```
REAL(ReKi), INTENT(IN )      :: DT                        ! Integration time step, sec.
REAL(ReKi), INTENT(IN )      :: ElecPwr                   ! Electrical power, watts.
REAL(ReKi), INTENT(IN )      :: GBRatio                   ! Gearbox ratio, (-).
REAL(ReKi), INTENT(IN )      :: HSS_Spd                   ! HSS speed, rad/s.
REAL(ReKi), INTENT(OUT)      :: BlPitchCom_out(NumBl)     ! Commanded blade pitch angles
(demand pitch angles), rad.
REAL(ReKi), INTENT(IN )      :: TwrAccel                  ! Tower Acceleration, m/s^2.
REAL(ReKi), INTENT(IN )      :: ZTime                     ! Current simulation time,
sec.

CHARACTER(1024), INTENT(IN ) :: DirRoot                   ! The name of the root file
including the full path to the current working directory.  This may be useful if you
want this routine to write a permanent record of what it does to be stored with the
simulation results: the results should be stored in a file whose name (including path)
is generated by appending any suitable extension to DirRoot.

 ! Local Variables:

REAL(ReKi)                   :: ElapTime      ! Elapsed time since the last call to
the controller, sec.
REAL(ReKi)                   :: GK            ! Current value of the gain
correction factor, used in the gain scheduling law of the pitch controller, (-).
REAL(ReKi), SAVE             :: IntSpdErr     ! Current integral of speed error
w.r.t. time, rad.
REAL(ReKi), SAVE             :: LastTimePC    ! Last time the pitch  controller was
called, sec.
REAL(ReKi), PARAMETER        :: OnePlusEps = 1.0 + EPSILON(OnePlusEps) ! The number
slighty greater than unity in single precision.
REAL(ReKi), PARAMETER        :: PC_DT = 0.00125     ! Communication interval for
pitch  controller, sec.
REAL(ReKi), PARAMETER        :: PC_KI =       0.008068634  ! Integral gain for
pitch controller at rated pitch (zero), (-).
REAL(ReKi), PARAMETER        :: PC_KK =       0.1099965    ! Pitch angle were the
the derivative of the aerodynamic power w.r.t. pitch has increased by a factor of two
relative to the derivative at rated pitch (zero), rad.
REAL(ReKi), PARAMETER        :: PC_KP =       0.01882681   ! Proportional gain for
pitch controller at rated pitch (zero), sec.
REAL(ReKi), PARAMETER        :: PC_MaxPit =       1.570796     ! Maximum pitch
setting in pitch controller, rad.
REAL(ReKi), PARAMETER        :: PC_MaxRat =       0.1396263    ! Maximum pitch
rate (in absolute value) in pitch  controller, rad/s.
REAL(ReKi), SAVE             :: PitCom (3)     ! Commanded pitch of each blade the
last time the controller was called, rad.
REAL(ReKi)                   :: PitComI        ! Integral term of command pitch,
rad.
REAL(ReKi)                   :: PitComP        ! Proportional term of command
pitch, rad.
REAL(ReKi)                   :: PitComT        ! Total command pitch based on the
sum of the proportional and integral terms, rad.
REAL(ReKi)                   :: PitRate(3)     ! Pitch rates of each blade based on
the current pitch angles and current pitch command, rad/s.
REAL(ReKi)                   :: SpdErr         ! Current speed error, rad/s.
LOGICAL                      :: Initialize = .TRUE.  ! A status flag set by the
simulation as follows: 0 if this is the first call, 1 for all subsequent time steps,
-1 if this is the final call at the end of the simulation.
INTEGER(ReKi)                :: K              ! Loops through blades.
INTEGER(ReKi)                :: pitCoun = 1    !Used for debug output

!=======================================================================
   !Initialize variables:
```