



Strategic environmental assessment efficiency in the context of National Energy and Climate plan Experience of Slovenia

*Workshop on best practices for NECP
and SEA development*

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► Measures organised in thematics:

- 1. decarbonization (greenhouse gas emissions (GHG) and renewable energy sources (RES)),
- 2. energy efficiency,
- 3. energy security,
- 4. internal energy market and
- 5. research, innovation and competitiveness.



Scenarios

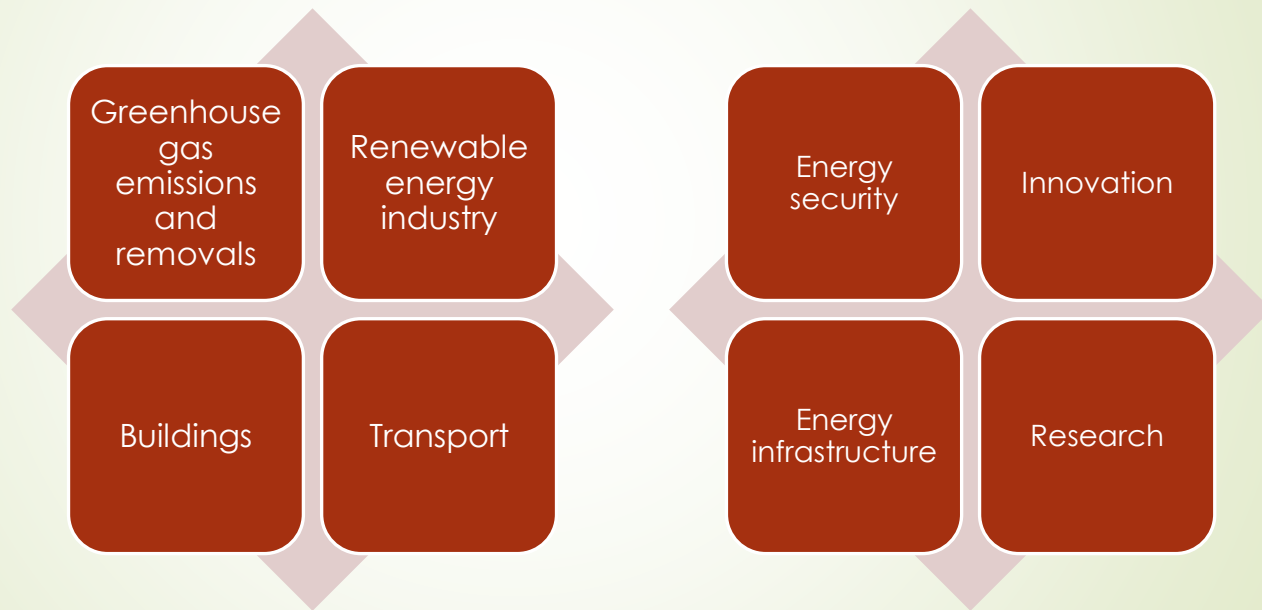
- scenario with existing measures
- scenario 1 with additional measures
- scenario 2 with additional measures
- ambitious scenario with the recommendations of the European Commission 2030 with a view to 2040



Policies, Instruments and Measures

- ▶ continuation of existing instruments,
- ▶ upgrading and proposals for additional instruments types of instruments:
- ▶ financial incentives,
- ▶ regulations,
- ▶ planning,
- ▶ investment management,
- ▶ training support activities,
- ▶ information,
- ▶ awareness raising,
- ▶ organizational measures,
- ▶ tax policy,
- ▶ energy services

Policies, Instruments and Measures





ENVIRONMENTAL REPORT





SCOPING

- ▶ Expert scoping, internal
- ▶ Open scoping – external
 - ▶ 3 workshops, 144 participants, 18 minutes, 75 questions, 15 general remarks
- ▶ PUBLIC PARTICIPATION
- ▶ Public participation report
 - ▶ Effects
 - ▶ Criteria
 - ▶ Measures



ENVIRONMENTAL ASSESSMENT

- ▶ Environmental Law, SEA definition, steps and procedure
- ▶ Decree laying down the content of environmental report and on detailed procedure for the assessment of the effects on certain plans and programmes on the environment
- ▶ Uredba o okoljskem poročilu in podrobnejšem postopku celovite presoje vplivov izvedbe planov na okolje (Uradni list RS, št. 73/05 in 44/22 – ZVO-2)
- ▶ Effects
- ▶ Direct, non-direct, local, cumulative, synergistic , long term, short-term
- ▶ When assessing cumulative impacts, all cumulative effects where considered

Assessment methods, interdisciplinary team

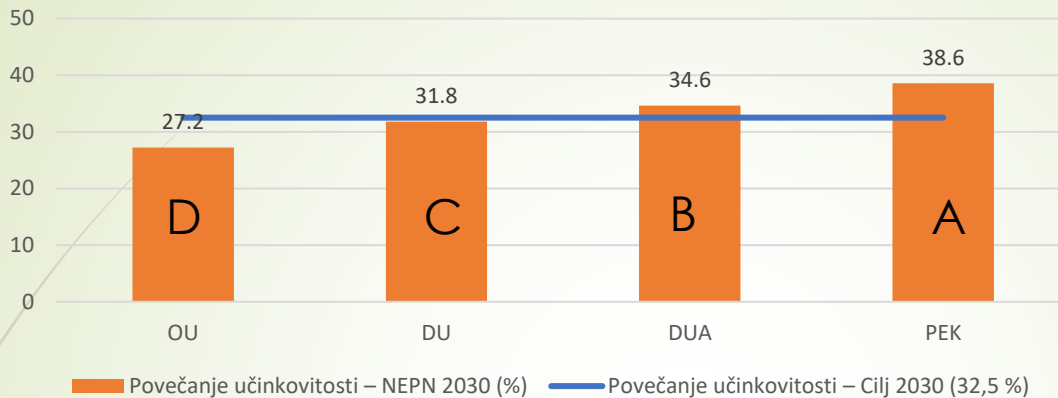
Effect	Definition of effect class
A	There is no effects or can be positive
B	Non significant effect
C	Non significant effects due to mitigation measures
D	Significant effect
E	Devastating effect



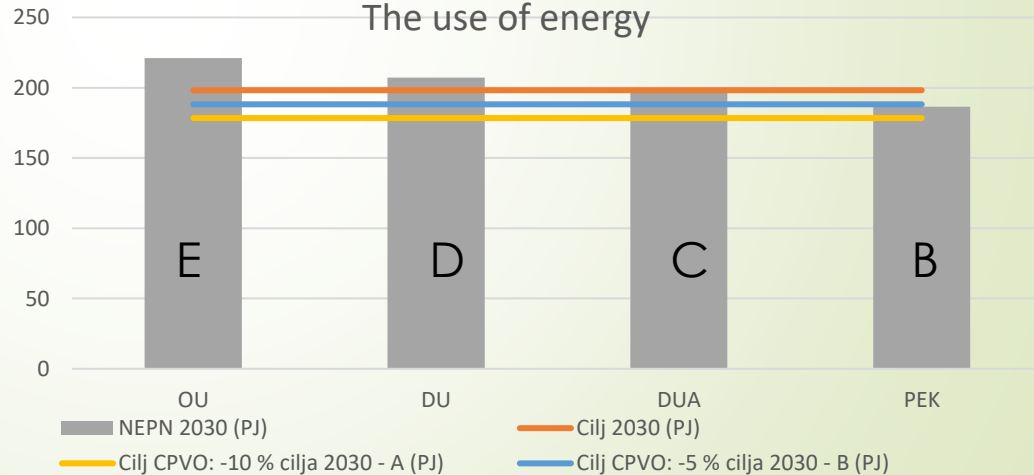
ENVIRONMENTAL OBJECTIVE: MITIGATION AND ADAPTATION TO CLIMATE CHANGE



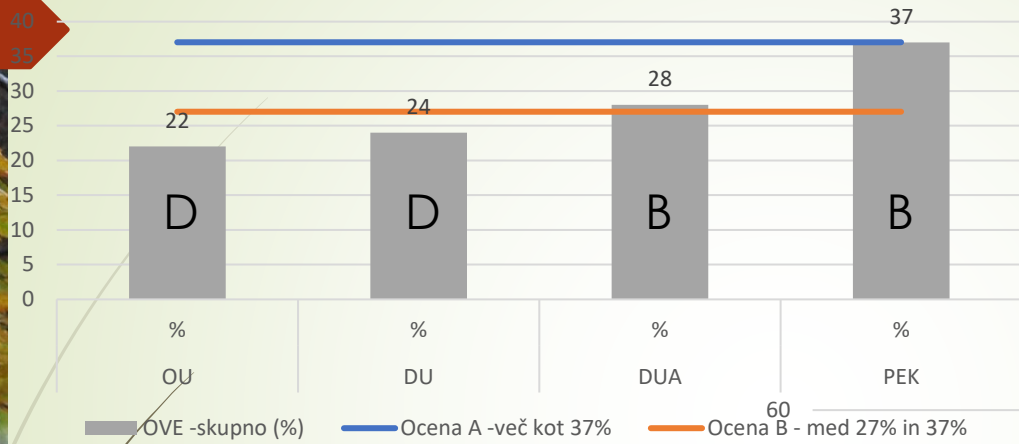
Energy efficiency



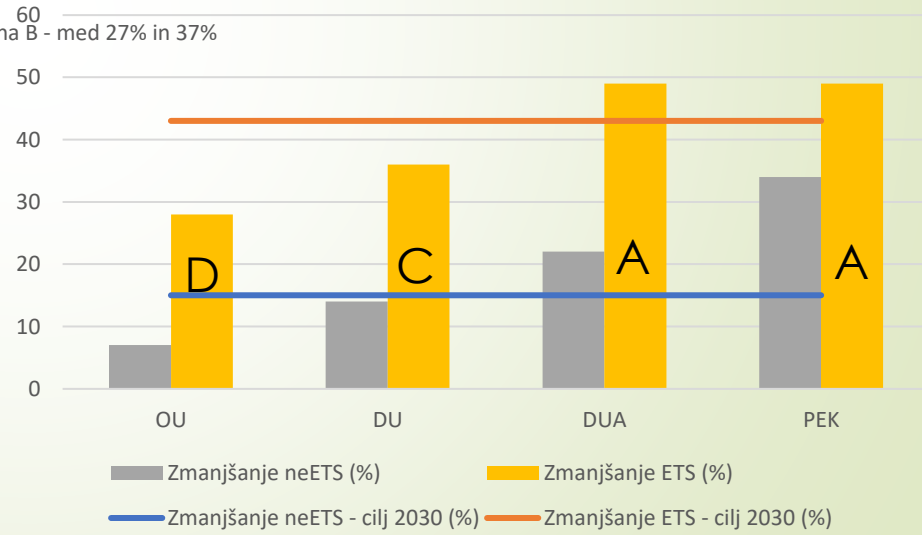
The use of energy



The share of renewable sources in the final use of energy



Reduction of CO2



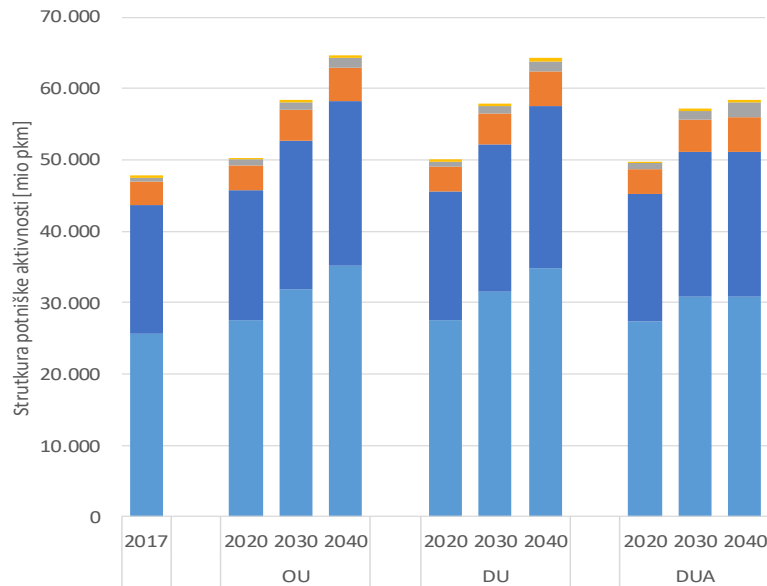


Reduction of CO₂

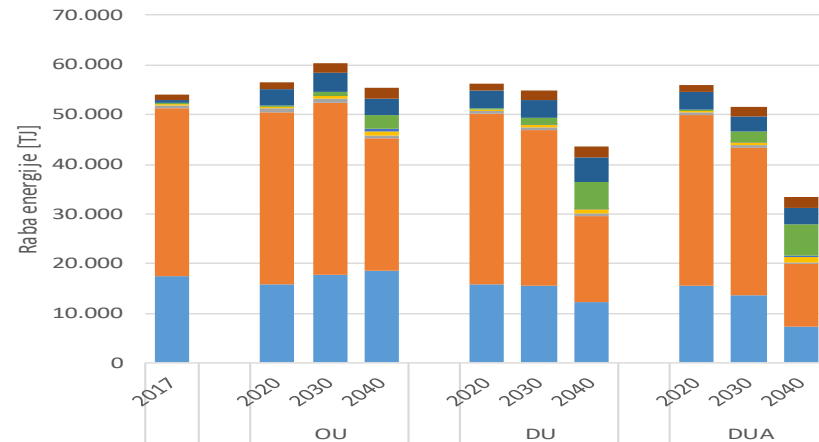
- ▶ expected increase in biocapacity and carbon sinks
- ▶ anticipated upgrade of measures and instruments
- ▶ grade C: proposed additional mitigation measures
- ▶ - adaptation of forest management to climate change

Reduction of energy in traffic

Public transport



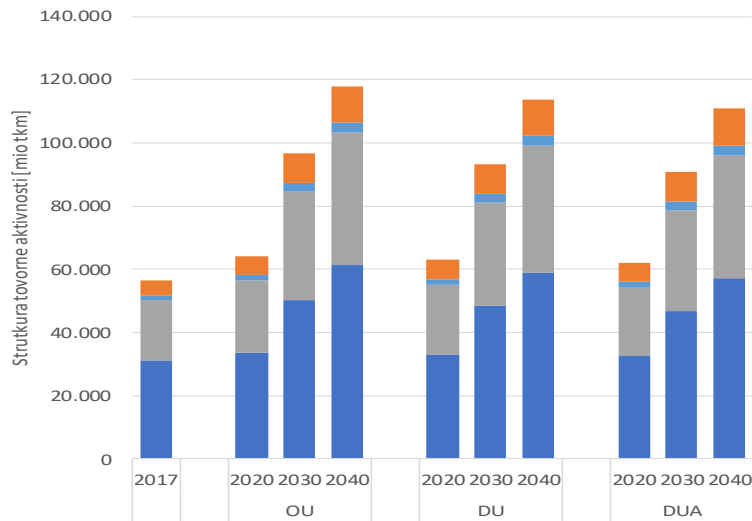
Struktura goriv



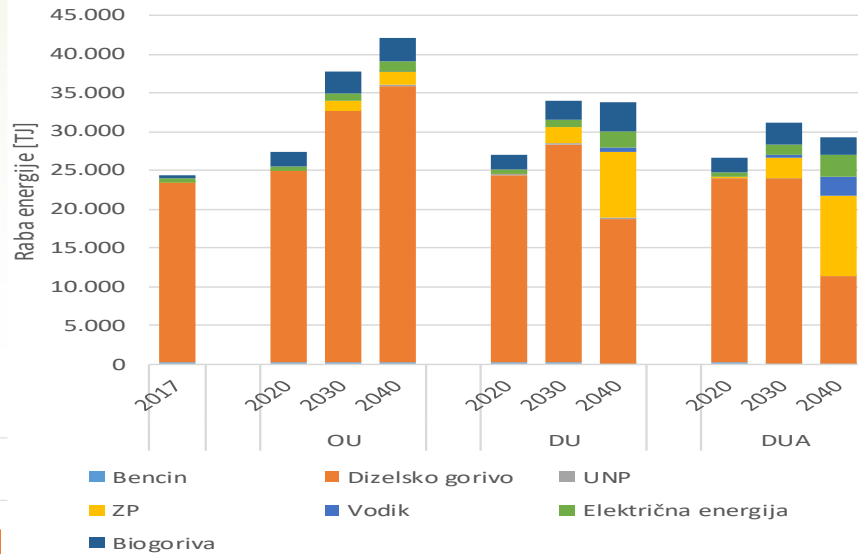
- Bencin
- Dizelsko gorivo
- UNP
- ZP
- Vodik
- Električna energija
- Biogoriva
- Letalsko gorivo
- Motorji in mopedi
- Potniški Vlak
- Avtobus
- Osebni avtomobil - tuji
- Osebni avtomobil (OA) - domači

Mobilnost in zmanjševanje rabe energije v prometu

Projekcija tovarnega prometa



Struktura goriv



Predlagani omilitveni ukrepi

OU	DU	DUA	PEK
C	C	C	A



Adapting to climate change

- ▶ only one instrument related to adaptation to climate change
- ▶ increasing dependence of the energy system on climate conditions (-)
- ▶ increase in electricity produced by self-producers (+)
- ▶ increase in electricity production capacity from solar power plants (+)
- ▶ increase in the share of water bodies that do not achieve a good ecological status (-)
- ▶ increase in the share of energy-efficient buildings (+)
- ▶ reduction of energy consumption for heating (+)
- ▶ increase in energy consumption for cooling (-)
- ▶ **Suggested mitigation measures**

OU	DU	DUA	PEK
C	C	C	C



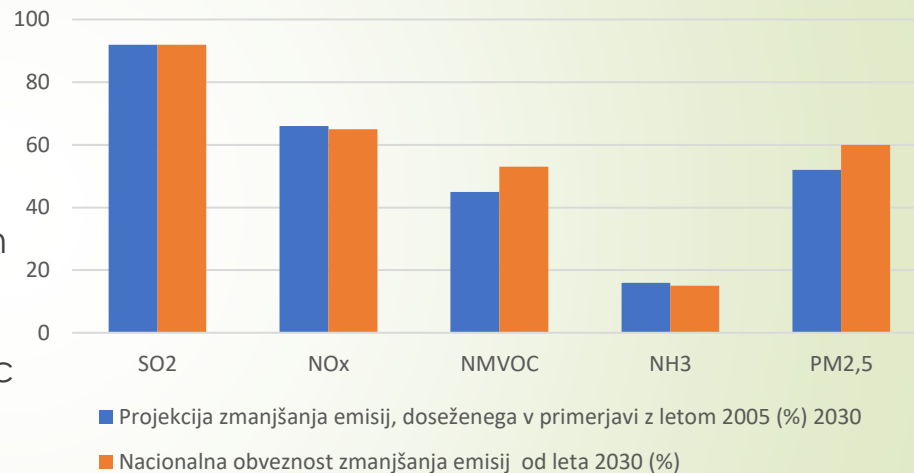
ENVIRONMENTAL AIM: POPULATION AND HEALTH



Reduction of pollutant emissions into the air

- ▶ reduction of SO₂, NO_x, NMVOC, NH₃,
- ▶ PM_{2.5} emissions increasing traffic and
- ▶ reducing energy consumption in passenger and
- ▶ traffic reduction of energy consumption in the household new sources of air pollutant emissions problem: burning of wood in small fireplaces and road traffic mitigation measures

Reduction of polutants - scenarij REF OPNOZ



OU	DU	DUA	PEK
C	C	B	B



Reducing the impact of electromagnetic radiation on the environment

- new electricity production units and connection to the electricity grid
- promotion of rail traffic
- upgrading the transmission and distribution network with a sufficient deviation in spatial planning and with stricter threshold values for new sources - the impacts are insignificant

OU	DU	DUA	PEK
C	C	C	C

Reduction of noise pollution

- new sources of noise (major construction interventions, increase in traffic, operation of devices)
- increase in the noise burden of the population special problem
- wind farms there are no noise requirements for low-frequency sound and infrasound or a minimum distance
- NIJZ recommendation - noise on the facade < 35-40 dbA terrain and meteor modeling. act. choice of technology, collaborations with the public, judgment at lower levels of planning

OU	DU	DUA	PEK
C	C	C	C



Drinking water supply

- ▶ potential encroachments on water conservation lands and in the vicinity of water sources
- ▶ intended for own drinking water supply impacts on sources of drinking water due to changes in the amount and chemical state of groundwater
- ▶ mitigation measures

OU	DU	DUA	PEK
C	C	C	C



Reduced amount of waste

- ▶ long-term increase in the amount of waste electronic and electrical equipment,
- ▶ waste batteries and accumulators increasing the amount of sludge from HPPs increasing amounts of construction
- ▶ waste reducing the amount of waste from the combustion of solid fuels mitigation measures

OU	DU	DUA	PEK
C	C	C	C



Natural and other disasters

- ▶ Interventions in flood zones (HE and infrastructure)
- ▶ increasing sources of disasters
- ▶ New SEVESO plants SE, VE,
- ▶ electric and hydrogen vehicles mitigation measures (HE, SEVESO)

OU	DU	DUA	PEK
C	C	C	C



ENVIRONMENTAL AIM: SUSTAINABLE USE OF NATURAL RESOURCES



Good status of surface waters - WFD

- chemical state
- -emissions of waste water and
- a reduction in water purification capabilities impacts on the ecological situation
- changes in the hydromorphological characteristics of waters,
- changes in flood dynamics,
- physico-chemical conditions,
- structure, function and connectivity of habitats and
- changes in the abundance and condition of aquatic organisms deterioration of the ecological condition with planned HPPs - a condition for the acceptance of the plan - determination of an exception for deviating from the environmental goals upon application of the exception
- mitigating measures

OU	DU	DUA	PEK
D	D	D	D

Good status of groundwater

- chemical state emissions of hazardous substances during the construction and operation of windmills
- additional emissions from industry and due to the use of digestate from biogas plants
- increase in vulnerability due to sea level rise (HE)
- decreasing T due to the use of heat from aquifers
- quantity balance level rise or fall (HE)
- declining water levels in deep geothermal aquifers

- mitigation measures

OU	DU	DUA	PEK
C	C	C	C

Trajnostna raba voda

- ▶ omogočanje novih/onemogočanje obstoječih vrst rabe vode in z njo povezanih virov zaradi HE
- ▶ vpliv na učinkovitost rabe vode iz plitvih vodonosnikov zaradi intenzivnega nameščanja TČ
- ▶ vpliv na obstoječo rabo vode iz geotermalnih vodonosnikov
- ▶ vplivi na druge uporabnike površinskih voda ob neustreznem odvajanju odpadnih voda iz PPE in industrije

- ▶ omilitveni ukrepi

OU	DU	DUA	PEK
C	C	C	C

Trajnostna raba zemljišč

- ▶ zmanjšanje površin kmetijskih zemljišč in gozda (gradnja objektov)
- ▶ prostostoječe SE v degradiranih in industrijskih obm.
- ▶ vplivi na rabo kmetijskih zemljišč za pridelavo hrane in gozdnih zemljišč za pridobivanje lesa za proizvodnjo (energetska raba lesa, proizvodnja bioplina in biogoriv)
- ▶ omilitveni ukrepi

OU	DU	DUA	PEK
C	C	C	C

Reduced ecological footprint

- ▶ reducing GHG emissions and final energy use will reduce the carbon footprint as a component of the ecological footprint (+)
- ▶ increased use of biomass and wood from Slovenian forests will increase the component of forest products while simultaneously reducing the carbon footprint component of the ecological footprint (+/-)
- ▶ the construction of new infrastructure will increase the ecological footprint and at the same time reduce the biocapacity (-)
- ▶ the material and energy efficiency of production in industry will reduce the carbon footprint of products and consequently reduce the ecological footprint of consumption (+)

OU	DU	DUA	PEK
E	D	B	B

Material/sources efficiency

- ▶ Indicator "material productivity (EUR/kg)"
- ▶ reduction in the use of fossil fuels (+)
- ▶ increase in the use of fuels and biomass (-)
- ▶ increase in the use of construction materials (-)
- ▶ Research, eco-innovation and technological development, thereby increasing the added value of used materials (+)
- ▶ mitigation measures

OU	DU	DUA	PEK
C	C	C	C




ENVIRONMENTAL AIM: BIODIVERSITY, GOOD ECOLOGICAL STATUS



Preserved biodiversity

- ▶ deterioration of biodiversity conservation due to the construction of HPP, MHP, VE
- ▶ and transport infrastructure
- ▶ HE significant impacts on habitats and rheophilic fish species,
- ▶ reduction of passage (disappearance or decline of populations)
- ▶ share of modified aquatic and riparian ecosystems of the Sava River: OU scenario (41%), PEK (64%)
- ▶ Prerequisite: measures to determine the state of biodiversity and effective mitigation measures
- ▶ destruction of habitats and habitat types,
- ▶ the effect of barriers to migration bird and bat collisions Light pollution – LED lights, ultraviolet and blue light Condition + mitigating measures

OU	DU	DUA	PEK
D	D	D	D



Preserved areas with nature conservation status and natural values

- deterioration of the preservation of areas due to the construction of HPP, MHP, VE and
- transport infrastructure and light pollution
- HE: significant impacts on the Natura 2000 classification species starfish, cover and spear, due to the extent of the interventions envisaged in the case of the DUA and PEK scenario;
- HPP more complex - public interest prevails in the ongoing procedure, Art. 6(3) Habitats directive, Art. 6(4) Habitats directive ?
- Condition: implementation of the procedure of overriding public interest vrs. benefit of nature conservation, implementation of effective compensatory measures

- Condition + mitigating measures

OU	DU	DUA	PEK
D	D	D	D



ENVIRONMENTAL AIM: PROTECTION OF CULTURAL HERITAGE





Preserved state of cultural heritage units (without archaeological heritage)

- improvement of the condition of cultural heritage units due to the renovation/renovation of buildings
- deterioration of the condition of KD units due to direct effects on the appearance of buildings, changed views, effects to dominants, changes in spatial relationships
- Indirect deterioration of the state of cultural heritage units due to the implementation of measures,
- use of cultural heritage objects
- mitigation measures (sustainable construction, renovation of buildings before new constructions, limiting lighting)

OU	DU	DUA	PEK
C	C	C	C



Preserved archaeological heritage and potential areas of archaeological remains

- ▶ deterioration of the condition of archaeological heritage units and potential areas of archaeological remains / deterioration of the condition of archaeological remains
- ▶ protection regimes should be taken into account already during planning judgment at lower levels mitigation measures (preliminary archaeological research)

OU	DU	DUA	PEK
C	C	C	C

Protected landscape

- ▶ tampering with the properties of landscapes
- ▶ deterioration of the condition of landscapes
- ▶ pressures on landscapes influences on the landscape, mosaic, traditional land use, symbolism, uniqueness, identity
- ▶ construction of infrastructure lines, roads, energy facilities (HE, mHE, VE, PPE, biogas plants),
- ▶ promotion of new construction, solar panels
- ▶ Mitigation measures (alternative locations, professional basis for placement of RES, guidelines)

OU	DU	DUA	PEK
C	C	C	C



ENVIRONMENTAL AIM: STABLE SOCIETY





Reduced negative impacts on the social environment due to the abandonment of electricity production from coal

- In 2020, the currently valid Mine Closure Program is completed,
- the preparation of the Act on the Closure of the Velenje Mine and
- the closure program is planned
- impact on the fair restructuring of coal mining regions and the standard of living in these regions (+)
- impact on the safe closure of coal mines (+)
- impact on the rehabilitation of mine damage and other negative impacts on the environment (+)

OU	DU	DUA	PEK
A	A	A	A



A developed approach to address the problem of energy poverty


- impact on the increase in the number of energy-poor households through the increase in energy prices (-)
- impact on energy-poor households' access to capital for investments in energy efficiency and renewable resources (+)
- impact on energy costs for energy-poor households (+)
- NEPN does not envisage concrete mechanisms or the amount of funds intended to solve the problem of energy poverty mitigation measures

OU	DU	DUA	PEK
C	C	C	C

Krožno gospodarstvo in emisije TPG

- ukrepi za znižanje emisij TPG in skupno znižanje emisij TPG (+)
- naraščanje emisij TPG iz prometa glede na 2005(-)
- na področju odpadkov NEPN predvideva 50% zmanjšanje emisij TGP glede na 2005
- uvajanje krožnega gospodarstva preko razvoja proizvodov in storitev (+)
- pospeševanje razvoja na področjih URE, OVE in tehnoloških inovacij (+)
- omilitveni ukrepi


OU	DU	DUA	PEK
D	D	C	C



Infrastruktura pametnih omrežij in medsebojne povezave

- ▶ razvoj železniškega omrežja in storitev, evropskih energetskega omrežij, pametnih in zmogljivih elektrodistribucijskih omrežij, digitalne družbe preko razvoja pametnih omrežij (+)
- ▶ NEPN zadovolji zahteve energetske povezanosti v evropska omrežja, ne bo pa bistveno spodbudil razvoja pametnega distribucijskega omrežja v Sloveniji
- ▶ omilitveni ukrepi

OU	DU	DUA	PEK
C	C	C	C



A competitive and socially responsible business and research sector

- increase in funds for research and development (+)
- accelerated development of the digital economy (+)
- introduction of products and services with greater added value (+)

OU	DU	DUA	PEK
D	C	A	A

Energetska in podnebna pismenost

- več instrumentov na področju usposabljanja, izobraževanja, informiranja, promocije
- ozaveščenost o podnebnih spremembah in energetiki (+)
- splošno znanje s področja energetike, mobilnosti in podnebnih sprememb (+)
- motivacija za uvajanje sprememb v ravnanju in investicije (+)
- Omilitveni ukrepi (aktivacija pasivnih gospodinjstev z ukrepi za zmanjšanje en. revščine)

OU	DU	DUA	PEK
C	C	C	C



MITIGATION MEASURES





CONCLUSION





SEA Process, from Screening 2019 to Acceptance 1 year



Scoping

- Environmental aims and indicators
- Relevant thematics
- Scoping report



SEA Report

- Environmental report
- Consultations with ministries and organization
- Public consultation, December 2019 – January 2020



NEPN

- Approval of environmental acceptability, April 2020
- Improved NEPN and SEA Report

EXAMPLE Assessment of different scenarios without mitigation measures		Scenarios			
		OU	DU	DUA	PEK
1.	Climate change mitigation and adaptation	E	D	C	C
1.1	Povečane koristi energijske učinkovitosti, vključno s stavbami brez emisij do 2050	D	C	B	A
1.2	Zmanjšana raba končne energije	E	D	C	B
1.3	Povečana uporaba energije iz obnovljivih virov in električne energije za popolno razogljčenje oskrbe Evrope z energijo do 2050	D	D	B	B
1.4	Neto ničelne emisije toplogrednih plinov pred letom 2050	D	C	A	A
1.5	Izkoriščene vse prednosti biogospodarstva in ustvarjeni bistveni ponori ogljika	C	C	C	C
1.6	Povečana mobilnosti ob hkratnem zmanjšanju rabe energije v prometu	C	C	C	A
1.7	Zmanjšana izpostavljenosti vplivom podnebnih sprememb, občutljivost in ranljivost Slovenije ter povečana odpornosti in prilagoditvena sposobnost družbe	C	C	C	C

EXAMPLE Assessment of different scenarios without mitigation measures		Scenarios			
		OU	DU	DUA	PEK
2	POPULATION AND HEALTH	C	C	C	C
2.1	Zmanjšanje emisij onesnaževal v zrak	C	C	B	B
2.2	Zmanjšanje vplivov elektromagnetnega sevanja na naravno in bivalno okolje	C	C	C	C
2.3	Zmanjšana obremenitev okolja s hrupom in ohranjena mirna območja v naravnem in urbanem okolju ter zmanjšano število prebivalcev, ki so čezmejno obremenjeni s hrupom	C	C	C	C
2.4	Zagotovljena oskrba prebivalcev s skladno in zdravstveno ustrezno pitno vodo v zadostnih količinah	C	C	C	C
2.5	Zmanjšana količina odpadkov	B	B	B	B
3	NATURAL AND OTHER RISKS/HAZARDS	C	C	C	C
3.1	Preprečitev naravnih nesreč in nesreč, ki jih povzroči človek ter omejitev njihovih posledic	C	C	C	C

EXAMPLE Assessment of different scenarios without mitigation measures		Scenarij			
		OU	DU	DUA	PEK
4	Sustainable use of natural resources	E	D	D	D
4.1	Surface waters- good ecological status	D	D	D	D
4.2	Underground waters – good status	C	C	C	C
4.3	Sustainable use of water resources	C	C	C	C
4.4	Sustainable use of soil	C	C	C	C
4.5	Reduction of ecological footprint	E	D	B	B
4.6	Material efficiency	C	C	C	C

**OCENA PO OKOLJSKIH CILJIH IN PODCILJIH BREZ
UPOŠTEVANJA
OMILITVENIH UKREPOV OKOLJSKEGA POROČILA**

Scenarij

OU

DU

DUA

PEK

5

Ohranjena narava

D

D

D

D

5.1

Ohranjena biotska raznovrstnost

D

D

D

D

5.2

Ohranjena naravovarstveno pomembna območja in naravne vrednote

D

D

D

D

**OCENA PO OKOLJSKIH CILJIH IN PODCILJIH BREZ
UPOŠTEVANJA
OMILITVENIH UKREPOV OKOLJSKEGA POROČILA**

Scenarij

OU

DU

DUA

PEK

6

Ohranjena kulturna dediščina

C

C

C

C

6.1

Ohranjeno stanje enot kulturne dediščine (brez arheološke dediščine)

C

C

C

C

6.2

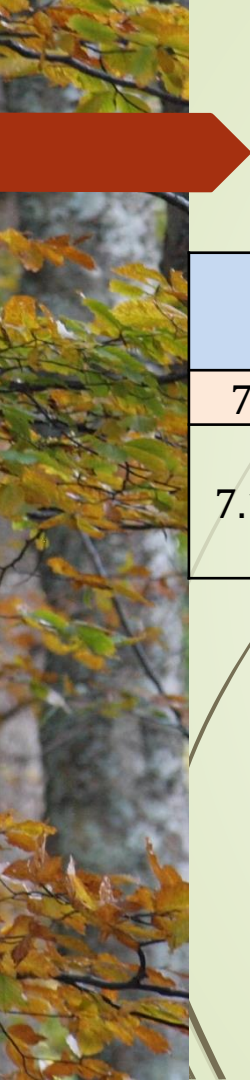
Ohranjena arheološka dediščina in potencialna območja arheoloških ostalin

C

C

C

C



		Scenarij			
		OU	DU	DUA	PEK
7	Landscape protection	C	C	C	C
7.1	Preserved condition of exceptional landscapes, areas of national recognition and recognizable and typological characteristics of landscapes	C	C	C	C



Regional consultations:

- Austria - Regional Cooperation on NECPs
- Hungary - Regional Cooperation on NECPs
- Italy - Regional Cooperation on NECPs
- Croatia - Regional Cooperation on NECPs
- European Commission - Regional Cooperation on NECPs



The key goals until 2030:

- reduction of total greenhouse gas emissions by 36%**, of which 20% in the non-ETS sector (which is 5 percentage points above Slovenia's accepted commitment);
- at least a 35% improvement in energy efficiency**, which is higher than the target adopted at EU level (32.5%);
- at least **27% of renewable energy sources**, where due to relevant national circumstances, primarily environmental restrictions, Slovenia had to agree to a lower target than the target at EU level (32%) with an effort to increase the ambition in the next NEPN update (2023/24),
- 3% of investment in research and development, of which 1% is public funds.

Cilji do leta 2030:

1 Razogljičenje (emisije toplogrednih plinov (TGP))



- zmanjšati **skupne emisije TGP za 36 %** glede na leto 2005.



5 Raziskave, inovacije in konkurenčnost

- **3 % BDP** vlaganja v raziskave in razvoj, od tega 1 % BDP javnih sredstev.



4 Energetska varnost, notranji trg energije



- Zagotoviti **dodatne vire za razvoj** in vodenje omrežja za distribucijo električne energije



2 Obnovljivi viri energije

- doseči **vsaj 27 % delež obnovljivih virov (OVE)** v končni rabi energije



3 Energetska učinkovitost



- Vsaj **35 %** **izboljšanje energetske učinkovitosti**, kar je višje od cilja sprejetega na ravni EU (32,5 %)



The SEA process efficiency

- Expert scoping
- Workshop with interested ministries, organisations, NGO s on scoping
- Presentation of key thematics in SEA report
- **Draft SEA report**
- Public presentation
- Public discussion
- Process of SEA and Programming in parallel
- Process management
- Good cooperation between planning authorities and environment, including health, water and cultural heritage authorities
- Opinions on time in 21 day
- Public consultations extended 30 days
- Decisions in 30 days



MORE:

<https://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/nacionalni-energetski-in-podnebni-nacrt/dokumenti/%23c965>

Thank you !