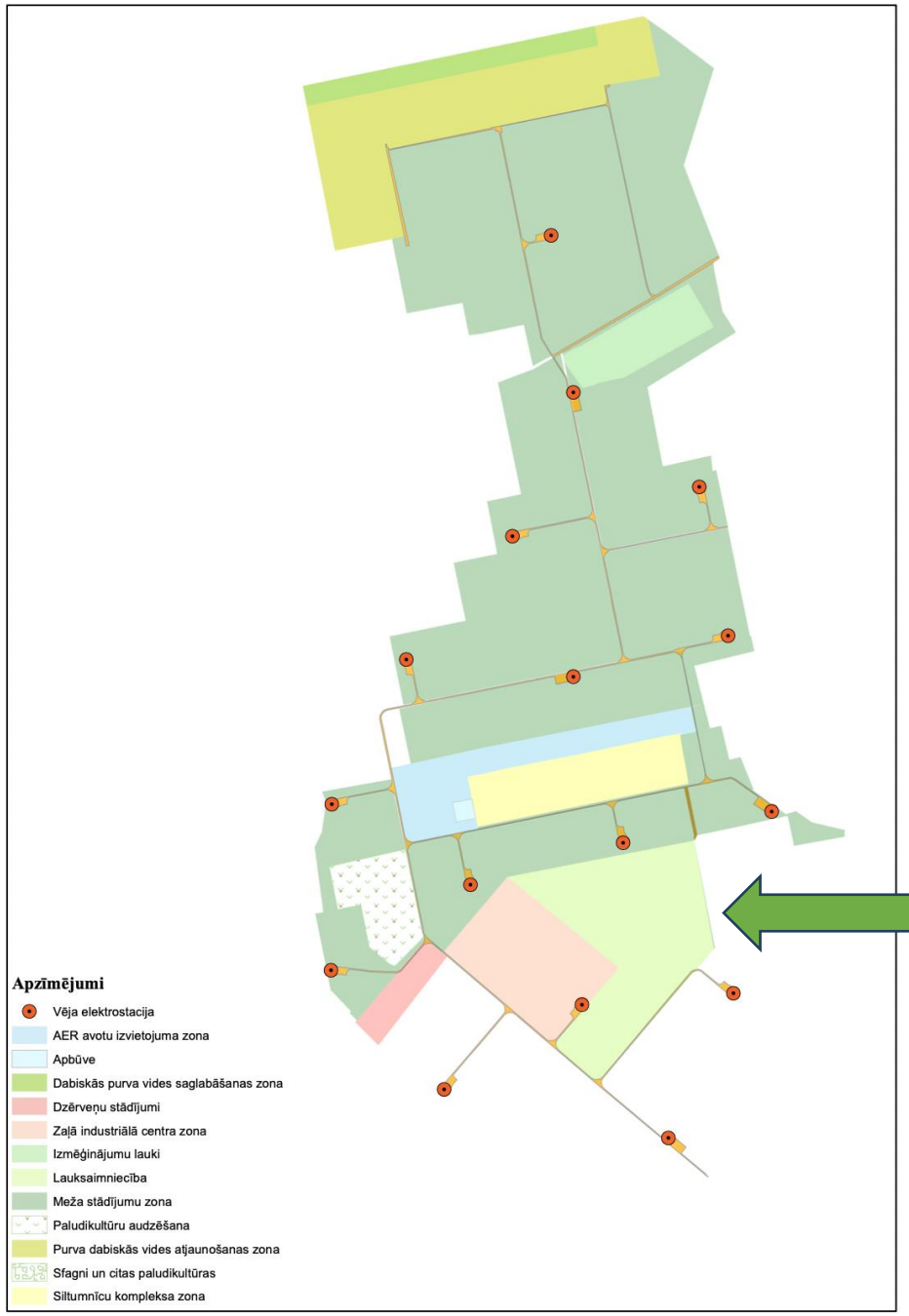
KAIGU PURVA PILOTTERITORIJA

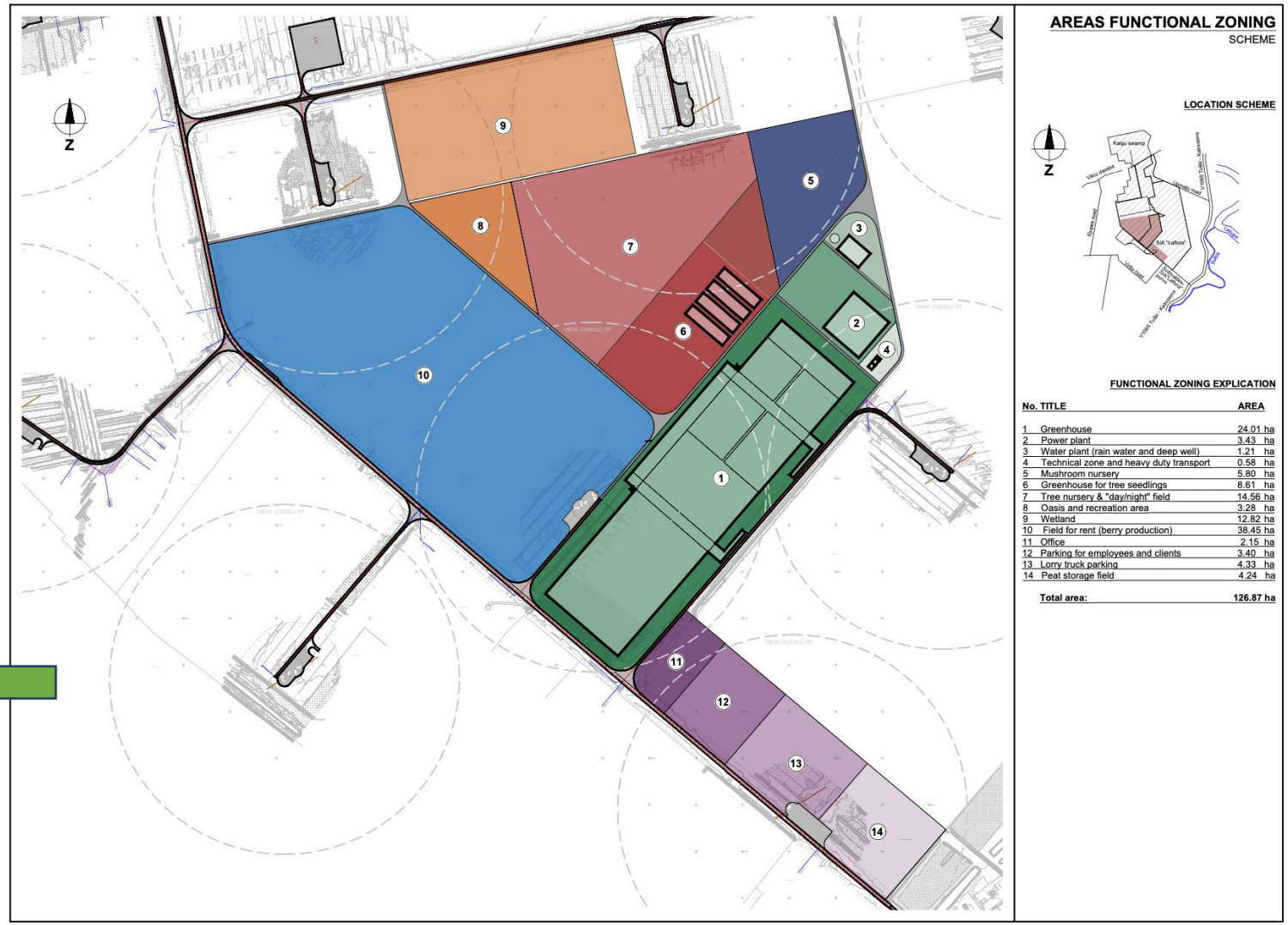
23.01.2025

KAIGU PARKA ATTĪSTĪBA

- KOPĒJĀ PLATĪBA: **763 HA**
- **18.09.2024** PARAKSTĪTS LĪGUMS PAR VĒJA PARKA BŪVNIECĪBU (**108 MW UN 16 TURBĪNAS)**
- **2024.GADA SEPTEMBRĪ** UZSĀKTA CEĻU BŪVNIECĪBA
- PIRMĀS TURBĪNAS: **2025.GADA**
- VĒJA PARKS UZSĀK DARBĪBU: **2026. GADA JŪNIJĀ**
- KAIGU PARKS: KABEĻI UN CEĻI **2025.GADA APRĪLIS**
- SILTUMNĪCU PROJEKTĒŠANA, BŪVNIECĪBA, CITAS RAŽOTNES: **2025-2026**
- KAIGU PARKA DARBĪBAS UZSĀKŠANA: SOLI PA SOLIM LĪDZ **2030.GADAM**

KAIGU PARKA ATTĪSTĪBA





PIEŅĒMUMI UN APRĒĶINU GAITA

- Katram scenārijam tika noteikti parametri, kas ietilpst Tvēruma 1 emisijās.

- Emisijas tika noteiktas sekojoši:
  - Ar SimaPro palīdzību tika iegūti dati par ietekmi Tvēruma 1 ietvaros katram scenārijam uz 1 ha gadā;
  - Dati pārrēķināti 50 gadu posmam (katru gadu apskatot atsevišķi);
  - Tad šie dati tika sareizināti ar teritorijas vienību, kas katram scenārijam tiek piešķirts;
  - Tika noteiktas emisijas 2027. gadā, 2030. gadā un 2035. gadā;
  - Tad tika iegūta emisiju summa no renaturalizācijas scenāriju īstenošanai uzņēmuma teritorijā
  - Noteiktā emisiju summa tika izmantota, lai noteiktu emisiju kompensēšanas apjomu

- Emisiju kompensēšanas apjoms tiek iegūts no sekojoša pieņēmuma meža ierīkošanas scenārijam:

Ikgadējā SEG emisiju kompensācija: [1 t SEG= 100 koki / = 1.5 hektāri meža/ = 1 hektāri purva]

Pēc šī pieņēmuma tika iegūts, ka iestādot 54.24 ha meža tiks kompensēts 36.16 t SEG

KRITĒRIJS: ENERĢIJA

1	**(1.1) Use of renewable energy**	**Energy used in a GreenIndustrialArea must be supplied by at least 50 percent renewable energy**	**Percentage of renewable energy use in industrial area relative to total energy consumption % [≥]**	**100%**	**Energy balance via electricity and heating bills**
	(1.2) Improvement of the energy management	In order to reduce energy consumption and minimize energy costs, efforts should be made to improve energy management and increase energy efficiency at an early stage. To do this, at least one stakeholder must set up energy management (e.g. training employees to become energy managers) and carry out annual energy monitoring for the entire GIA. An external energy consultation must be carried out every three years.	Energy management (orientation according ISO 50001)	**Yes**	2026-2028
Energy			Energy monitoring (yearly)	**Yes**	ISO 50001
			Internal event with companies in the GIA to discuss energy efficiency	**Yes**	ISO 50001

KRITĒRIJS: SEG EMISIJAS

2	**(2.1) Reduction and saving of GHG emissions**	**The GIA works towards reduced GHG emissions generated in industrial production (e.g. energy efficiency, intelligent traffic management, optimised supply chains, generation of renewable energy, installation of filter systems).**	**A GHG balance sheet (according to GHG Protocol Scope 1 and 2) with reduction targets and an implementation strategy is available. The main reduction target is climate neutrality in 2035 [90% in relation to the first balance].**	**Yes**	**GHG balance according to GHG Protocol (Scope 1 and 2)**
			Ideally for the entire GIA, but at least for the largest companies (discretionary decision) in the GIA.		
Greenhouse Gas		Requirements according to the EU climate protection package: Fit For 55.			
emissions (GHG)					
		If a new emissions-intensive company is added, it must also have a GHG balance sheet. The balance sheet for the whole GIA is then updated on a percentage basis.			
	(2.2) Offsetting of GHG emissions	Compensating the GHG emissions generated in the GIA through nature conservation measures (real compensation and financial compensation possible) in the GreenIndustrialArea, in the local authority or as an international measure (e.g. renaturation of peatlands and watercourses, afforestation of mixed forests and rainforests, unsealing, etc.).	By 2027 at least [50%] of the GHG [in t] emissions in the GIA	281%	GHG balance and compensation certificates
			By 2030 at least [85%] of the GHG [in t] emissions in the GIA	281%	GHG balance and compensation certificates
		Compensation for annual GHG Emissions: [1 t GHG = 100 trees / = 1.5 hectares of forest / = 1 hectare of moor]	By 2035 at least [100%] of GHG [in t] emissions in the GIA	294%	GHG balance and compensation certificates

KRITĒRIJS: ZEMES IZMANTOŠANA

3		**In order to protect the outdoor areas, primarily brownfield land (land recycling / revitalization of brownfield land) should be considered and used for new GIA.**	**The location is already sealed [at least 25%]**	**25% [≥]**	**Recultivation land – out of licence by LV law**
Reduction of land consumption	**(3.1) Use of conversion areas / brownfield sites**	Only for GIAs that are planned (greenfield)			
			The location is already contaminated by previous use [military, chemically contaminated, contaminated sites (e.g. asbestos) [at least 25%]	**No**	
		1 out of 3 performance indicators must be fulfilled	The location is compacted [from 70% DPr density Proctor] [at least 25%]	% [≥]	???
	(3.2) Sustainable and space saving planning of technical infrastructure	The infrastructure both within the GIA and at planned connection points should be developed in a master plan and implemented in a resource-saving manner (e.g. construction of the entire required infrastructure [traffic, sewerage, supply and disposal lines] at once, even if some of it is not used immediately), as well as sustainable handling of required/accruing bulk materials (e.g. topsoil, gravel, sand) in order to reduce the transport of bulk materials (e.g. by using unneeded excavation as fill soil for other trades within the GIA).	Strategy for the entire technical infrastructure of the GIA (traffic, supply and disposal, information and communication)	**Yes**	Building permits
			In connection with soil management strategy	**No**	*Strategy for soil management
	(3.3) No peatlands	Peatlands are wetlands that are critical for preventing and reducing the effects of climate change, maintaining biodiversity, minimising flood risk and providing safe drinking water. Peatlands are the largest natural terrestrial carbon store.	The undrained/intact peatlands and their catchments are excluded from the GIA.	**Yes**	Legally binding land-use plan: Extraction licence and permits for recultivation
		“Also degraded sites can generally be restored in a way that allows for net carbon sequestration.”			
			Planning GIAs on disturbed and degraded peatlands with ceased production should also be avoided. But it is not a criterion for exclusion.		
		Only for GIAs that are planned (greenfield)			

KRITĒRIJS: ILGTSPĒJĪGA MOBILITĀTE UN TERITORIJAS ATTĪSTĪBA:
IEVIEŠANA 2025-2026

4	(4.1) Provision of charging stations	Charging stations for cars and e-bikes will be provided within the GIA (e.g. electric charging station, hydrogen charging station)	Until 2027 one charging station (car) for 20 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility concept of the GIA
			Until 2030 one charging station (car) for 10 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility of the GIA
Sustainable mobility and location development	3 out of 5 criteria (4.1-4.5.) must be fullfilled		Until 2035 one charging station (car) for 5 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility of the GIA
			Until 2027 2 charging stations for e-bikes for 20 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility of the GIA
			Until 2030 5 charging stations for e-bike for 10 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility of the GIA
			Until 2035 5 charging stations for e-bike for 5 employees (in the entire GIA)	pcs/ person	Report/Proof on the mobility of the GIA
	(4.2) Encouragement of car pooling carsharing and company buses	Development and promotion to reduce individual transport in relation to the first proof/report (e.g. through carpooling, company buses, setting up an industrial area shuttle pool).	Reduced by [30%] by 2027 in relation to the first proof	% [≥]	Report/Proof on the mobility of the GIA
			Reduced by [50%] by 2032 in relation to the first proof	% [≥]	Report/Proof on the mobility of the GIA
	3 out of 5 criteria (4.1-4.5.) must be fullfilled		Reduced by [70%] by 2037 in relation to the first proof	% [≥]	Report/Proof on the mobility of the GIA
	(4.3) Accessibility of intermodal platforms	Promotion and development of the use of intermodal platforms (e.g. regional train, tram, bus, bicycle rental, frequency adjustment to shift changes).	Strategy in the GIA is available	Yes/No	Mobility strategy
	3 out of 5 criteria (4.1-4.5.) must be fullfilled				
	(4.4) Financial incentive system for the use of public transport such as job ticket etc.	Creation of financial incentive systems for the use of public transport or bike (e.g. job ticket, bonus scheme, etc.) in the GIA.	Some financial incentive system	Yes/No	Is there a system of financial incentives to avoid private car use?
	3 out of 5 criteria (4.1-4.5.) must be fullfilled				
	(4.5) Intelligent logistics with low GHG Emissions	Setting up and using intelligent, efficient and climate-friendly logistics within the industrial area as well as in the supply chains (e.g. transport [train, ship, climate-friendly vehicles e.g. with electricity or hydrogen], data and information [digitalization	External consulting in the GIA or internal event with companies in the GIA to discuss the mobility topic and plan some realistic measures to reduce the mobility GHG emissions [every 3 years]	Yes/No	Has an external energy consultation or event taken place in the last three years? Are there realistic follow-up measures with the target of low GHG Emissions?
	3 out of 5 criteria (4.1-4.5.) must be fullfilled				

KRITĒRIJS: BIOLOĢISKĀ DAUDZVEIDĪBA UN ŪDEŅU APSAIMNIEKOŠANA: IEVIEŠANA 2026-2028

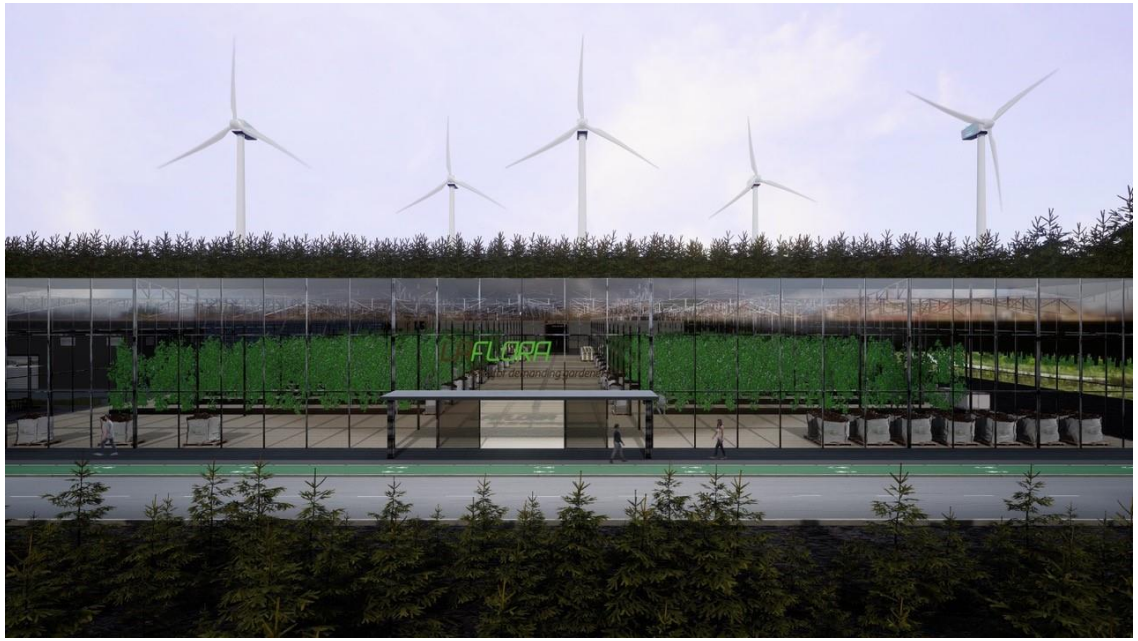
5	**(5.1) Rainwater management and retention areas**	**The GIA plans and installs intelligent and efficient rainwater management system to ensure sustainable use of water resources. (e.g. through rainwater retention and buffering by roof surfaces, use of water-permeable surface materials [paved areas and road construction], securing retention areas; use of the retained rainwater [e.g. for irrigation, sanitary facilities]).**	**[80%] of the precipitation water is infiltrated within the GIA**	**% [≥]**	**Report/Proof of water management**
			[50%] of the precipitation water is collected and reused in the GIA	% [≥]	Report/Proof of water management
Biodiversity and water management		1 out of 4 performance indicators must be fulfilled	[80%] of the paved areas and road materials used are permeable in the GIA	% [≥]	Report/Proof of water management
			[50%] of the green areas in the outdoor area serve as d rainwater retention areas in the GIA	% [≥]	Report/Proof of water management
	(5.2) Groundwater/drinking water	The GIA plans and installs intelligent and efficient water management system to ensure sustainable use of water resources.	Water reduction in water consumption, 30 % relative to the first proof to 2037	% [≥]	Proof about the water efficiency measures implemented
			Water reuse of internal and external residual water resources, 50 % relative to the first proof to 2037	% [≥]	Proof. Percentage of water being reused in the industrial area relative to total water consumption
		2 out of 3 performance indicators must be fulfilled	A water management strategy in the GIA is available	Yes/No	Water management strategy
	(5.3) Lighting concepts	Intelligent and state-of-the-art, energy-saving and environmentally friendly lighting concepts are to be integrated within the GIA indoors and outdoors (e.g. temporary lighting, motion detectors, lighting that takes species protection into account, focused and discreet lighting).	[60%] of the outdoor area luminaires are equipped with motion detectors in the GIA	% [≥]	Report/Proof on the lighting system
			[100%] of the outdoor area luminaires have LED standard in the GIA	% [≥]	Report/Proof on the lighting system
		2 out of 3 performance indicators must be fulfilled	[50%] of the outdoor area luminaires are installed insect-friendly (max. 2000-4000 Kelvin; downward-emitting luminaires) in the GIA	% [≥]	Report/Proof on the lighting system
	(5.4) Greening concepts in outdoor areas	Greening and shading of common areas and buildings to reduce heat islands with plants adapted to the location and climate.	[30%] of the green areas were planted with shrubs and trees over 1.50 metres in height in the GIA	% [≥]	Report/Proof of green areas

KRITĒRIJS: APRITES EKONOMIKA UN INDUSTRIĀLĀ SADARBĪBA: IEVIEŠANA: 2026-2030

6	**(6.1) Reduce waste**	**Within the GIA, waste is to be effectively reduced through intelligent recycling and sustainable waste management and avoided at an early stage through forward-looking planning. (e.g. through process optimisation in manufacturing processes, deployment of sustainability officers, training of staff on circular economy processes, bonus systems for waste avoidance and reduction ideas).**	**There is a strategy for park-internal recycling and sustainable waste management**	**Yes/No**	**Strategy for reducing waste**
Circular economy and industrial cooperation	1 out of 3 criteria (6.1-6.3) must be fulfilled				
	(6.2) Recyclability and usability of secondary raw materials as well as waste heat and wastewater	Within the GIA, secondary raw materials (e.g. wood, metal, glass, plastic, paper, etc.) as well as waste heat and wastewater are to be recycled and reused. A circular economy within the industrial area should be developed and promoted (e.g. recycling wood chips into wood pellets for heating, waste heat for heating and wastewater as process water for flushing toilets).	[>20%] of the secondary raw materials produced in the GIA are recycled OR reused in the region	% [≥]	Report/Proof of secondary raw materials
	1 out of 3 criteria (6.1-6.3) must be fulfilled				
	(6.3) Material Management	A material/resource management strategy, roadmap (in planning, implemented)	There is a strategy for dealing with materials and resources for existing GIA and new planned GIA	**Yes**	Strategy material management
	1 out of 3 criteria (6.1-6.3) must be fulfilled				

PĒTĪJUMA SCENĀRIJI

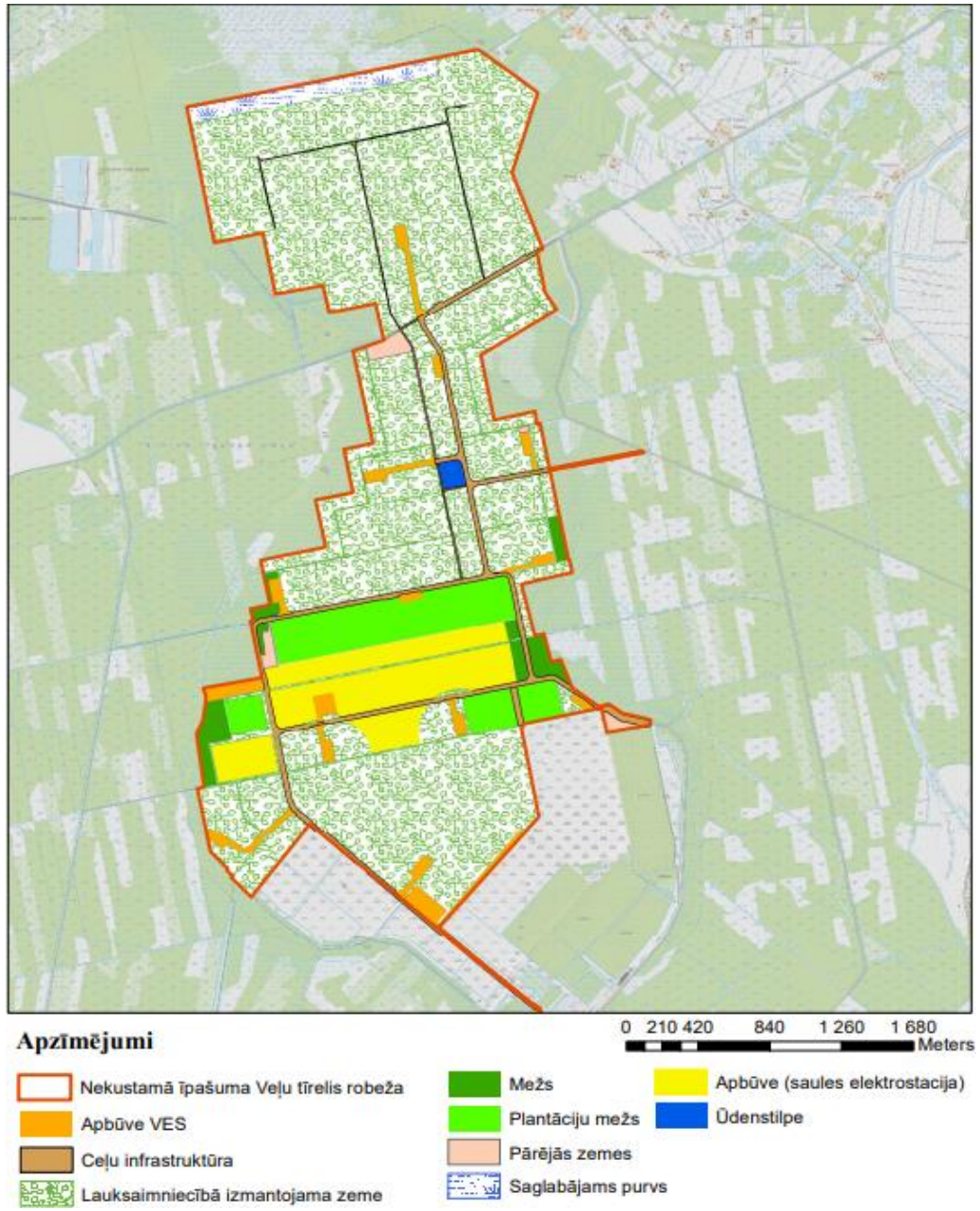
- Mērķis ir noteikt scenāriju SEG emisijas
- Funkcionālā vienība: 1 ha kūdras lauka
- Robežas ir no šūpuļa līdz vārtiem



- Bāzes scenārijs – Esošā situācija
- Mellenes
- Dzērvenes
- Ilgadēji zālāji
- Apmežošana*
- Paludikultūras
- Rapsis
- Vasaras kvieši
- Ziemas kvieši
- Renaturalizācija*
- Ūdens krātuvju ierīkošana
- Saules paneļi no LAFLORA stratēģijas
- Vēja turbīnas no LAFLORA stratēģijas

*Scenārija ievades dati pieņemti ņemot vērā vidējos radītājus no literatūras

IZMANTOTĀ LITERATŪRA



The data used to build the model came from the following sources:
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/dzervenes_20.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/dzervenes_ierikosana_7.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/mellenes_7.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/mellenu_ierikosana_1.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/vasaras_kviesi_pakalpojums_0.pdf
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https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/rapsi_pakalpojums_0.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/ganibu_zale_pakalpojuma.pdf
https://new.llkc.lv/sites/default/files/baskik_p/pielikumi/karpas_13.pdf
D. Lazdiņa et al., “A type of peatland recultivation: reforesting.” Baltijas krasti, 2019. [Online]. Available:
https://restore.daba.gov.lv/public/download.php?id=288
https://www.researchgate.net/publication/362951440_Reed_Fescue_Cultivation_Basic_Techniques_Influence_on_Organics_and_Nutrients_Accumulation_in_the_Soil
http://new.llkc.lv/lv/nozares/augkopiba/kalkosana-augsnes-ielabosana
https://www.researchgate.net/publication/372627906_Guideline_for_the_establishment_of_fen_paludicultures

Apbūves teritorijas			Lauksaimniecībā izmantojama zeme	Purvs	Ūdeņi	Pārējās zemes	Meža zeme	
VES	Saules elektrostacija	Ceļi					Mežs	Plantāciju mežs
25,96	64,52	34,07	546,17	14,96	2,19	5,76	16,68	54,24

JAUTĀJUMI?

- NAV SKAIDRS, KĀDU APRĒĶINU PIEMĒROT?PRET PAMATSCENĀRIJU, KAS IR KŪDRAS IEGUVE VAI PRET PLĀNOTO INDUSTRIĀLĀS ZONAS DARBĪBU?
- KURA TVĒRUMA EMISIJAS VĒLAS REDZĒT EMISIJAS - 1., 2. VAI 3.?
- VAI IR APRĒĶINU FORMULA , JO KATRAM KRITĒRIJAM IR TRĪS APRĒĶINU VEIDI – KURŠ BŪS PAREIZAIS?
- LAFLORA KLIMATNEITRALITĀTES STRATĒĢIJAS ATTĪSTĪBAS PAMATĀ DZĪVES CIKLA ANALĪZE,KAS NO ZINĀTNISKĀ SKATĪJUMA APTVER PLAŠĀKO IESPĒJAMO LOKU.