# Eco-Park Designer - A Web-Based Tool to Assist The Energy Symbiosis Design of Industrial Parks

https://ecoparkdesigner.sdu.dk/

# **Facility Overview**

- Provide a list of the facilities within the park along with their respective energy flows.
- Offer a visual representation to enhance understanding of the park's energy ecosystem.



# Scenario creation

- Define the current configuration of the eco-park.
- Outline potential configurations for the eco-park.
- Develop scenarios that depict the energy profile of the park.
- Assist in making informed decisions

🗻 🔽 🔽 🔟	Facilities in 0	Only planned facilities:			
Current eco-park	<b>Facility name</b> OSolar facility		C		
👱 🕩 🗹 🛅	Solar facility, expanded			1	
	() Greenhouse				
niy planned facilities	() Brewery			20	
🕹 🕩 🗹 🛅				15	
Future eco-park draft					
				10	
				ration	
				Gene	
				0	
				00 0x 00	10 20 00 0
				-5	VVV
				-10	
				2 Jan	3 Jan
				— Choose a start date –	
				1/2/2023	Ē
				MM/DD/YYYY	
	Facility name	Name		Туре	C

Authors: Zheng Grace Ma, Henrik Schwarz, Hampus Fink Gärdström, Fuad Hassan Jama, Bo Nørregaard Jørgensen Affiliation: SDU Center for Energy Informatics, The Maersk Mc-Kinney Moller Institute, The Faculty of Engineering, University of Southern Denmark

### **Eco-Park Designer enhances the energy symbiosis** of industrial and commercial parks through:





**CENTER FOR ENERGY** INFORMATICS

• Visualization of energy flow at both the facility and park levels.

• Creation, comparison, and analysis of various scenarios.

• Investigation of energy balance and imbalances on an hourly, weekly, and overall basis.

# **Energy Flow creation**

- Define energy profiles for each facility.
- Directly upload or manually input electricity and heat consumption data for each facility.
- Directly upload or manually input electricity and heat production data for each facility

Add Facility +			Wind Onshore
			Current onshore wind facility
L C 🗑	Title*		
Wind Onshore	Wind Onshore flow		
	- Description		
Solar facility	Example flow description		
		đi.	1
Solar facility, expanded	Type* Energy consumption or generation	۱*	1 17 490553 0 01
	Electricity - Generation	-	2 18 112923 19
			3 17 42409 0 17
	Data start date		4 16.565872 16
Greenhouse	1/2/2023		5 13.144291 0 16
U 💼 🗹 💼	dd/mm/yyyy Weeks*	П	6 10.942284 0 15
Brewery	Amount*	$\hat{}$	7 10.784191 0 15
	- Electricity properties		8 10.818068 🗘 14
			9 10.705144 🗘 15
	Unit*		10 12.308658 0 17
	MW	-	11 14.329988 🗘 17

## Scenario comparison

- Compare and evaluate various scenarios.
- Assess energy balances and sustainability aspects.
- Assist in selecting the most appropriate eco-park design.





	We	eks			
	<	1 >			
2	3	4	5	6	7
Сору	Сору	Сору	Сору	Сору	Сору
.421581 🗘	4.562108 🗘	10.953576 🗘	14.070264 🗘	16.419071 🗘	3.0828106
.659975 🗘	4.2572145 🗘	10.25345 🗘	13.008783 🗘	18.011292 🗘	3.7264743
7.345043 🗘	3.3989964 🗘	11.202007 🗘	11.303638 🗘	15.809285 🗘	4.8782935
.949812 ¢	2.7214556 🗘	11.25847 🗘	9.993727 🗘	13.483062 🗘	6.041405
.486826 🗘	2.574655 🗘	10.287328 🗘	8.95483 🗘	12.410289 🗘	6.617315 <
5.764115 🗘	2.5633626 🗘	9.756587 🗘	7.599749 🗘	12.828105 🗘	6.8092847 <
6.470514 🗘	2.5972397 🗘	9.496863 🗘	5.9736514 🗘	12.726474 🗘	6.1769133 <
.567126 🗘	2.4617314 🗘	9.079046 🗘	4.8105397 🗘	13.121706 🗘	5.442911 <
5.606023 🗘	2.3036387 🗘	7.9385195 🗘	3.9410288 🗘	13.110414 🗘	4.404015
2.220829 🗘	2.4278545 🗘	7.0238395 🗘	3.060226 🗘	14.058971 🗘	3.884567
7.819323 🗘	3.12798 🗘	7.17064 🗘	2.4504392 🗘	15.086575 🗘	3.9636135