

EG2340 – Projects (by Lennart Söder 160929)



https://en.wikipedia.org/wiki/File:LondonArray_Operational.png

Onshore wind farms



Wind farm	Current capacity (MW)	Country	State/ province
Gansu Wind Farm	6,000	China	Gansu
Muppandal wind farm	1,500	India	Tamil Nadu
Alta Wind Energy Center	1,320	USA	California
Jaisalmer Wind Park	1,064	India	Rajasthan
Shepherds Flat Wind Farm	845	USA	Oregon
Roscoe Wind Farm	781.5	USA	Texas
Horse Hollow Wind Energy Center	735.5	USA	Texas
Capricorn Ridge Wind Farm	662.5	USA	Texas
Fântânele-Cogealac Wind Farm	600	Romania	Fântânele & Cogealac
Fowler Ridge Wind Farm	599.8	USA	Indiana

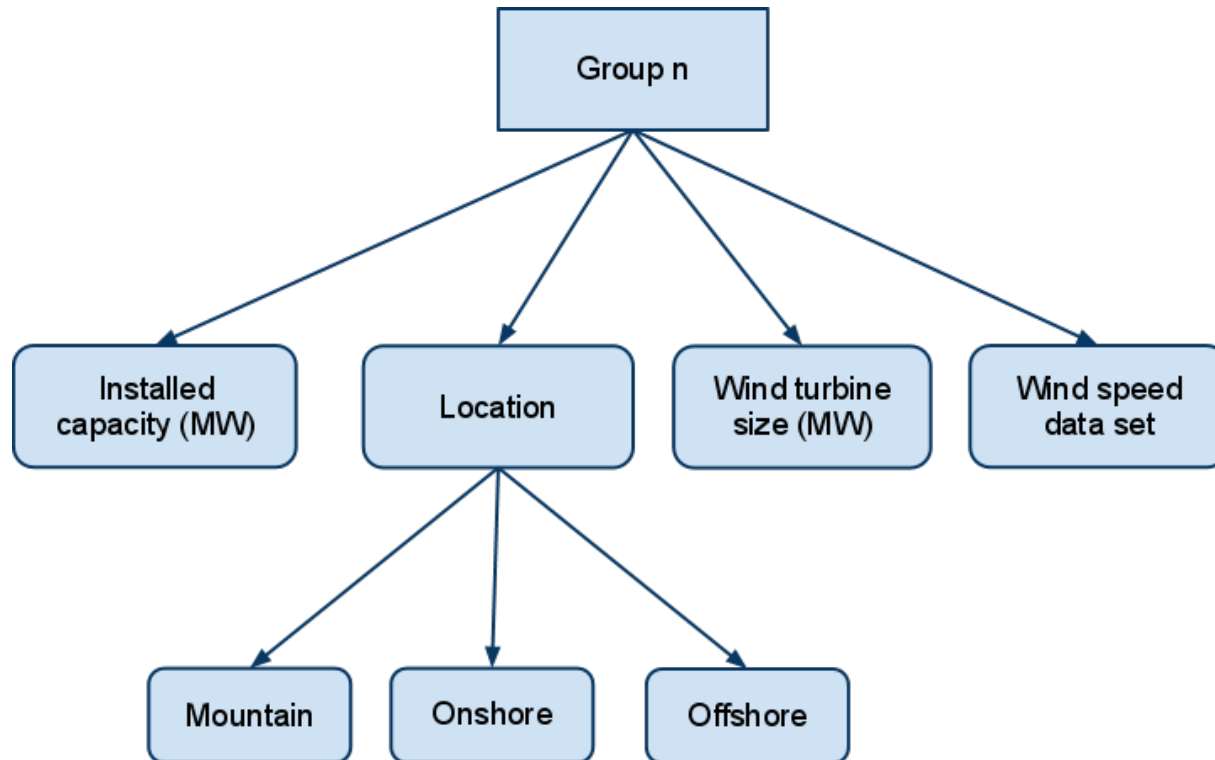
Source: https://en.wikipedia.org/wiki/List_of_onshore_wind_farms

Offshore wind farms

Wind farm	Total (MW)	Location	Turbines & model	Commissioning Date
London Array	630	United Kingdom	175 × Siemens SWT-3.6-120	2012
Gwynt y Môr	576	United Kingdom	160 × Siemens SWT-3.6-107	2015
Greater Gabbard	504 ^[6]	United Kingdom	140 × Siemens SWT-3.6-107	2012
Anholt	400	Denmark	111 × Siemens SWT-3.6-120	2013
BARD Offshore 1	400	Germany	80 × BARD 5.0 MW	2013
Global Tech I	400	Germany	80 × Areva Multibrid M5000 5.0 MW	2015
West of Duddon Sands	389	United Kingdom	108 × Siemens SWT-3.6-120	2014
Walney (phases 1&2)	367.2	United Kingdom	102 × Siemens SWT-3.6-107	2011 (phase 1) 2012 (phase 2)
Thorntonbank (phases 1–3)	325	Belgium	6 × Senvion 5 MW, 48 × Senvion 6.15 MW	2009 (phase 1) 2012 (phase 2) 2013 (phase 3)
Sheringham Shoal	315	United Kingdom	88 × Siemens SWT-3.6-107	2012

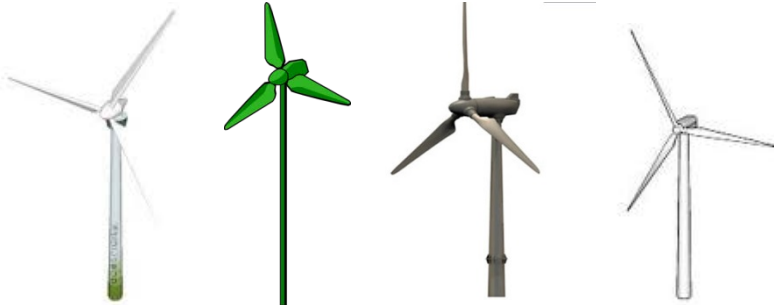
Requirements

<https://www.kth.se/social/course/EG2340/page/project-63/>

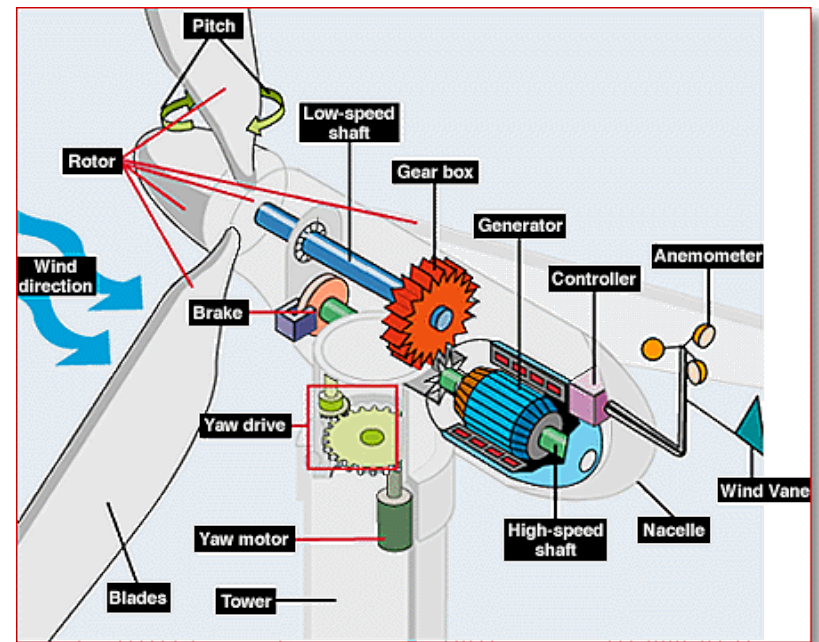
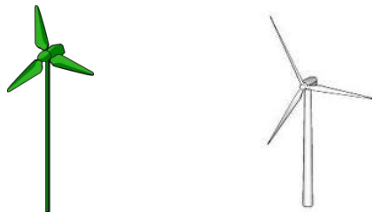


Task A: Analysis of wind turbine technology

- Input: Four different wind turbine models.

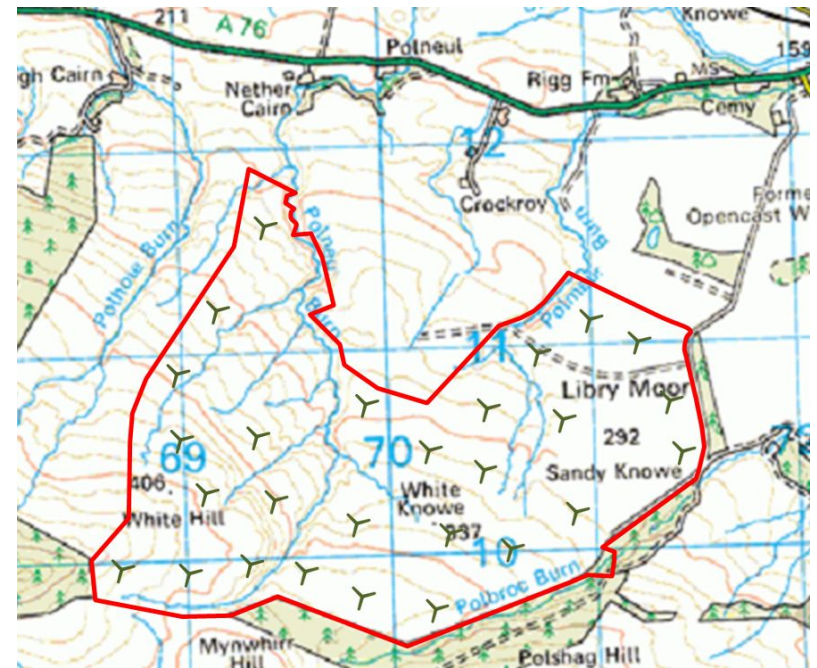
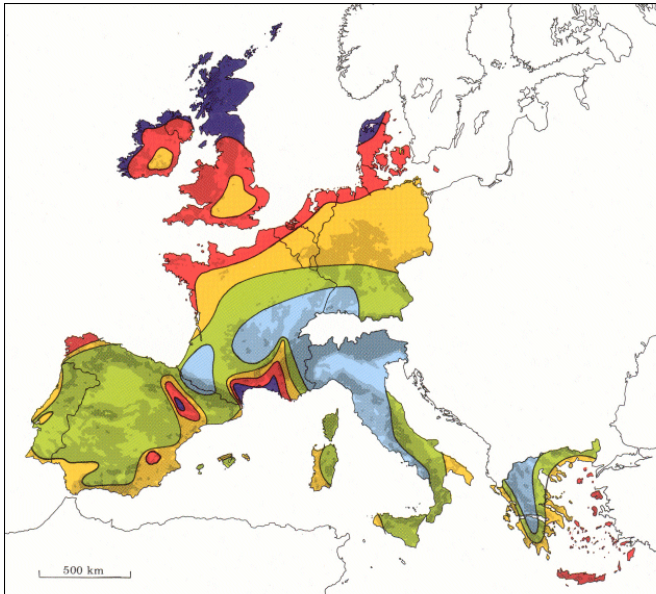


- Output: Compare and choose two of them.



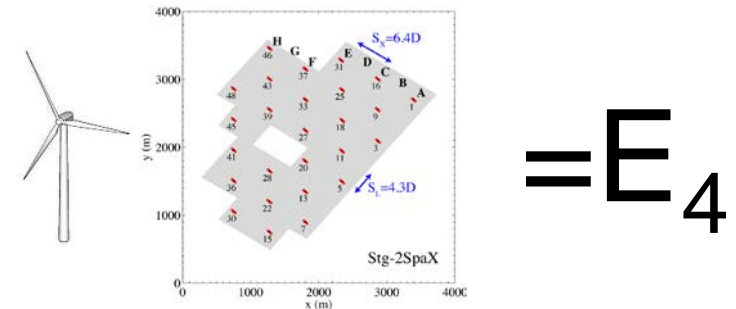
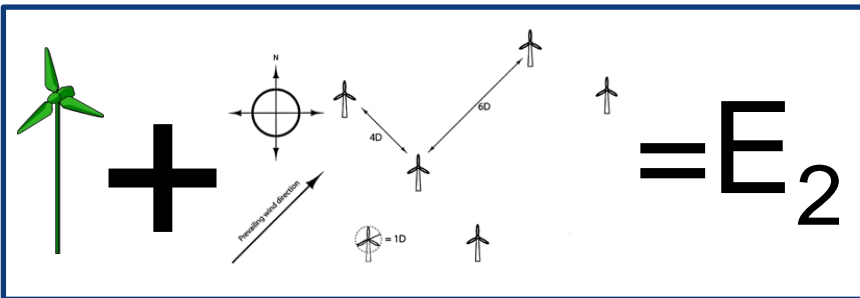
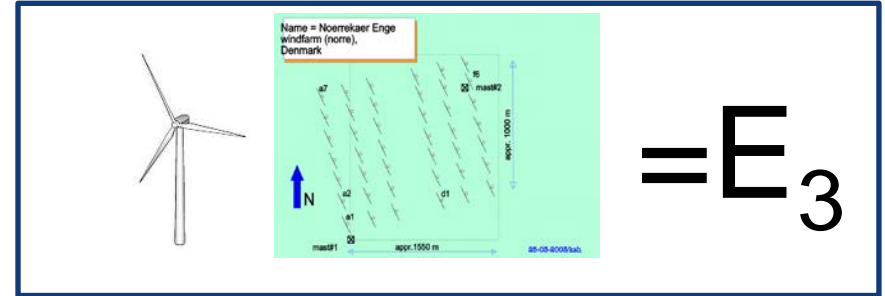
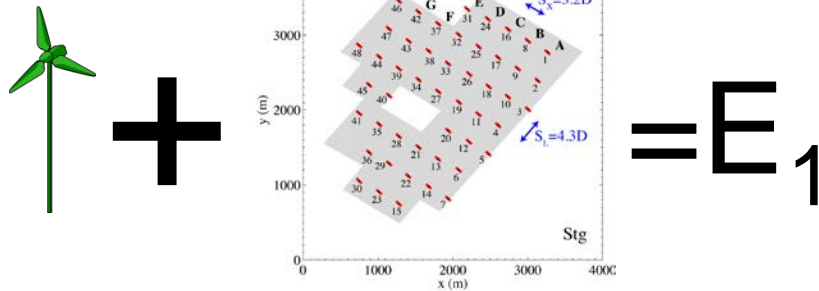
Task B: Siting, wind farm layout and energy yield

1. Find a site

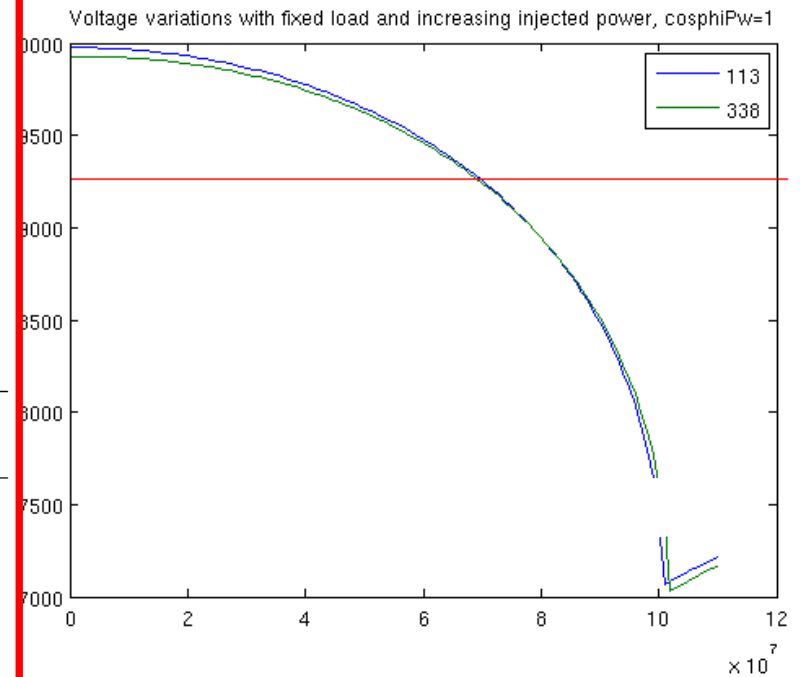
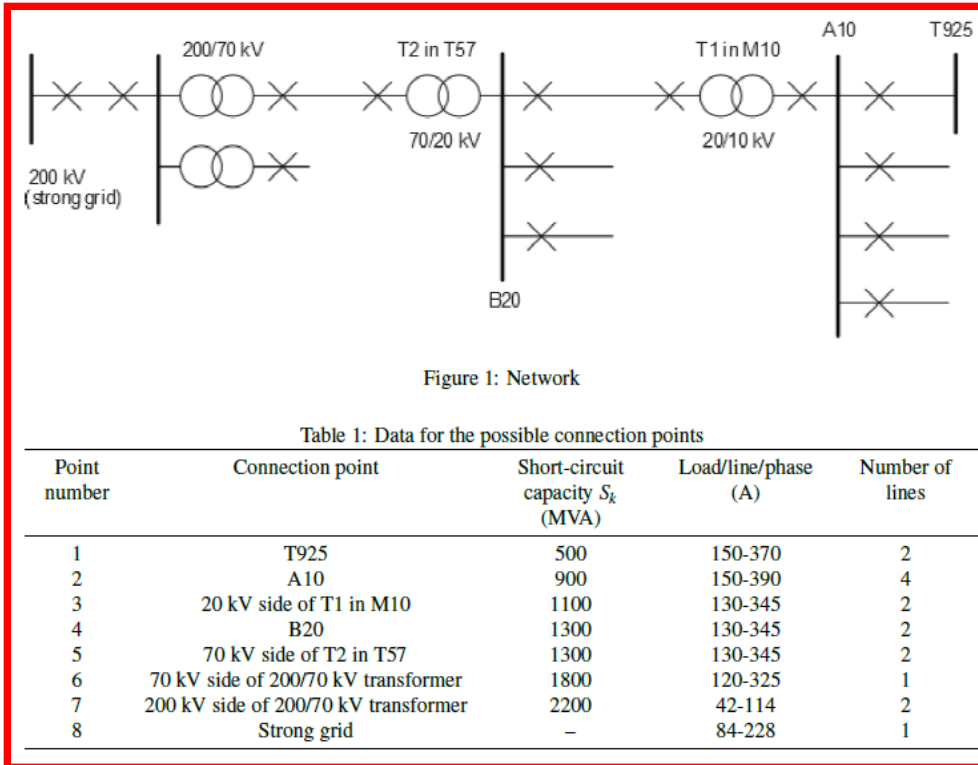


Task B: Siting, wind farm layout and energy yield

2. Choose two wind farm layouts for each wind turbine that fit the site you chose.
3. Compute the expected yearly energy yield for each combination wind turbine + layout.

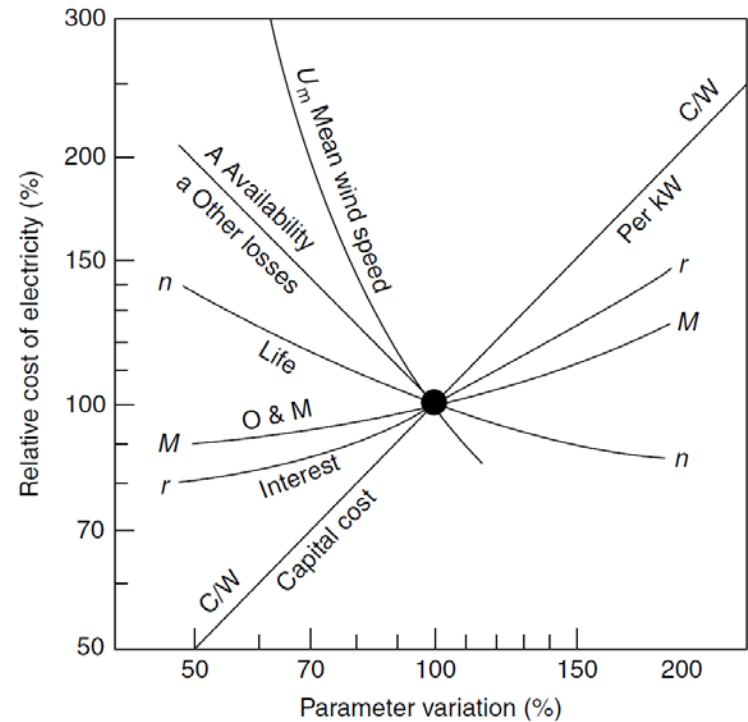
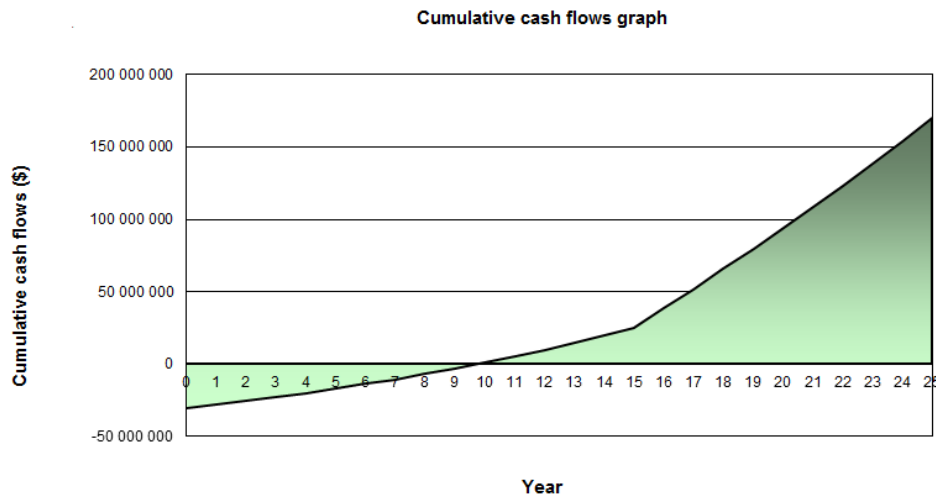


Task C: Network integration issues



Economic analysis

For both wind turbines: Do the economic analysis to make your final choice.





Outcomes

- Report: 20 pages
- Presentation: 15 minutes
- Critical review of another team's report



Time plan

Important deadlines

Date	Description
September 25	The groups were announced
October 25, 18.00	Upload project plan
Tuesday December 6, 12.00, 2016	Final report: upload the report to course home page.
Tuesday December 6, 18.00, 2016	The report to be reviewed will be sent out by e-mail
Tuesday December 13, 8.00, 2016	Upload the review report to course home page.
Tuesday December 13, 13-16, 2016	Final presentation. Compulsary participation.



Project

- Pass/fail
- Gives you 1.5 hp
- **You must pass the project to complete the course (otherwise, you get only the 6 credits from the exam)**
- Old students that have already passed the project do not need to do it again
- Teams will be formed randomly
- **Email Lennart/Lars if you don't want to do the project**



For you to do

- Check the project description:
<https://www.kth.se/social/course/EG2340/page/project-63/>
- Email me if you don't want to do the project