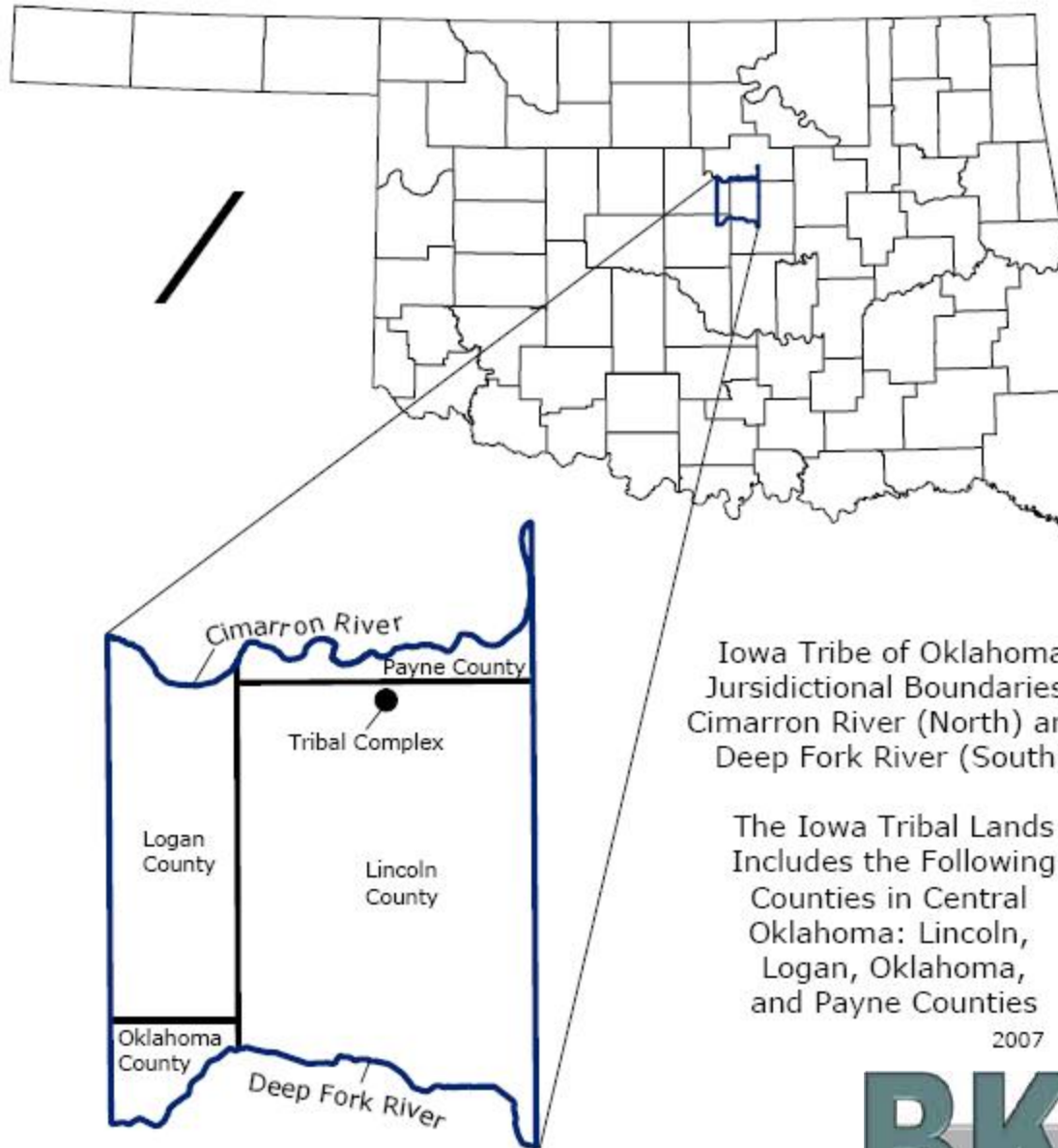


ORGANIZATION

- Iowa Tribe of Oklahoma
 - Ø Federally Recognized Indian Tribe
 - Ø Central Oklahoma (between OKC & Tulsa)
 - Ø Strong Commitment to Energy Efficiency & Renewables
- BKJ Solutions, Inc.
 - Ø Tribally Owned Construction Company
 - Ø Construction with USACE, IHS, BIA & Tribe
 - Ø Future Renewable Energy Development



Iowa Tribe of Oklahoma's traditional jurisdictional lands



Iowa Tribe of Oklahoma
Jurisdictional Boundaries:
Cimarron River (North) and
Deep Fork River (South)

The Iowa Tribal Lands
Includes the Following
Counties in Central
Oklahoma: Lincoln,
Logan, Oklahoma,
and Payne Counties

2007



FEASIBILITY GRANT

- Objectives

- Ø Conduct in-Depth Feasibility Study of Wind Energy

- Ø Identify & Address Technical Issues Related to Wind Energy Development

- Ø Land Access

- Ø Anemometer Siting

- Ø Interconnect & Transmission Opportunities



FEASIBILITY GRANT

- Objectives Cont.

- Ø Address Environmental Issues

- Ø Educate Stakeholders

- Ø Iowa Tribal Leadership

- Ø Iowa Tribal Members

- Ø Office of Environmental Services

- Ø Local Community

- Goal

- Ø Quantify Wind Resource Potential

- Ø Determine if Wind Farm is Option



BACKGROUND

- Tribal NREL Study
 - Ø 2001 Anemometer Study – 5 ms @ 20 Meters
 - Ø Collected Interesting, but Unusable Information
 - Ø Wind Estimated to be 7 to 8 ms at Hub Height
- 80m Met Mast
- Question: HUB Height, Site and SODAR
 - Ø What is Proper Height?
 - Ø What About SODAR?



NEW DIRECTION

- Discussed Options with Industry Experts
- Anemometer Site Changed Three Times
- HUB Height Changed from 80m to 60m
- SODAR
- Worked Through Changes with DOE
 - Ø NEPA, SOPO & Revised Budget
- Added New Team Member
 - Ø Johnson Controls, Inc.







B.K.J Solutions. Inc.



BKJ Solutions. Inc.



BKJ Solutions. Inc.



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B.K.J Solutions. Inc.



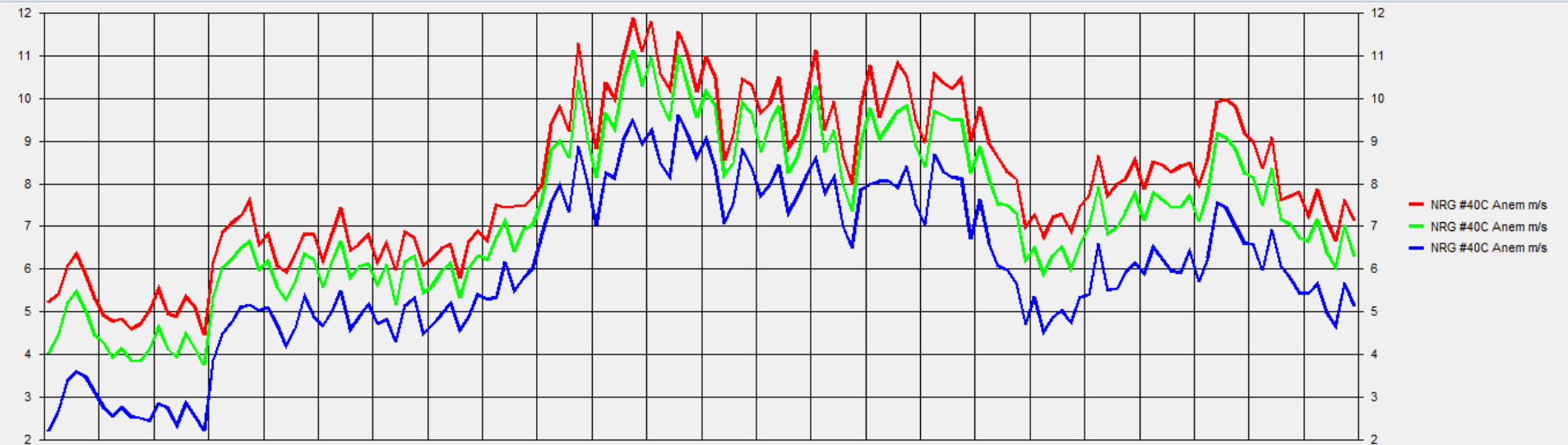
B.K.J Solutions. Inc.



B.K.J. Solutions. Inc.

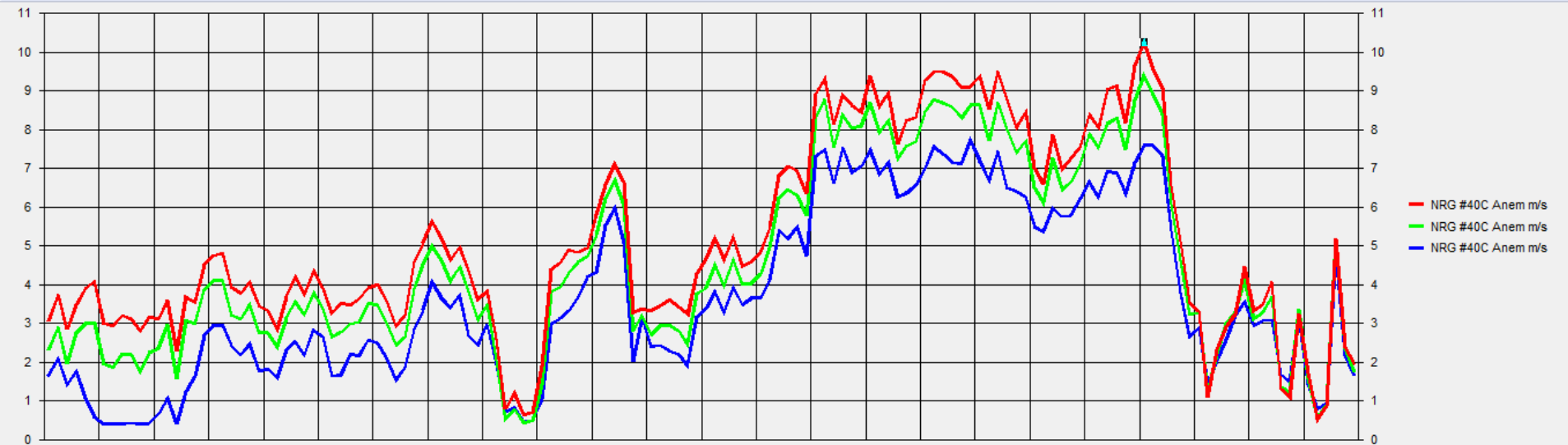


B.K.J. Solutions. Inc.



Averages	11/05/2011 15:00:00	11/05/2011 15:10:00	11/05/2011 15:20:00	11/05/2011 15:30:00	11/05/2011 15:40:00	11/05/2011 15:50:00	11/05/2011 16:00:00	11/05/2011 16:10:00	11/05/2011 16:20:00	11/05/2011 16:30:00	11/05/2011 16:40:00	11/05/2011 16:50:00	11/05/2011 17:00:00	11/05/2011 17:10:00	11/05/2011 17:20:00	11/05/2011 17:30:00	11/05/2011 17:40:00	11/05/2011 17:50:00
1 - NRG #40C Anem m/s	10.8	9.5	10.2	10.8	10.5	9.5	9.0	10.6	10.4	10.2	10.5	9.0	9.8	9.0	8.6	8.3	8.1	7.0
2 - NRG #40C Anem m/s	9.8	9.1	9.4	9.7	9.8	8.9	8.4	9.7	9.6	9.5	9.5	8.2	8.9	8.1	7.5	7.5	7.3	6.2
3 - NRG #40C Anem m/s	8.0	8.1	8.1	7.9	8.4	7.5	7.0	8.7	8.3	8.2	8.1	6.7	7.6	6.6	6.1	6.0	5.7	4.7
4 - No SCM Installed																		
5 - No SCM Installed																		
6 - No SCM Installed																		
7 - NRG 200P Vane deg	153	158	156	154	157	161	158	164	155	155	154	157	158	160	155	155	157	160
8 - NRG 200P Vane deg	160	165	163	161	164	167	167	171	163	163	163	163	165	166	162	161	164	167
9 - LI-COR Pyra W/sqm	404.9	316.7	177.2	142.1	154.7	175.6	332.2	282.4	199.8	145.5	106.5	64.6	23.2	13.8	7.1	2.1	0.1	0.0
10 - iPack Voltmtr V	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.1	13.9	13.9	13.8	13.8
11 - NRG BP20 Baro mb	975.0	975.0	975.0	974.8	974.8	975.0	975.0	975.0	974.6	974.4	974.4	974.4	974.1	974.4	974.4	974.1	974.6	974.6
12 - NRG 110S Temp C	16.4	16.6	16.5	16.2	16.2	16.4	17.1	17.6	17.1	17.0	16.8	16.6	16.2	16.0	15.7	15.4	15.3	15.1
13 - NRG #40C Anem m/s	10.7	9.6	10.2	10.8	10.5	9.6	9.0	10.5	10.3	10.3	10.4	9.1	9.7	8.8	8.4	8.3	8.1	7.0
14 - NRG #40C Anem m/s	9.8	9.1	9.3	9.6	9.8	9.0	8.4	9.6	9.6	9.5	9.5	8.3	9.0	8.0	7.4	7.4	7.2	6.2
15 - NRG #40C Anem m/s	8.2	8.2	8.1	7.8	8.2	7.6	7.1	8.7	8.3	8.3	8.1	6.9	7.7	6.5	6.0	5.9	5.7	4.8





Averages	11/07/2011 20:00:00	11/07/2011 20:10:00	11/07/2011 20:20:00	11/07/2011 20:30:00	11/07/2011 20:40:00	11/07/2011 20:50:00	11/07/2011 21:00:00	11/07/2011 21:10:00	11/07/2011 21:20:00	11/07/2011 21:30:00	11/07/2011 21:40:00	11/07/2011 21:50:00	11/07/2011 22:00:00	11/07/2011 22:10:00	11/07/2011 22:20:00	11/07/2011 22:30:00	11/07/2011 22:40:00	11/07/2011 22:50:00
1 - NRG #40C Anem m/s	10.3	9.6	9.1	6.6	5.1	3.5	3.3	1.1	2.3	2.9	3.2	4.5	3.3	3.5	4.1	1.3	1.1	3.2
2 - NRG #40C Anem m/s	9.4	8.9	8.4	6.1	4.6	3.2	3.3	1.2	2.2	3.0	3.3	4.1	3.1	3.3	3.7	1.4	1.2	3.4
3 - NRG #40C Anem m/s	7.6	7.6	7.3	5.4	3.8	2.7	2.9	1.4	2.0	2.6	3.2	3.5	2.9	3.1	3.1	1.7	1.5	3.2
4 - No SCM Installed																		
5 - No SCM Installed																		
6 - No SCM Installed																		
7 - NRG 200P Vane deg	155	161	181	278	306	284	290	154	258	119	271	257	152	320	301	179	183	131
8 - NRG 200P Vane deg	162	168	188	283	313	293	301	62	15	126	46	68	95	348	302	181	181	137
9 - LJ-COR Pyra W/sqm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10 - iPack Voltmtr V	13.7	13.7	13.7	13.7	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
11 - NRG BP20 Baro mb	976.4	976.6	977.0	977.7	977.5	977.7	977.0	977.2	976.8	977.2	976.8	976.8	976.6	976.6	976.6	977.0	977.2	977.0
12 - NRG 110S Temp C	20.4	20.4	20.5	19.6	17.5	16.0	15.0	14.8	14.7	14.7	14.8	15.1	15.2	15.1	15.1	15.1	15.1	15.0
13 - NRG #40C Anem m/s	10.1	9.6	9.0	6.5	5.1	3.5	3.2	1.0	2.2	2.8	3.2	4.4	3.2	3.4	4.1	1.2	1.0	3.2
14 - NRG #40C Anem m/s	9.3	8.8	8.4	6.1	4.7	3.2	3.2	1.3	2.2	2.9	3.2	4.1	3.1	3.2	3.8	1.3	1.1	3.4
15 - NRG #40C Anem m/s	7.6	7.5	7.3	5.4	3.9	2.7	2.9	1.5	2.0	2.5	3.2	3.6	2.8	3.1	3.2	1.6	1.4	3.0



TRITON[®]

SONIC WIND PROFILER



BKJ Solutions, Inc.

FINAL THOUGHTS

- Own the Vision / Make it the Tribe's
- Long Term Commitment / Education Key
- Gather Information from Multiple Sources
- Challenge the Information
- Anticipate Surprises / Nothing will Go as Planned or Budgeted
- Work with the DOE

Ø Supportive & Knowledgeable

Ø Have Patience

Ø Visit DOE in Golden, CO

