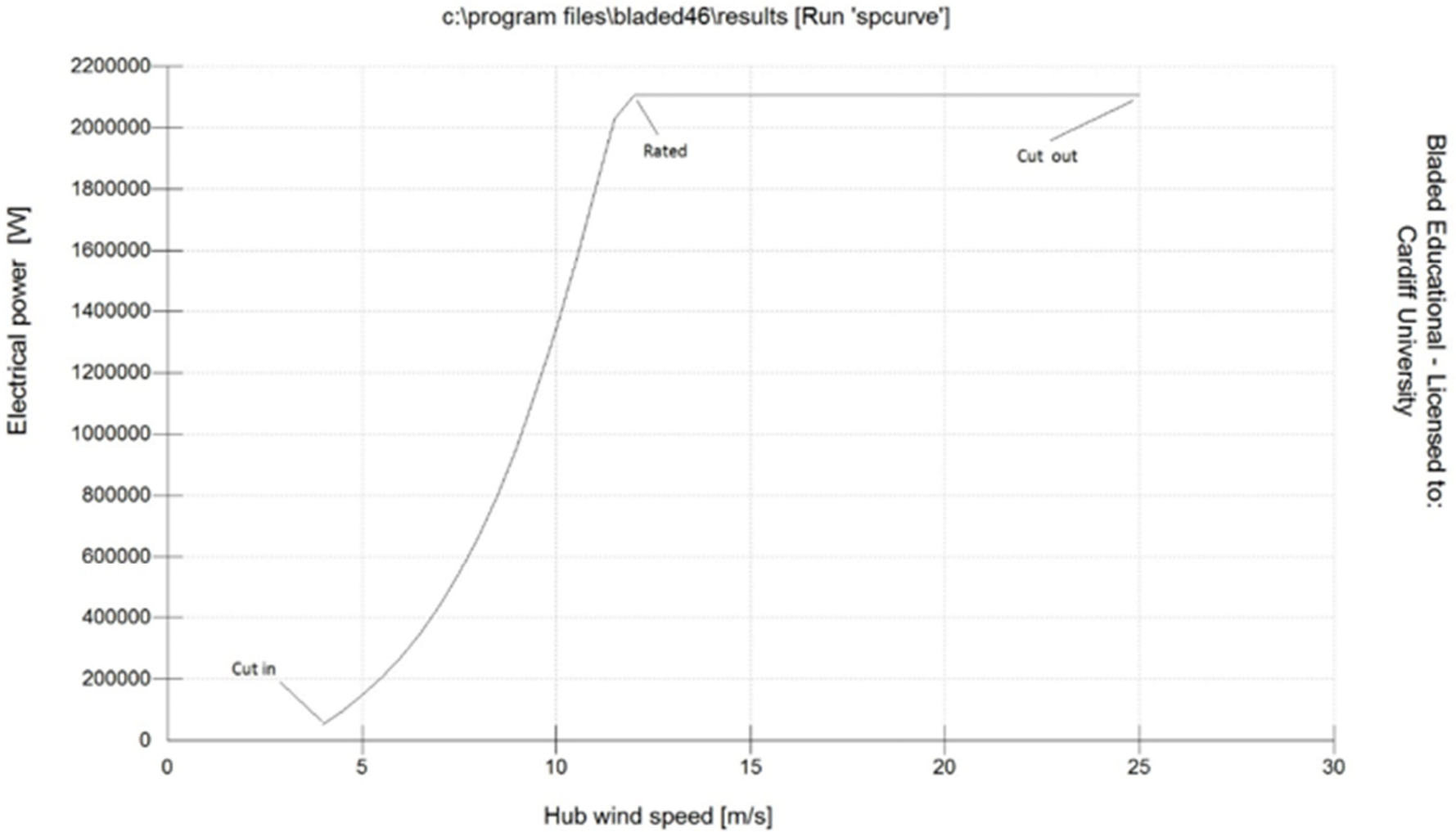
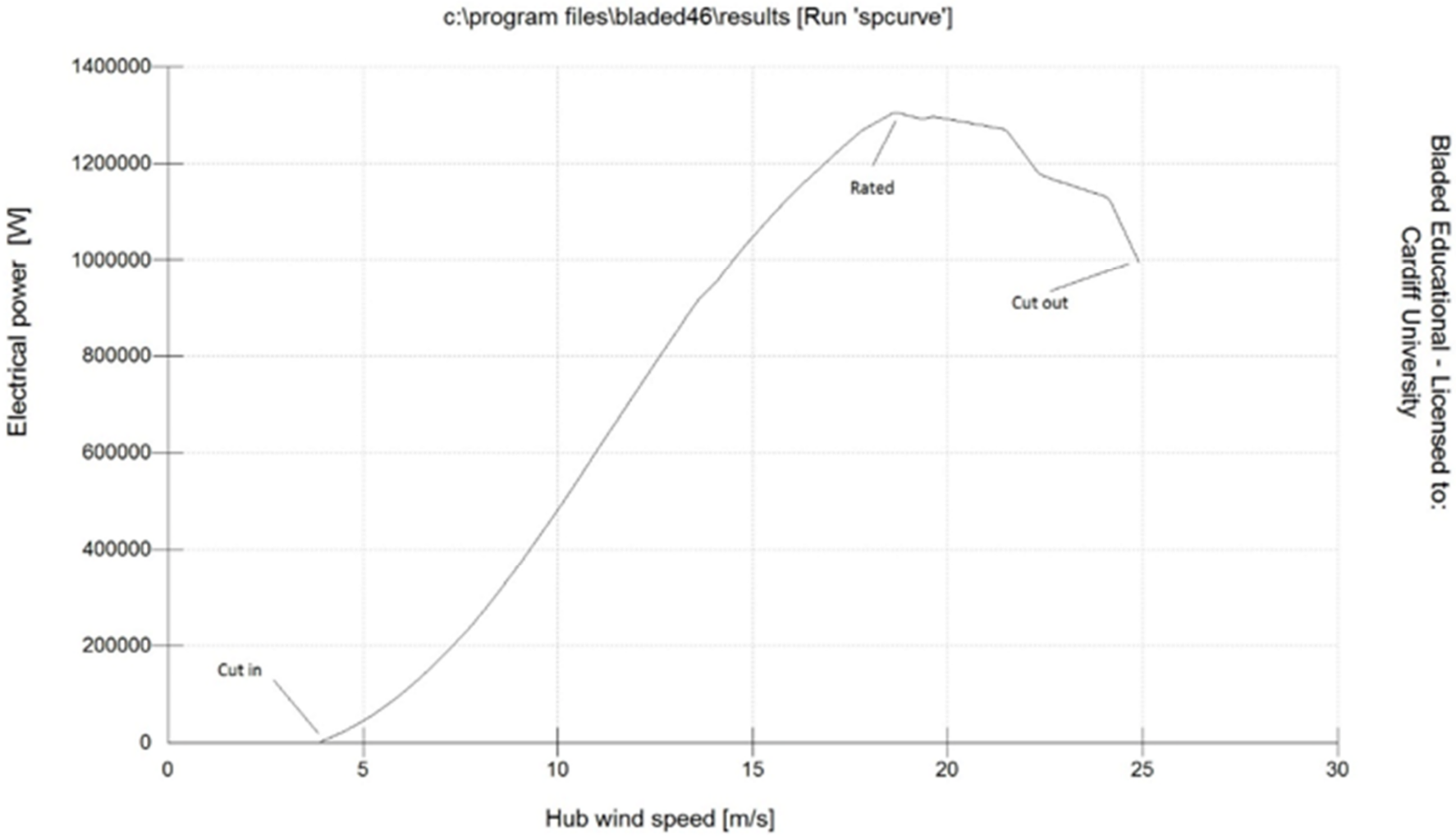
Exercise 2.4
Example solutions

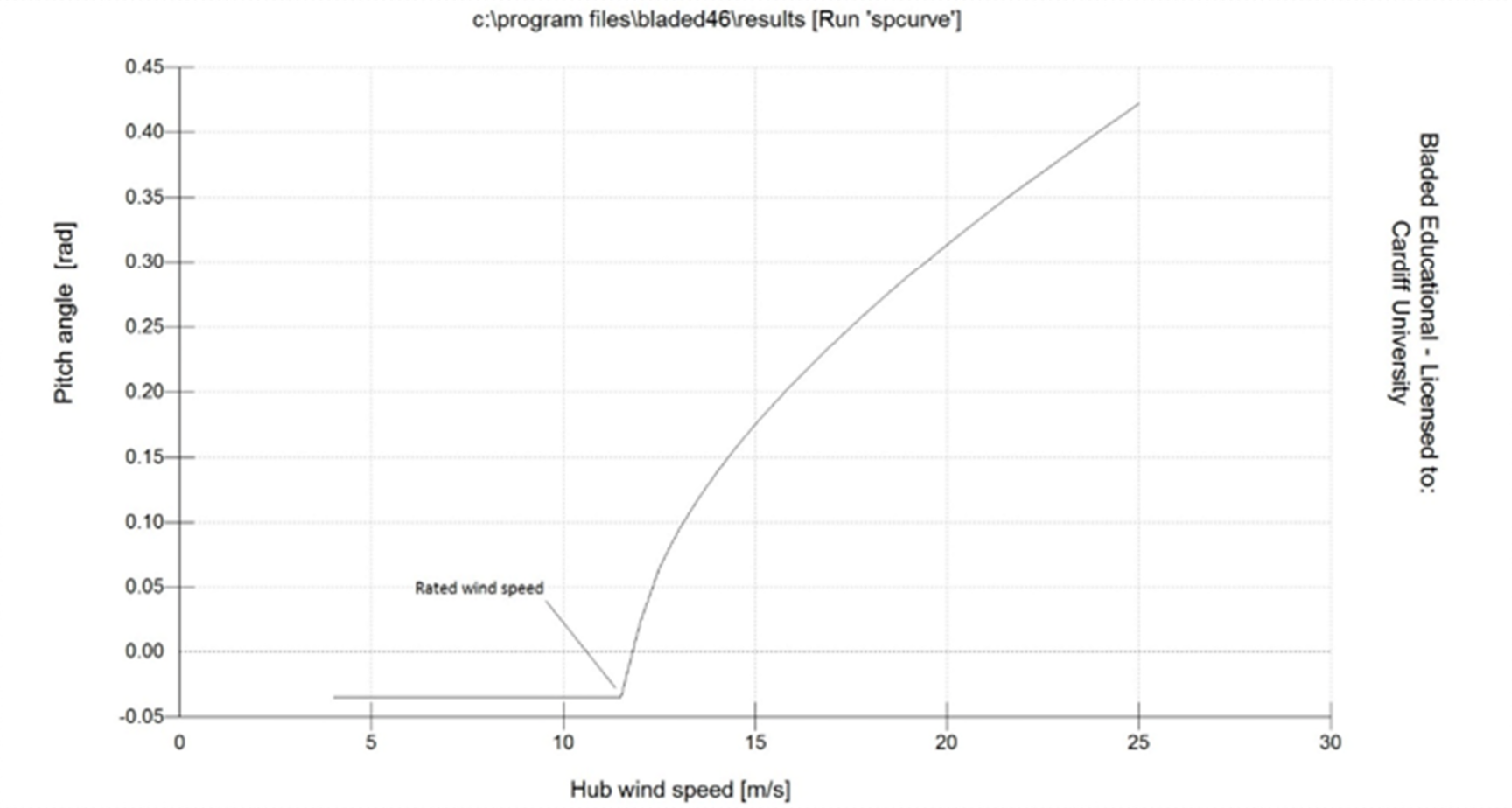
Power curve of 80m diameter, variable speed, pitch regulated wind turbine



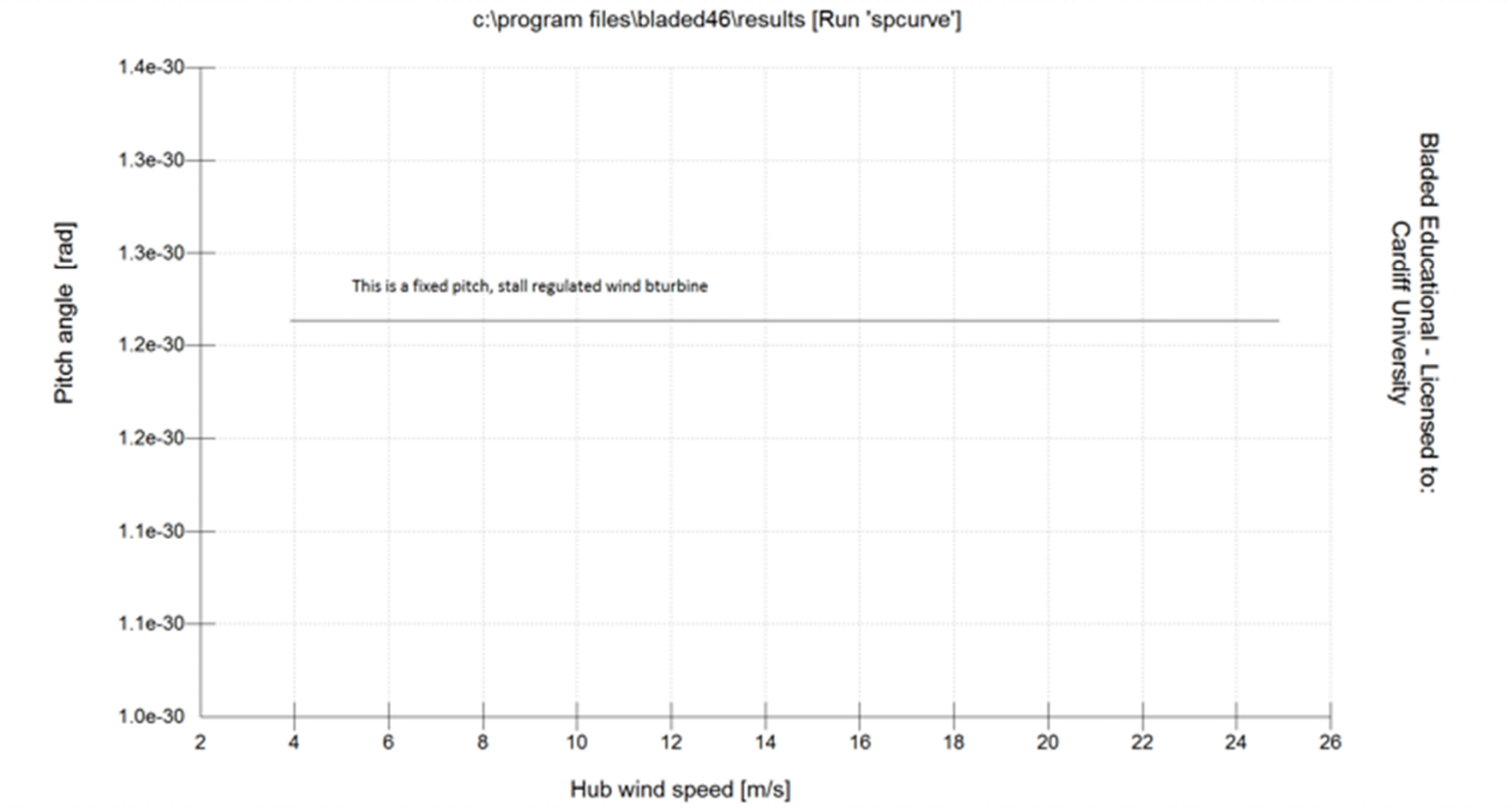
Power curve of 55m diameter, stall regulated wind turbine



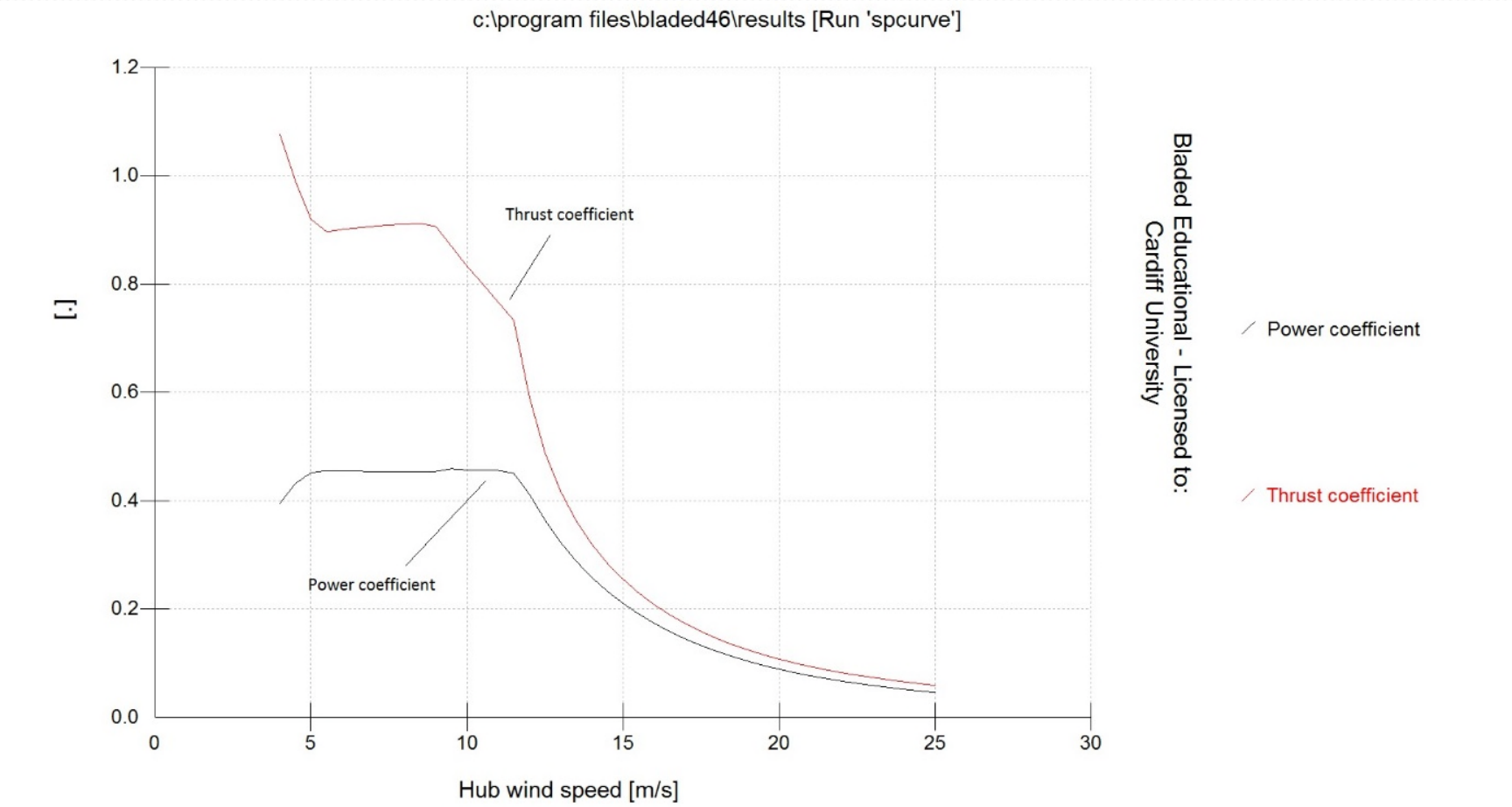
Pitch angle of 80m diameter, variable speed, pitch regulated wind turbine



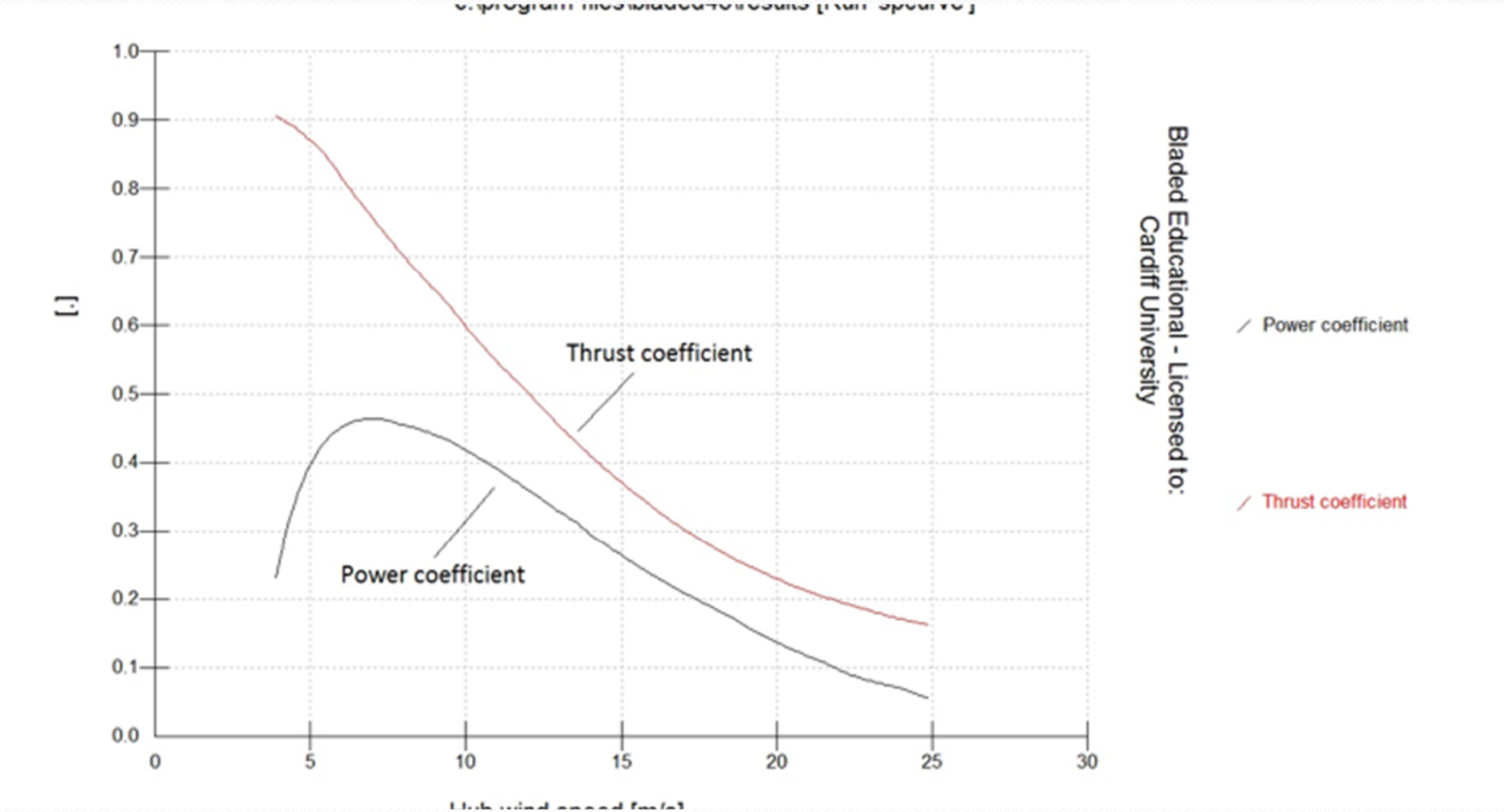
Pitch angle of 55m diameter, fixed speed, stall regulated wind turbine. Note pitch angle is fixed.



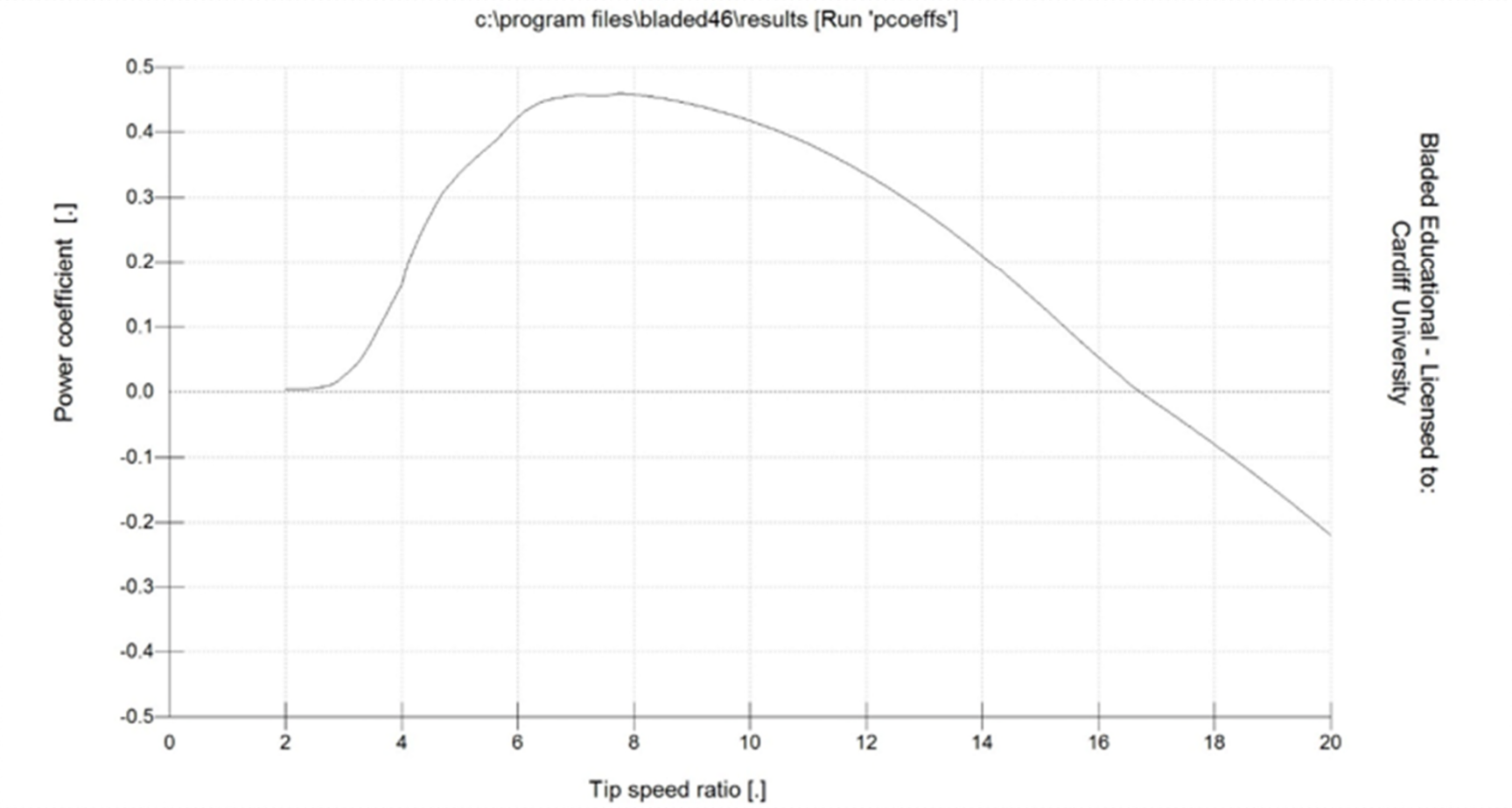
Power and Thrust coefficients of 80m diameter variable speed, pitch regulated wind turbine



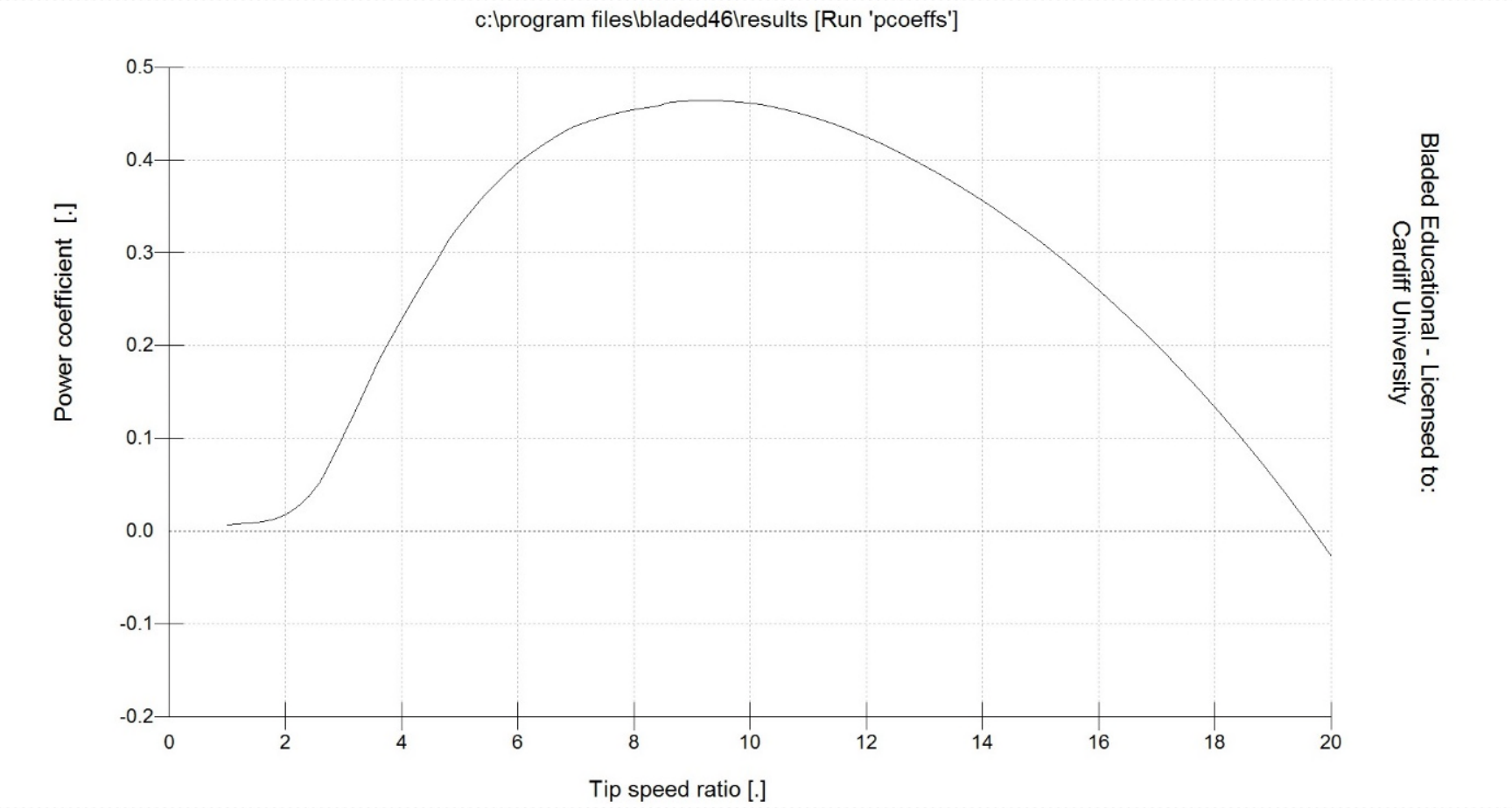
Power and Thrust coefficients of 55m diameter fixed speed, stall regulated wind turbine



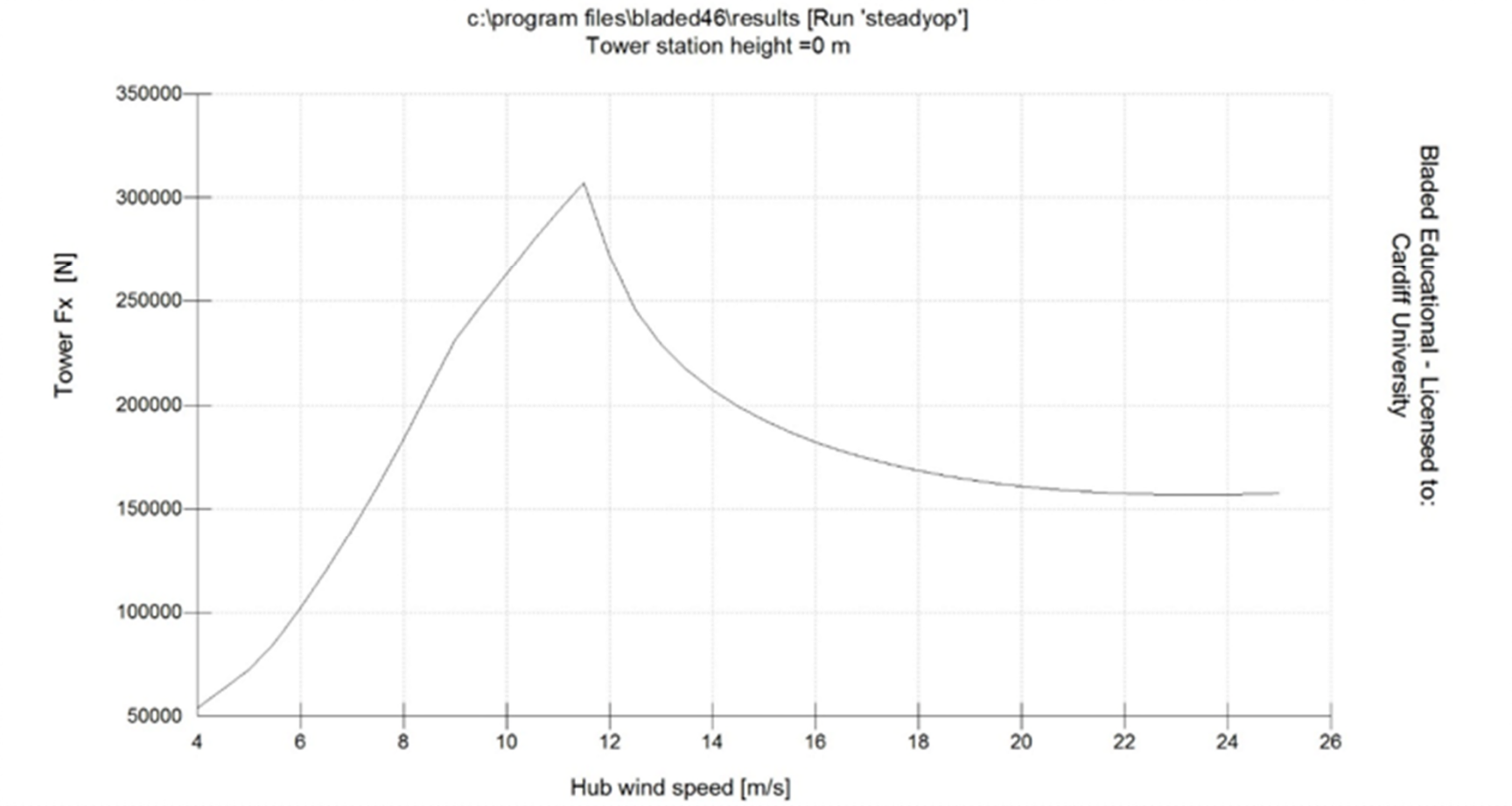
Power coefficient versus tip speed ratio of 80m diameter variable speed, wind turbine



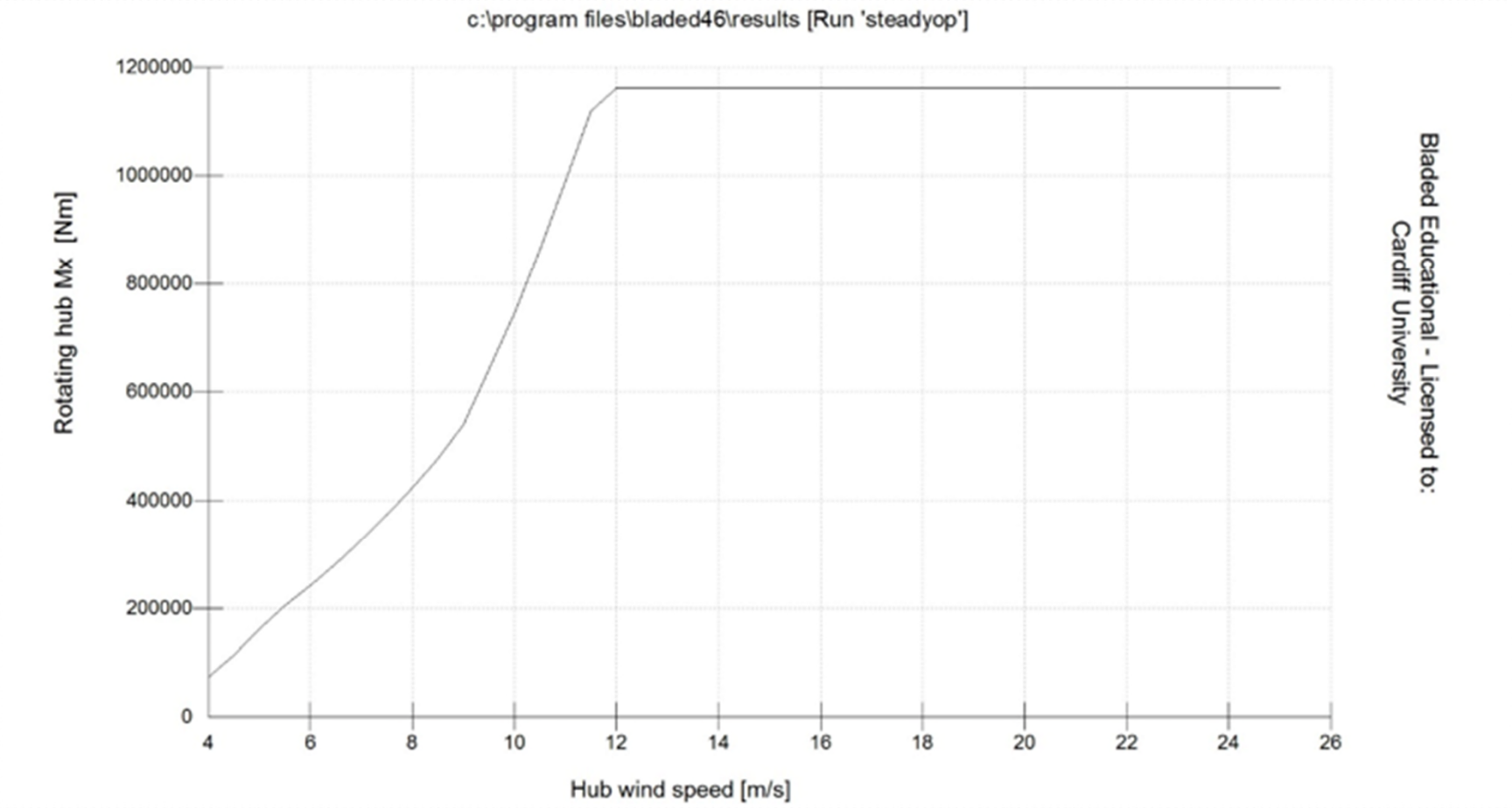
Power coefficient versus tip speed ratio of 55 m diameter, stall regulated, wind turbine



Tower thrust (Fx) loads of 80m diameter wind turbine



Rotating (Mx) loads giving useful torque of 80m diameter turbine.



Generator speed v. generator torque for 80m diameter wind turbine.

This characteristic is the basis of the variable speed control system.