



DELTA CAPSTONE

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DELTA

Developing Energy Leaders Through Action

- Funded by North Carolina State Energy Office
- Administered by Institute for the Environment

Capstone role: observe & report on the achievements of the 12 DELTA interns' energy-related projects

- Reports and surveys
- Develop a monitoring framework
- Energy savings, greenhouse gas emissions reductions, and renewable energy production

SPRING 2011 DELTA INTERNS

UNC Wind Study

RTI (Research Triangle Institute)

UNC Energy Management

Progress Energy

Piedmont Biofuels

UNC Institute for the Environment

UNC Environmental Finance Center

Town of Chapel Hill



DELTA INTERNSHIP THEMES

Renewable energy

Management/organization existing and
new projects

Finances

Conservation

Building efficiency

Education

On- and off-campus projects

Feasibility studies

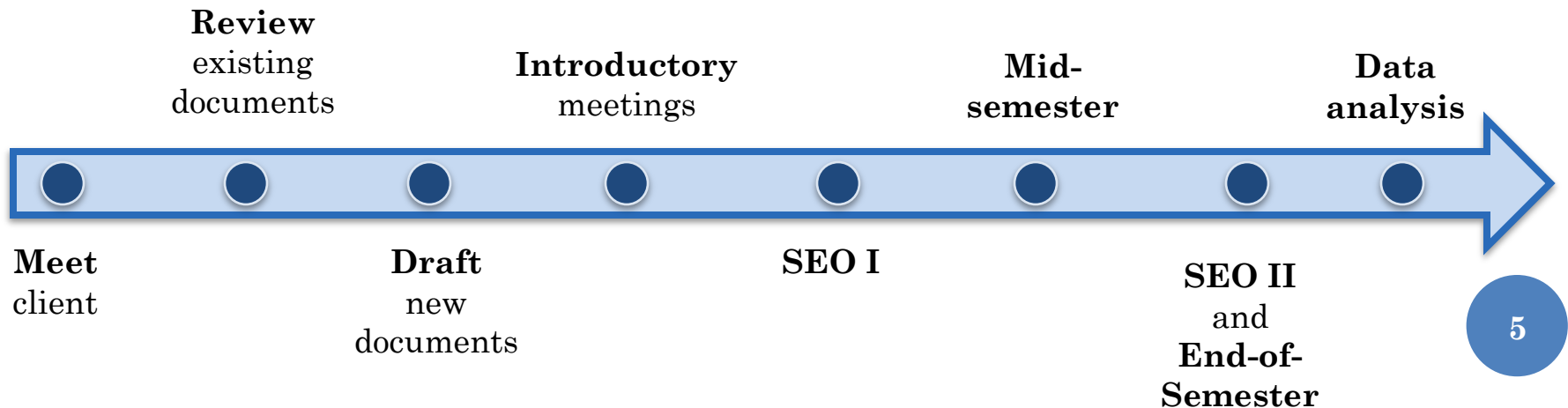


GETTING STARTED

Client meeting

Document review

- Fall 2010 capstone
- SEO quarterly reporting questions
- Intern workplans



METHODS

Number of technical assistance provided

Details of technical assistance provided

Number of expected people to attend workshops, training, and education sessions

Number of contacts

Number of audits performed

Floor space audited (square feet)

Auditor's projection of energy savings (kwh)

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- Met with interns
- SEO I
- Qualtrics
- Mid-semester
- SEO II
- End-of-semester

RESULTS: SEO

UNC Energy Management

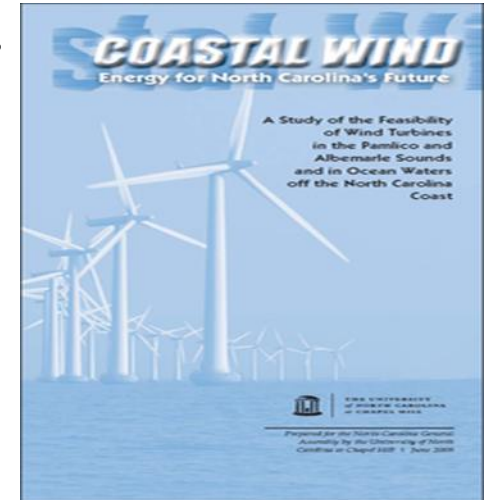
361 Safe-T Element installations *estimates* savings:

	Annual Energy Cost	Electricity (kWh)	CO2 emissions (Kg)	Payback period
UNC Energy Management	\$16,752.66	268,043	125,980	7.2 yrs

RESULTS: SEO

UNC Environmental Finance Center RESPC Revolving Fund *estimates*:

- \$150,000 investment with a \$600,000 savings
- electricity consumption reduction of 2,968MWh
- electricity demand reduction of 0.0169MW
- 20 year payback period



Town of Chapel Hill: 2010 Energy and GHG inventory for municipal operations; \$8,051 in avoided annual costs

UNC Wind Study: retrieved *in situ* data from 13 offshore monitoring stations

OTHER ACTIVITIES

UNC Energy Management

- Undergrads: EPA competition; X-treme Energy Teams
- Graduate: Duke rebate program; life cycle cost analysis; comparison/ranking



Energy Management Team
(Holly Kuestner presentation)

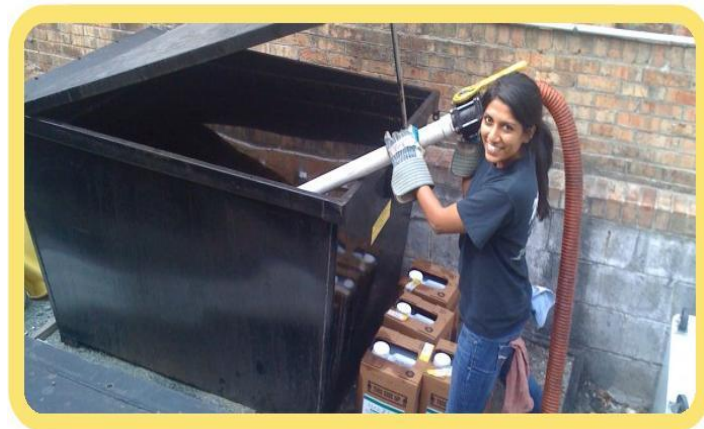
OTHER ACTIVITIES

Piedmont Biofuels: efficient WVO collection routes and database; workshops

Town of Chapel Hill: programmable thermostats; historical data; energy management program

Progress Energy: trainings and organizing for EnergyWise employee transition

Piedmont Biofuels,
Naomi Fernando



RESULTS: IMPACTS

RTI: rethinking possible uses for Brownfield sites; pursuing project with Cherokee Investment Partners

UNC Energy Management: efficiency of campus buildings; foster participation from students, faculty, and staff; pursue career in energy field

UNC Wind Study: estimating potential power output along NC coast; reinforced interest in environmental engineering

UNC Finance Center: student investment leads to energy and carbon savings

RESULTS: SKILLS AND KNOWLEDGE

UNC Energy Management: Life cycle cost analysis, energy efficiency engineering, understanding UNC energy systems

Piedmont Biofuels: management, consulting, data organization, grant administration

Across sites: financial structures, data collection and analysis, problem solving in real world work environment, presenting knowledge to others

RECOMMENDED FRAMEWORK

Clear language

Consistent terminology

Short introductory meeting with the interns

Detailed timeline of SEO reporting dates

Qualtrics

SEO and Qualitative separate from each other

ACKNOWLEDGEMENTS

Kathleen Gray- Environmental Resource Program,
Institute for the Environment

Elizabeth Shay- DELTA Capstone Coordinator

Lindsay Leonard- Institute for the Environment

Sarah Hatcher- Graduate DELTA Capstone Mentor

DELTA interns and mentors