Inputs and Assumptions		
Natural Gas Combustion Emissions	1.962	kgCO2/m3
Shale Gas Methane Leakage emissions	4.4	kgCO2/GJ
Large Reciprocating Engine Heat Rate	9474	kJ/kWh
Combined Cycle Natural Gas Heat Rate	7964	kJ/kWh
Natural Gas Heat Content	0.0373	GJ/m3
CCS Parasitic Load	25%	% of output
Data Centre Water Usage	1.8	L/kWh
Combined Cycle Water Usage, Once through	0.56	L/kWh
Combined Cycle Water Usage, Closed Loop	0.91	L/kWh
Simple Cycle Water Usage	0.19	L/kWh
CCS Water Usage, Once through	0.1624	L/kWh
CCS Water Usage, Closed loop	0.7371	L/kWh
Data Centre Load Factor	86%	%

Emissions and Water use Calculator		
Inputs		
Data Centre Capacity	1400	MW
Gas Plant Type	Combined Cycle	(drop down list)
Cooling Type	Once Through	(drop down list)
Shale Gas as Fuel?	Yes	(drop down list)
Carbon Capture Installed	No	(drop down list)
Carbon Capture Rate	80%	%
Gas Plant Emission Intensity	454	tCO2/GWh
Results		
Power Generated/Used	10547	GWh/year
Emissions	4787.85	ktCO2/year
Water Use (Data Centre)	18984.7	million L/year
Water Use (Power Generation)	5906.3	million L/year
Water Use (Total)	24891.0	million L/year

For every MW of data centre capacity…

Gas Plant Type	Simple Cycle		Combined Cycle		Combined Cycle + Carbon Capture	
Fuel Type	Natural Gas	Shale Gas	Natural Gas	Shale Gas	Natural Gas	Shale Gas
Emissions (ktCO2e/year)	3.75	4.07	3.16	3.42	0.84	0.91
Water Usage (million L/year)	15		17.8 - 20.4		19 - 26	
Phase 1 of Wonder Valley (1400 MW)	5,250	5,698	4,424	4,788	1,176	1,274
	21,000		24,920	28,560	26,600	36,400
Total (7500 MW)	28,125	30,525	23,700	25,650	6,300	6,825
7500	112,500		133,500	153,000	142,500	195,000