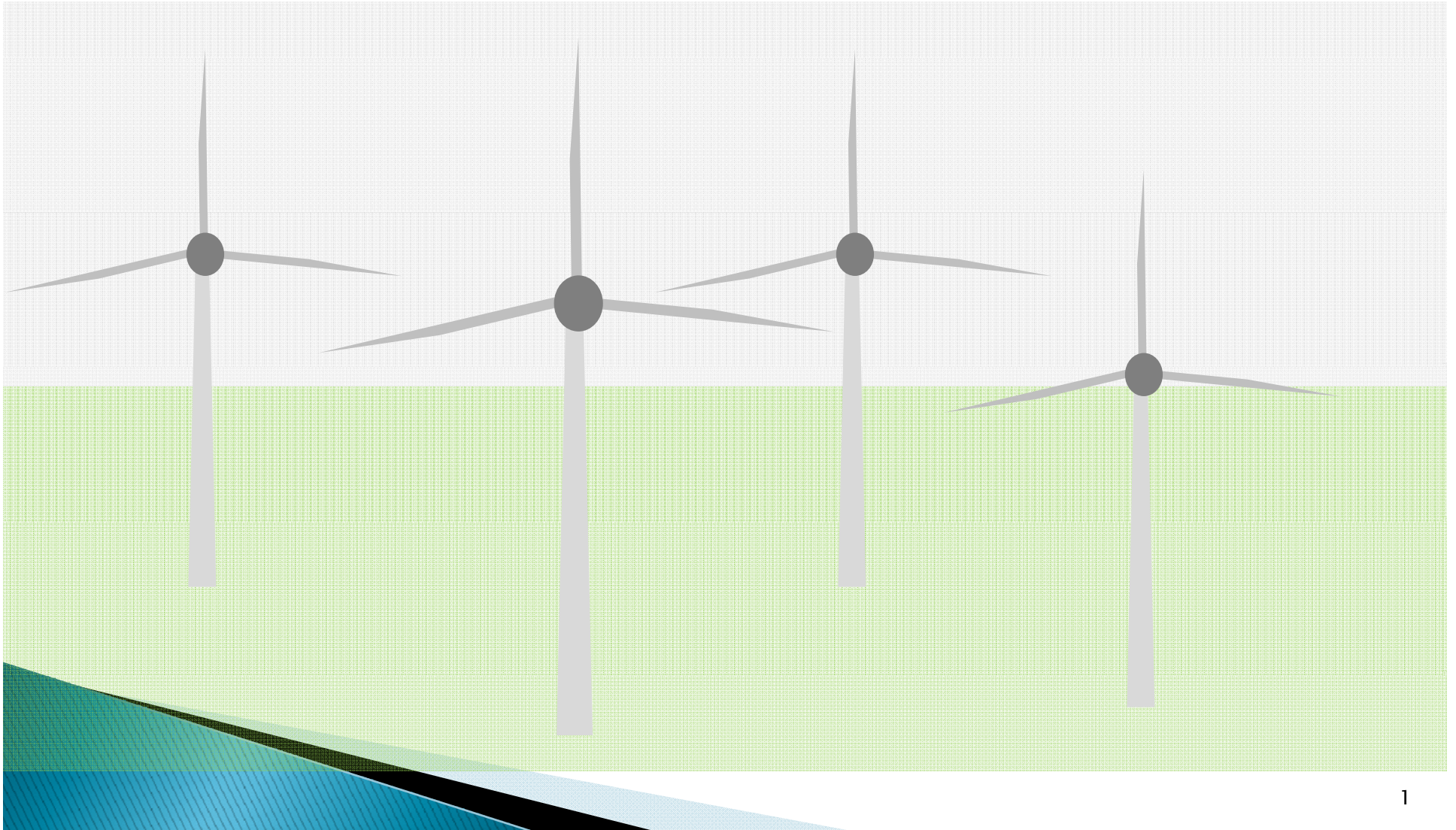
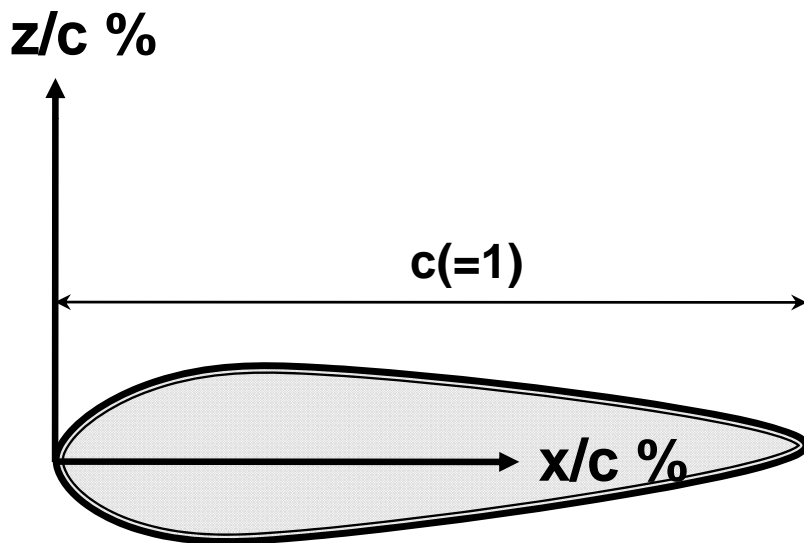


Wind Farm Animation: Problem Definition



Wind Farm Animation: Blade Cross Section

*NACA 0015 Basic Thickness Form**



$x/c \%$	$z/c \%$
0	0.000
0.5	0.000
1.25	2.367
2.50	3.268
5.00	4.443
7.50	5.250
10	5.853
15	6.682
20	7.172
25	7.427
30	7.502
40	7.254
50	6.617
60	5.704
70	4.580
80	3.279
90	1.810
95	1.008
100	0.158

*Theory of Wing Sections by Ira H. Abbott & Albert E. Von Doenhoff, Dover

Wind Farm Animation: Blade Geometry

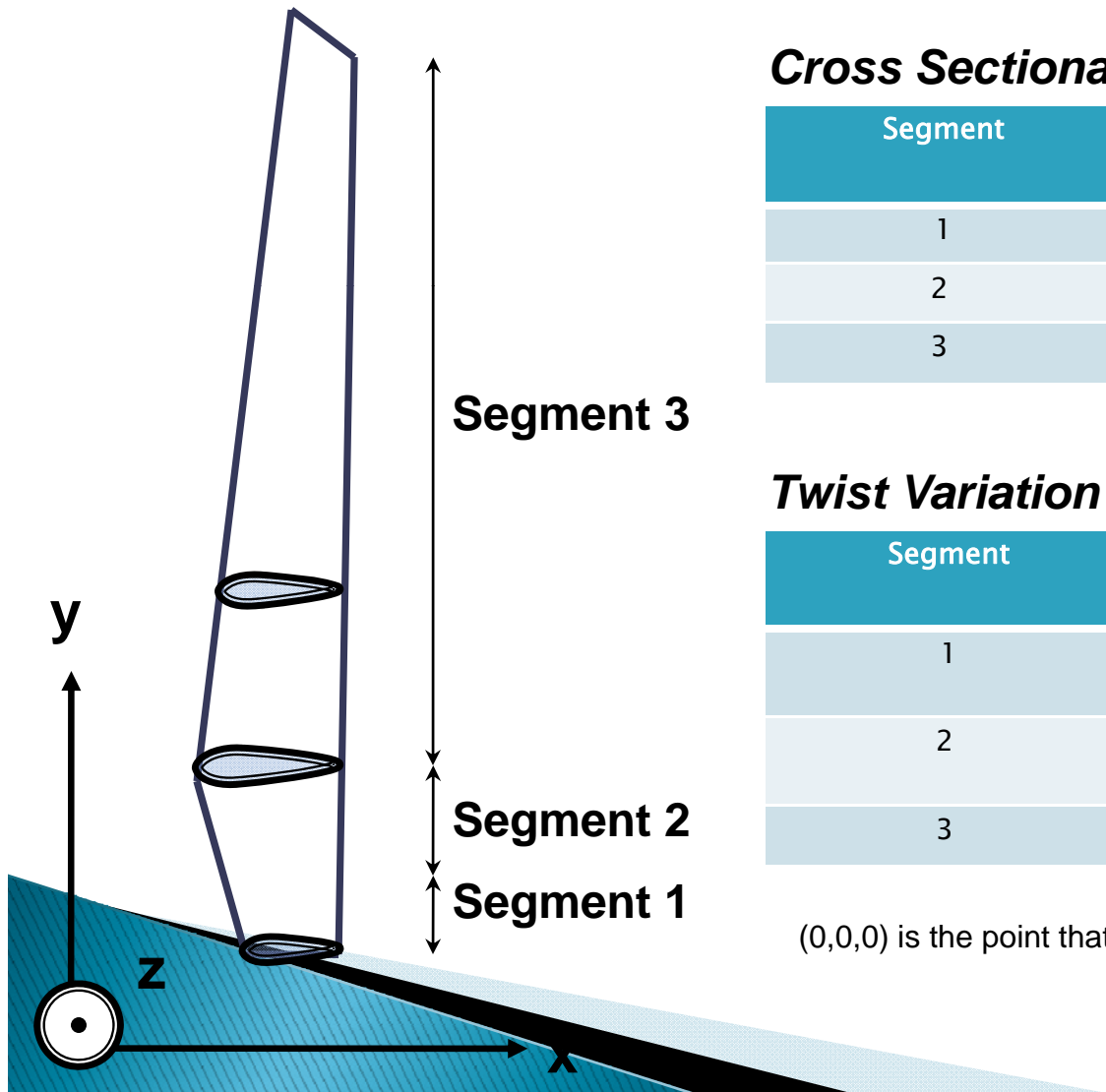
Cross Sectional Variation Along Length

Segment	Length	Cross Section Scale
1	1-100	[1 1] to [2 2]
2	100-300	[2 2] to [1 1]
3	300-1000	[1 1] to [0.5 0.5]

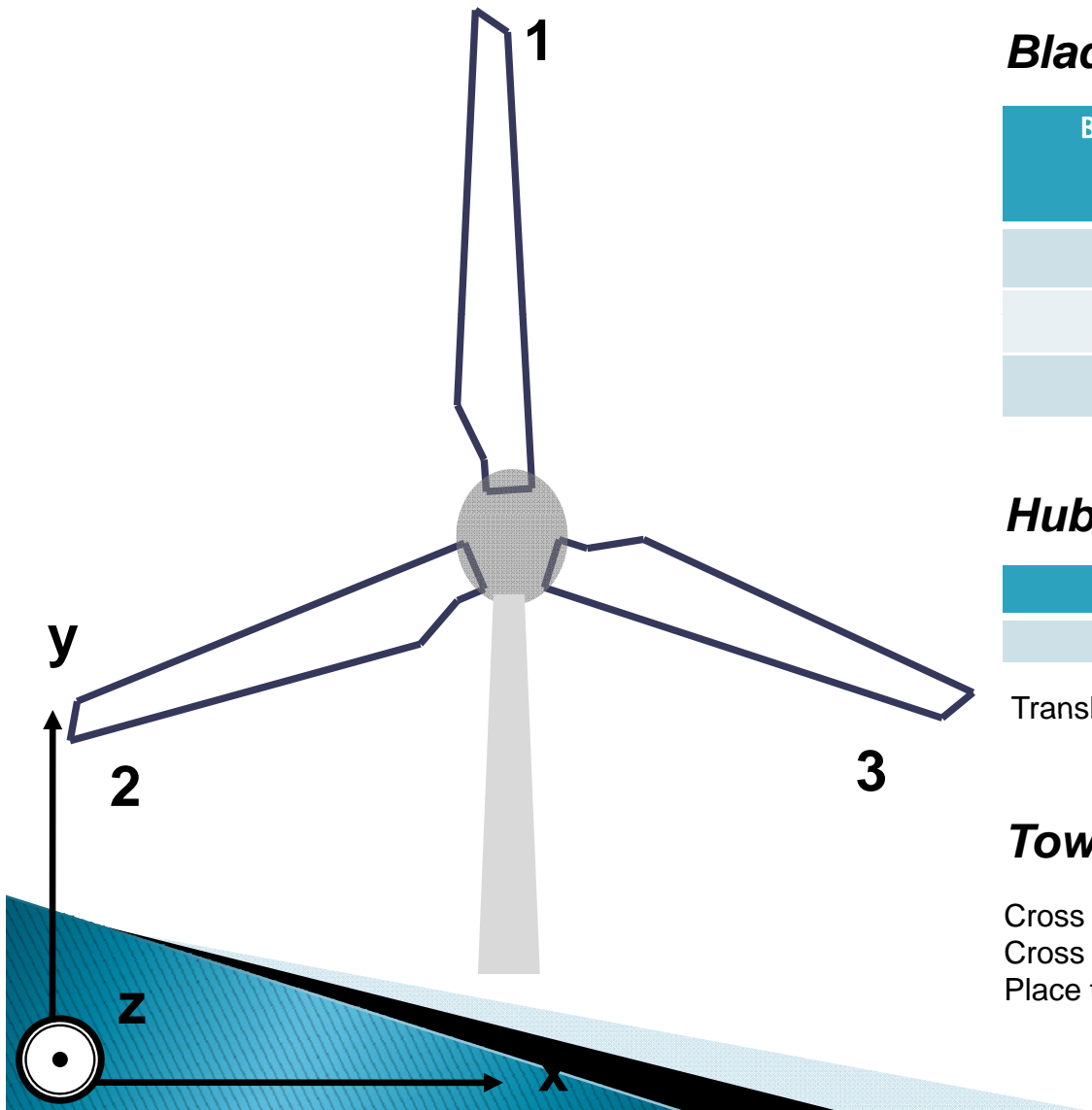
Twist Variation Along Length

Segment	Length	Cross Section Twist
1	1-100	Around y-axis: 60 to 30 deg
2	100-300	Around y-axis: 30 to 0 deg
3	300-1000	Around z-axis: 30 deg

(0,0,0) is the point that remains invariant under translations and rotations



Wind Farm Animation: Wind Turbine



Blades 120° Apart on 80 Unit Radius

Blade	Translation	Rotation (around Z-Axis)
1	[0 80 0]	0
2	[-40 -69.28 0]	120
3	[40 -69.28 0]	-120

Hub: Ellipsoid

a	b	c
105	105	415

Translate 140 units along the negative Z-axis

Tower: 1700 unit long

Cross section varies from [1 1] to [1.2 1.2]

Cross section at the bottom is a circle of 60 units

Place the tower behind the blades at [0 , -1700, -275]