



CUFR Tree Carbon Calculator

Developed by the Center for Urban Forest Research
Pacific Southwest Research Station
US Forest Service



In partnership with the California Department of
Forestry and Fire Protection

Figure 1

Project Data entry			
Data name	Data entry	Units	Description
Flag1	0		Tree age selected
Flag2	1		Shade & climate selected
Climate Zone	9 (Pacific Northwest)		Pacific Northwest
Electricity CO2 emissions factor§	395	(kg/MWh)	
Electricity CH4 emissions factor§	0.0030	(kg/MWh)	
Electricity N2O emissions factor§	0.0017	(kg/MWh)	

§required for energy project

Help Commands



Figures 6 & 9

Tree and Building Data entry			
Enter Tree data below one tree at a time, then record results			
Data name	Data entry	Units	Description
Species code and scientific name	QURU (Quercus rubra)		northern red oak
Age (years)	200	Age (years)	41.7 in DBH & 96.2 ft high
Tree azimuth	5		S
Tree distance class	2		Near
Building vintage	3		post-1980
air conditioning equip.	1		Central air/heat pump
Heating equip.	1		natural gas
Heating emissions factor- CO ₂ §	53.1	(kg/MBtu)	
Heating emissions factor CH ₄ §	0.0059	(kg/MBtu)	
Heating emissions factor N ₂ O§	0.0001	(kg/MBtu)	



Figures 7-10

Carbon Calculator Results (annual)								
Energy reductions			Emission reductions (CO ₂ equivalents)			CO ₂ Sequestration	Total CO ₂ Stored	Above ground biomass
Cooling	Heating		Cooling	Heating	Cooling + Heating	(A value of 0.0 indicates no tree growth)		(dry weight)
kWh/tree	MBtu/tree		(kg/tree)	(kg/tree)	(kg/tree)		(kg/tree)	(kg/tree)
229.25	-0.945		90.7	-50.3	40.3	0.0	20131.1	8557.1
kWh/tree	GJ/tree		lb/tree	lb/tree	lb/tree	(lb/tree/year)	(lb/tree)	(lb/tree)
229.25	-0.997		199.9	-111.0	89.0	0.0	44,381.4	18,865.1