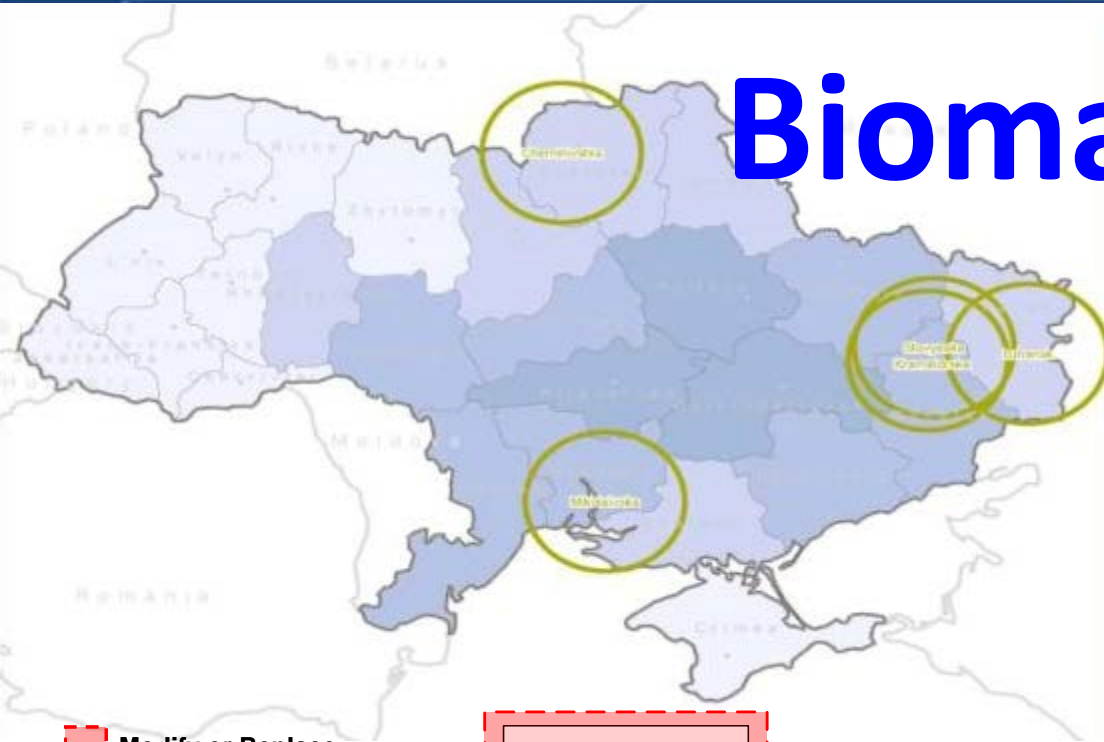
Utility scale, ground-mounted solar farms ranging from 1MW to > 20MW



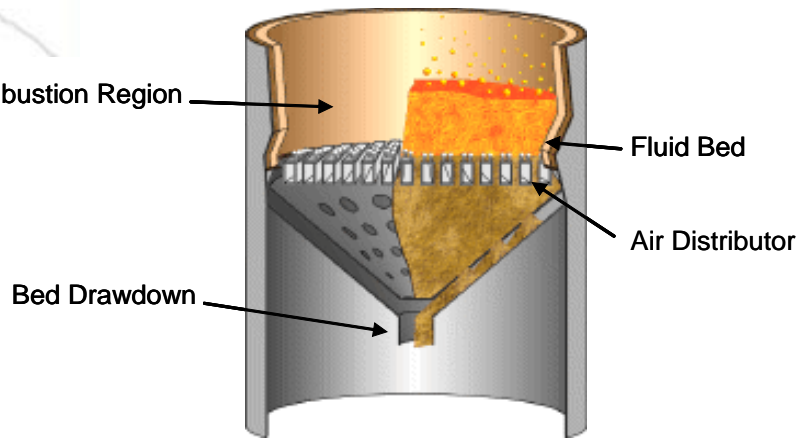
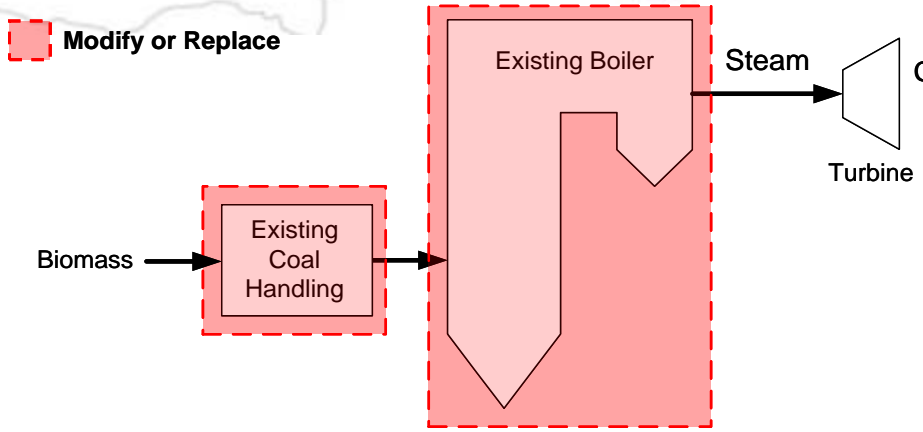
Small Hydro



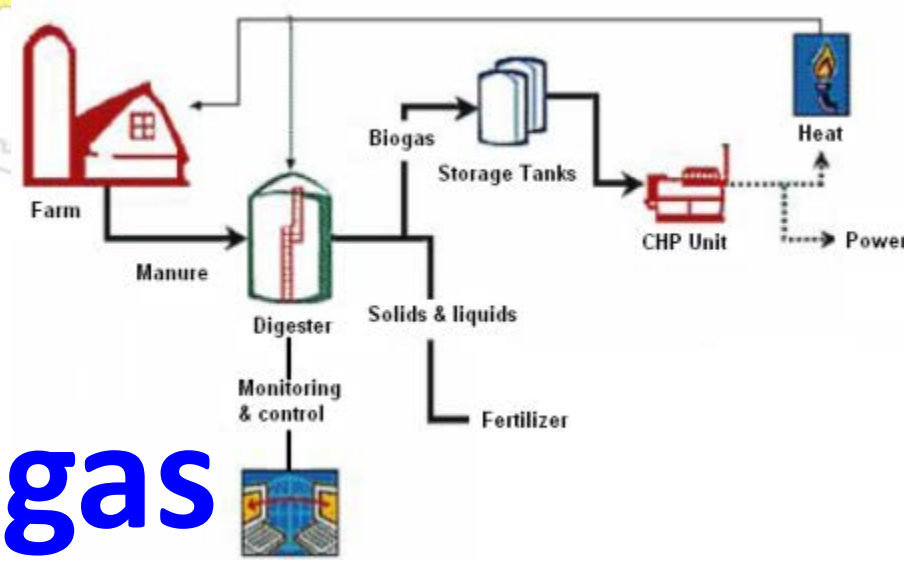
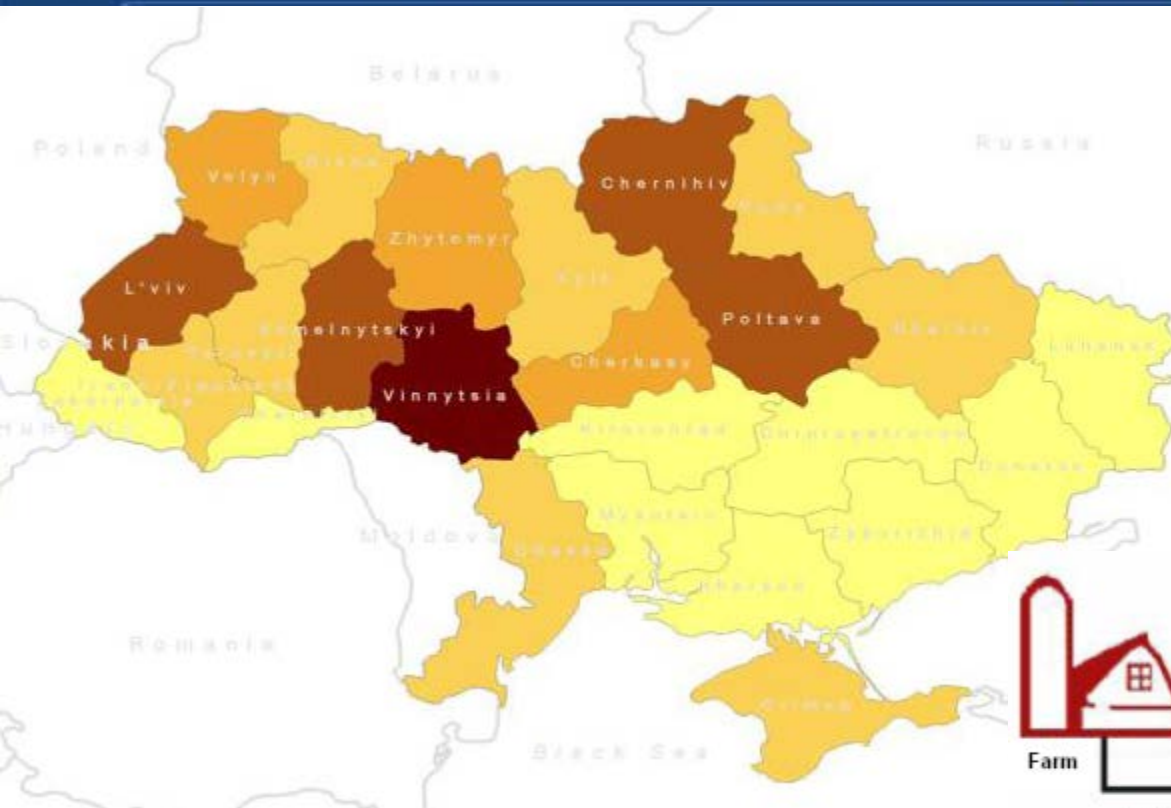
Development of <10MW through new small impoundments or retrofit/rehab of retired or existing sites



Biomass



Use of agricultural residues or wood residue for direct fire or Combined Heat and Power (CHP) plants of <5MW to >50MW



Landfill gas

Biogas

Use of animal manure or landfill gas to power 30Kw to 5 MW plants



SER Consultation

- Guided by the EU Strategic Environmental Assessment (SEA) Directive
- Stakeholder engagement and public consultation process was governed by EBRD's Environmental and Social Policy (2008) and EBRD's Public Information Policy (2008)
- Stakeholder Engagement Plan (SEP) set out the nature, extent and timing of consultation with a wide range of stakeholder groups throughout the SER process
- The Draft SER Environmental Report published for stakeholder comments and feedback
- Informed earlier through consultation on the SER Scoping Report and meetings with 51 stakeholders from 8 stakeholder groups



Spatial Constraints Analysis

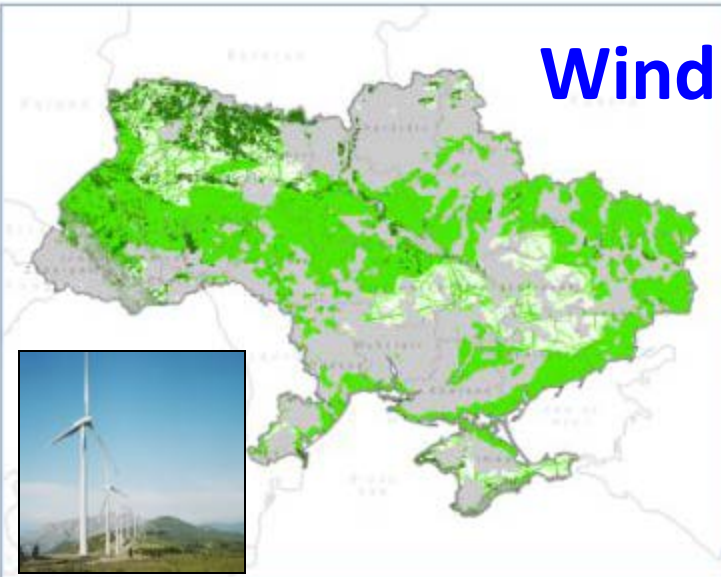
- The SER provides a high-level analysis of environmental sensitivity to potential renewable energy projects
- Analysis is based on spatial data held in a Geographical Information system (GIS)
- The analysis has been carried out for each scenario and topic to provide an overall picture of technical, environmental and social constraints
- Development in highly sensitive areas is likely to require developers to demonstrate with certainty that impacts can be avoided or minimized to acceptable levels
- Further detailed assessment is required to identify project specific issues



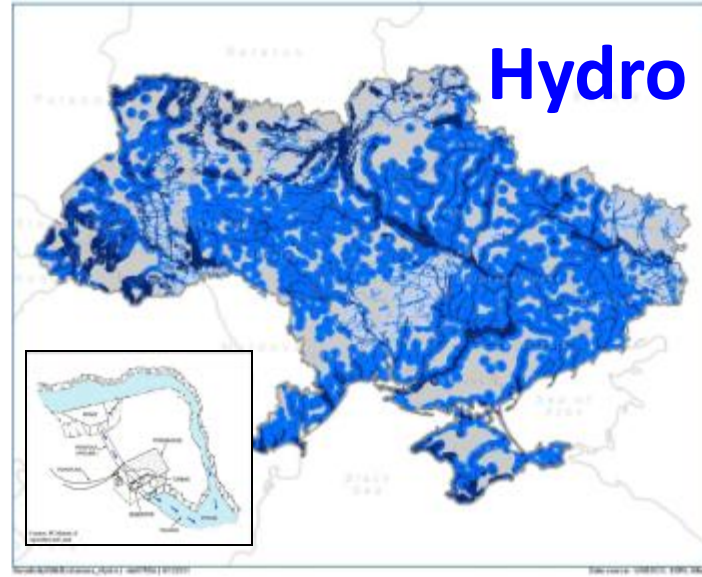
Ukraine Sustainable Energy Lending Facility Strategic Environmental Review

Стратегічний екологічний аналіз Програми фінансування альтернативної енергетики в Україні

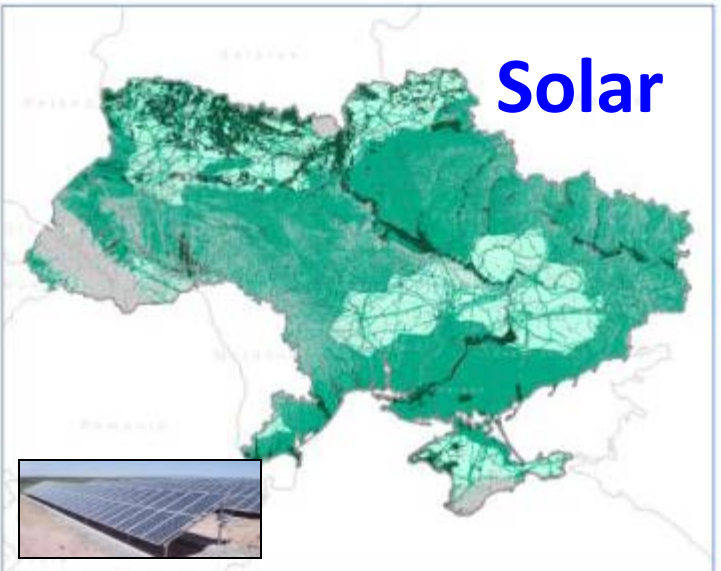
Wind



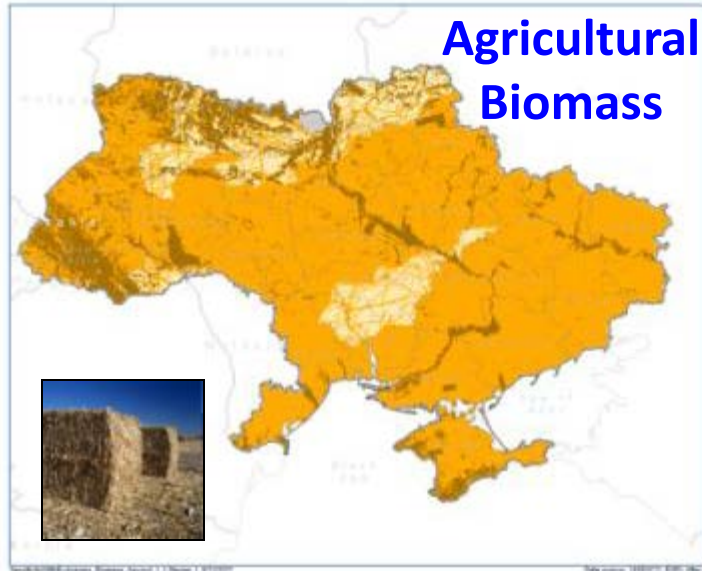
Hydro



Solar



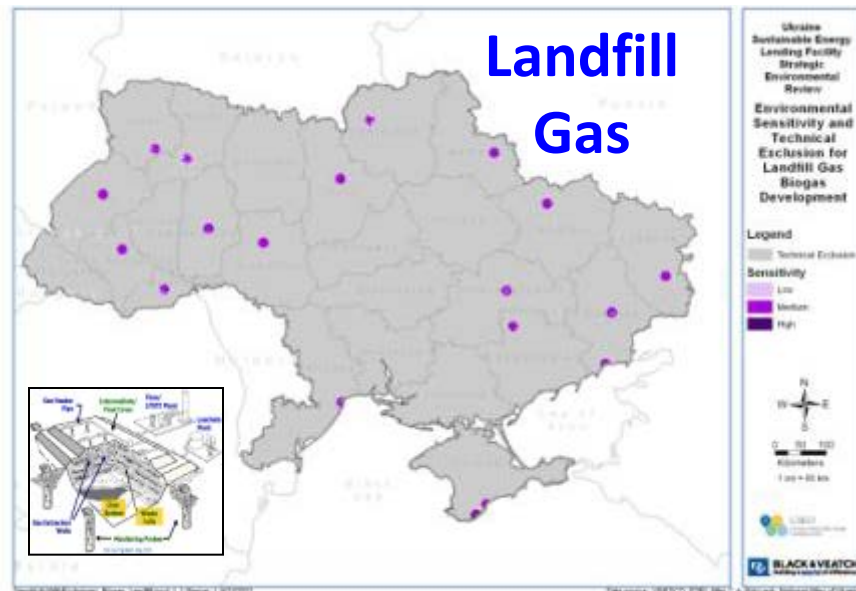
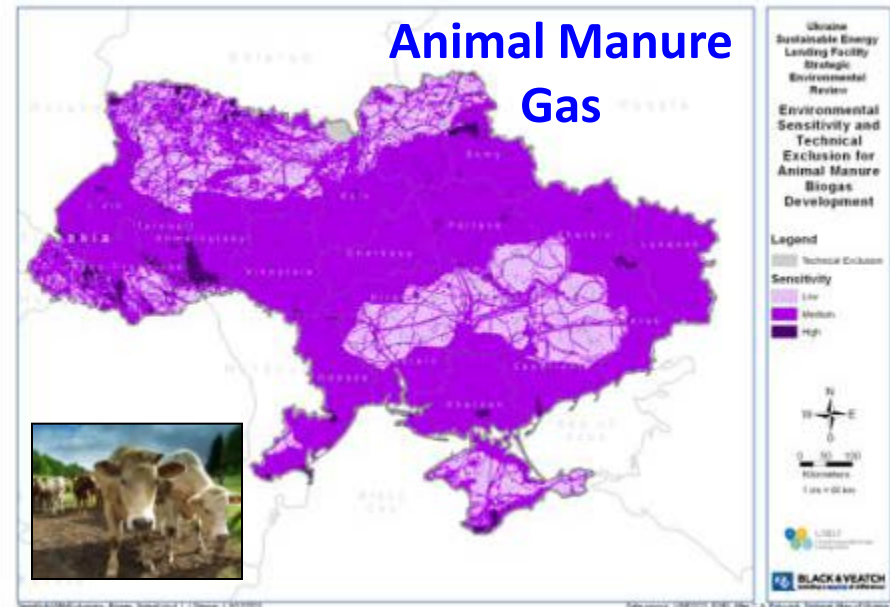
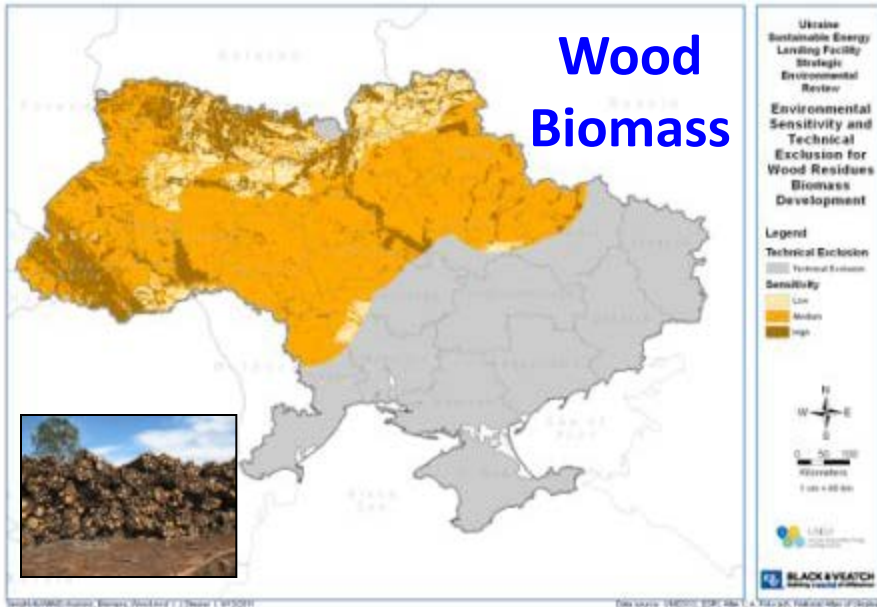
Agricultural Biomass





Ukraine Sustainable Energy Lending Facility Strategic Environmental Review

Стратегічний екологічний аналіз Програми фінансування альтернативної енергетики в Україні





Likely Significant Effects on the Environment and Mitigation Measures

- Undertaken in line with EU SEA Directive
- Assessment by specialists for each topic area using expert judgment to consider if effects are significant based on:
 - Receptor value, vulnerability and sensitivity
 - Renewable scenario effects which can be direct or indirect, far-field, cumulative
 - The magnitude of the effects and their spatial extent
 - The probability of when or how long construction or operation effects would last for and whether they are permanent or temporary
 - Uncertainty over data, limitations or assumptions noted



Potentially Significant Effects

Positive Effects	Negative Effects
Socio-economic benefits through employment from construction and operation	Localised construction effects on surface water, air quality, soil composition, human health
Socio-economic benefits from sustainable energy supply	Potential for dislocation of communities within/adjacent to development footprint
Cumulative effects on climate through reduction in GHGs	Potential loss of natural habitats and species from development footprint and through operation
Potential improvements for eco-tourism	Potential impacts on cultural heritage and landscape setting



Mitigation

Climate & Air Quality

- Good construction site management; efficient delivery methods & planning
- Operational emission/odour control technology

Water

- Best practice run off management & sediment control measures
- Flood protection & prevention
- Hazardous material planning, pollution prevention and emergency action planning





Mitigation

Geology and soils

- Careful siting of development
- Erosion control; re-vegetation of clearance areas; appropriate land grading;
- Pollution prevention planning.

Landscape & Biodiversity

- Pre development surveys & post construction monitoring
- Careful siting of development; screening unsightly buildings; pre-construction exclusion measures.
- Operational screening (small hydro) & diversion measures (wind).

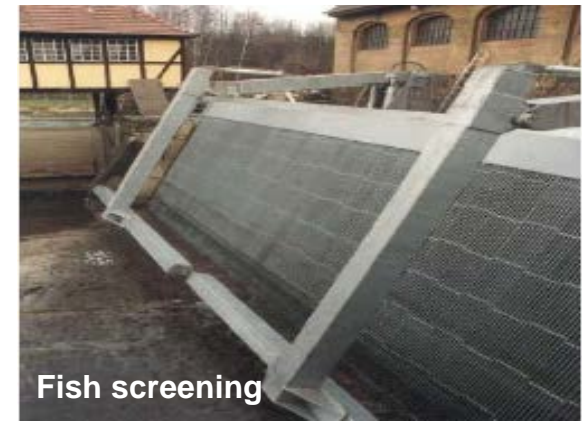
Slope stabilisation and grading



Landscaping



Fish screening





Mitigation

Cultural Heritage

- Pre development survey of cultural heritage.
- Avoid registered and locally important cultural sites; sensitive project/infrastructure design to minimise visual intrusion.

Community and socio economics

- Careful siting of development; compensation for disturbance/loss of land or access; upgrade infrastructure.
- Traffic management; water resource management; emergency planning (flooding, landslide, explosions).





Implementation

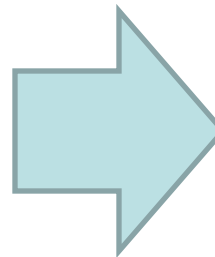
Strategic Environmental Review

High Level Review to Identify Issues and Focus Scope & Required Mitigation



Address Project Issues

- National and International environmental requirements
- Technical & environmental constraints
- Data Availability
- Surveys & Monitoring
- Identify potential effects and mitigation



Demonstrate Compliance & Obtain Funding

- Environmental & Social Action Plan (ESAP)
- Stakeholder Engagement Plan (SEP)
- Non Technical Summary (NTS) of key environmental impacts and mitigation

Bonus case : Kazakhstan

Alignment of EBRD's KazREFF Goals with Kazakhstan Strategic Plans (1)

Kazakhstan Goals			EBRD KazREFF Goals			
Timeframe	Plan	Goal	Reduce GHG Emission and Climate Change	Support Development of Renewable Energy Generation	Enhance Energy Security	Stimulate High Tech Economic Development
Short-Term (through 2015)	2010-2014 National Program of Forced Industrial and Innovative Development	Increase RES to 1 billion kWh/year	✓	✓	✓	✓
		Increase RES share of total electricity generation to 1%	✓	✓	✓	✓
		By 2015, 125 MW from wind and 100 MW from small hydropower	✓	✓	✓	✓
		Formation of economic centers of growth for renewable energy materials	○	✓	✓	✓
		Increase development of oil, gas, mining and related infrastructure	✗	○	✓	✓

Alignment of EBRD's KazREFF Goals with Kazakhstan Strategic Plans (2)

Kazakhstan Goals			EBRD KazREFF Goals			
Timeframe	Plan	Goal	Reduce GHG Emission and Climate Change	Support Development of Renewable Energy Generation	Enhance Energy Security	Stimulate High Tech Economic Development
Mid-Term (2015-2020)	Strategy 2020	Economic diversification: Create an enabling environment for RES	✓	✓	✓	✓
		Economic diversification: Reduce emissions	✓	✓	✓	✓
		Economic diversification: Develop oil and gas resources and infrastructure for export	X	○	✓	✓
		Energy development: Increase use of alternative energy sources to 3%	✓	✓	✓	✓

Alignment of EBRD's KazREFF Goals with Kazakhstan Strategic Plans (3)

Kazakhstan Goals			EBRD KazREFF Goals			
Timeframe	Plan	Goal	Reduce GHG Emission and Climate Change	Support Development of Renewable Energy Generation	Enhance Energy Security	Stimulate High Tech Economic Development
Long-Term (2020-2050)	Strategy 2050 as implemented by Green Economy Concept	Introduce solar and wind power	✓	✓	✓	✓
		Alternative and renewable energy sources must account for 50% of all consumption	✓	✓	✓	✓
		Import and exchange innovative technologies and develop beneficial joint international companies	○	✓	✓	✓
		Maintain status of big player on hydrocarbon market	✗	○	✓	✓
		Showcase "green" development path	○	✓	○	✓