**Create a Commercial Land Mask  
*Summary:***

* Create a 200 m resolution boolean grid representing likely commercial land use based on locations of known commercial facilities and the ratio of night time to day time population
* This grid will be used for two purposes:
  + To resample/reallocate commercial load from service territories to counties
  + To identify the distribution of available wind resource within a given county for commercial areas

***Processing***

Notes:

* ArcGIS processing performed in ./mxd/commercial\_land\_mask\_resampling\_us\_revised\_2014\_02\_05.mxd
* In Postgres, processing performed in S:\mgleason\DG\_Wind\SQL\commercial\_load\commercial\_land\_mask sql files

Steps:

* Isolate known commercial locations using navtec points with factypes associated with commercial building types and hsip points with 2-digit naics codes associated with commercial activities --> dg\_wind.hsip\_and\_navteq\_commercial\_facilities
* Create a version of the commercial locations where all points are buffered by 200m (but polygon commercial locations from HSIP and NAVTEC remain unchanged)🡪 dg\_wind.hsip\_and\_navteq\_commercial\_facility\_buffers
  + 200 m is selected as the buffer size because the data will be converted to a raster that is nominally 200 m in resolution using a cell center allocation method. Therefore, using a 200 m radius ensures that each polygon should always be assigned to one and only one raster cell (no duplicates, no drop outs)
* Export results to three shapefiles (too large to put to one shapefile ) 🡪
  + F:\data\mgleason\DG\_Wind\Data\Analysis\commercial\_land\_mask\revised\_2014\_02\_05\commercial\_facility\_polygons\hsip\_and\_navteq\_commercial\_facility\_buffers\_partN.shp
* In ArcGIS, merge the three shapefiles into a single geodatabase feature class 🡪
  + F:\data\mgleason\DG\_Wind\Data\Analysis\commercial\_land\_mask\revised\_2014\_02\_05\commercial\_facility\_polygons\commercial\_facs.gdb\commercial\_facilities\_combined
* Add a definition query to ignore oil and gas field:
  + table\_name <> ‘enrg\_gas\_prod’
* Dissolve the merge feature class, add a field “commercial”, and calculate it = 1
  + F:\data\mgleason\DG\_Wind\Data\Analysis\commercial\_land\_mask\revised\_2014\_02\_05\commercial\_facility\_polygons\commercial\_facs.gdb\commercial\_facilities\_combined\_dissolved
* Convert to Raster (Polygon to Raster with cell center option)
  + [fill in]
  + \*\* this is the final commercial land mask
* Convert to points
  + [fill in]
* Export points to ASCII txt file
  + [fill in]
* Load grid and points to postgres for further analyses
  + Grid 🡪 dg\_wind.commercial\_land\_mask\_500x500
  + Points 🡪 wind\_ds.pt\_grid\_us\_com