Energy and Flexibility Modelling

Hands-on 7 (macOS)

Please use the following citation for:

- **This exercise**

- **clicSANDMac Software**

- **OSeMOSYS Google Forum**

Please sign up to the help Google forum here. If you are stuck, please ask questions here. If you get ahead, please answer questions in the same forum. Please state that you are using the 'clicSAND' Interface.

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Learning outcomes

By the end of this exercise, you will be able to represent the following in OSeMOSYs:

1) Solar power plants and the solar primary supply technology

2) Wind power plants and the wind primary supply technology

Add Solar and Wind Technologies

In this Hands-on we will add 4 technologies in total: 2 power plants (**PWRSOL**, **PWRWND**) and 4 primary supply technologies (MINSOL, MINWND). Two new fuels will be added to the
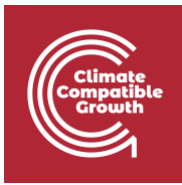
model: **SOL** (Solar energy) and **WND** (Wind energy). We will build the highlighted parts of the RES:
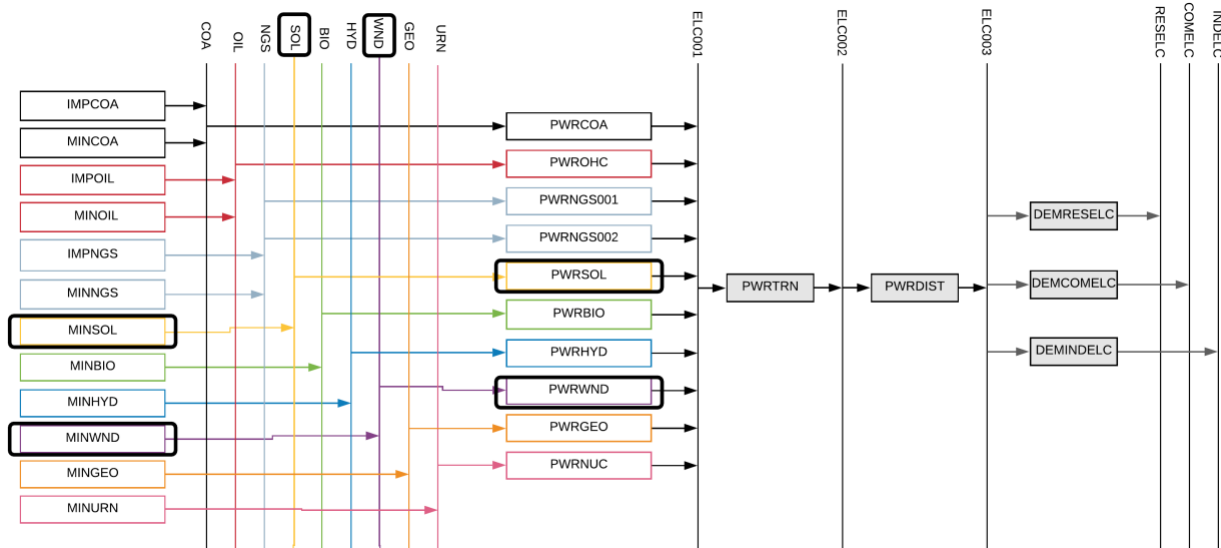
Try it: add 4 new technologies using the [Data prep file](#):

1. **MINSOL –** Solar Potential
2. **MINWND –** Wind Potential
3. **PWRSOL –** Solar Power Plant
4. **PWRWND –** Wind Power Plant

Repeat the same steps shown for Primary Supply Technology and Power Plants in **Hands-On 6**. Don't forget to add **Capacity Factors** and **Residual Capacity**! And of course, two new Commodities in the SETS sheet: **SOL** and **WND**!

	Technologies			Commodities	
Code	**Description**		**Code**	**Description**	
BACKSTOP	Backstop technology		ELC003	Electricity after distribution	
MINCOA	Coal domestic production		COA	Coal	
MINOIL	Oil domestic production		OIL	Oil fuel	
MINNGS	Natural gas domestic production		NGS	Natural Gas	
IMPCOA	Import of coal		ELC001	Electricity from power plants	
IMPOIL	Import of oil		ELC002	Electricity after transmission	
IMPNGS	Impor of Natural gas		BIO	Biomass	
PWRCOA	Coal power plant		HYD	Hydro	
PWROHC	Light Fuel Oil Power Plant		GEO	Geothermal	
PWRNGS001	Gas Power Plant (CCGT)		URN	Uranium	
PWRNGS002	Gas Power Plant (SCGT)		SOL	Sun	
PWRTRN	Electricity Transmission		WND	Wind	
PWRDIST	Electricity Distribution		COM013	Additional Fuel	
MINBIO	Biomass Extraction		COM014	Additional Fuel	
PWRBIO	Biomass Power Plant		COM015	Additional Fuel	
MINHYD	Hydro Potential		COM016	Additional Fuel	
PRWHYD	Hydropower Plant		COM017	Additional Fuel	
MINGEO	Geothermal Potential		COM018	Additional Fuel	
PWRGEO	Geothermal Power Plant		COM019	Additional Fuel	
MINURN	Uranium Potential		COM020	Additional Fuel	
PWRNUC	Nuclear Power Plant		COM021	Additional Fuel	
MINSOL	Solar Potential		COM022	Additional Fuel	
PWRSOL	Solar Power Plant		COM023	Additional Fuel	
MINWND	Wind Potential		COM024	Additional Fuel	
PWRWND	Wind Power Plant		COM025	Additional Fuel	
TEC025	Additional Technology		COM026	Additional Fuel	
TEC026	Additional Technology		COM027	Additional Fuel	
TEC027	Additional Technology		COM028	Additional Fuel	
TEC028	Additional Technology		COM029	Additional Fuel	

Naming | **SETS** | Parameters | ToDataFile | ⊕

Run the model and check the results

This is the Annual Electricity Production graph you should get after running the Hands On 7 model – we can see now that Solar and Wind have a share in the energy mix.