



Nexus Energy Center

Community Energy Projects
February 2, 2011

Huntsville Regional Energy Initiative

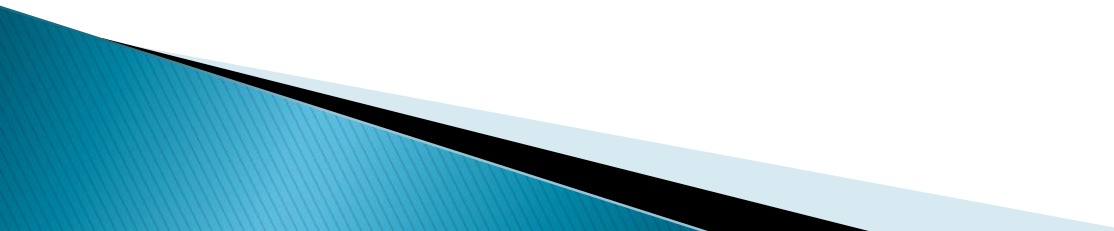
- ▶ Mayor supported initiative
- ▶ Advisory Group (Nexus, city, VCSI, Army corp)
- ▶ 6 focus areas
 - Facilities installation (Redstone)
 - Energy Production
 - Tech Validation/Underwriters Lab
 - Research and Tech Transfer
 - **Community Energy Management (Nexus lead)**

Community Energy Management

- ▶ Projects to showcase progress in
 - energy efficiency (2 in progress)
 - renewable energy (1 in progress)
 - energy storage
 - energy transmission
- ▶ Projects can be for various audiences
 - Residential
 - Commercial
 - Military
 - Schools/Universities
 - Municipal

Energy Survey Program

- ▶ Nexus and Huntsville Utility team up
 - ▶ Funded by HU and Nexus SEEA grant (ARRA \$)
 - ▶ Homeowners get audit (free)
 - ▶ Rebates/coupons apply to implementation of energy efficiency measures in the home


 - ▶ Launched Jan 2011
 - ▶ Open to any single family home
 - ▶ Call HU if interested
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Drake State “Green Skills”

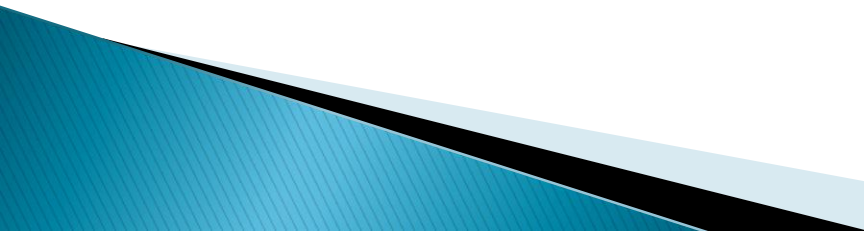
- ▶ Nexus, Drake and partners team up
 - ▶ Funded by ADECA SESP grant
 - ▶ 200 students trained in 24 months on various green skills
 - ▶ In curriculum development and training installation stage

 - ▶ Launch TBD (hoping Spring 2011)
 - ▶ Open to unemployed, veterans, students
 - ▶ Graduates to join Huntsville market
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AL, VA, MA, WA efficiency push

- ▶ Nexus, ADECA, and SEEA team up
 - ▶ Funded by DOE with direct allocation to Nexus
 - ▶ 2% homes retrofitted with some kind of energy efficiency
 - ▶ Details still to come (what community areas will we focus?)
 - ▶ Contract in March 2011 with SEEA
 - ▶ Summer 2011 begin projects
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Other Community Projects

- ▶ Schools and Academia
 - Schools interested in ESCO's for energy installations
 - Universities interested in joining Green Campus (UAH on board)
 - ▶ Commercial community energy outreach
 - ▶ Military/Installation energy applications
 - ▶ Community Renewable Demonstration projects
 - ▶ YOUR IDEAS??
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Funding?

- ▶ How do you fund community projects?
 - Line items in budgets (DOD)
 - Grants for demonstrations
 - SBIR phase II or III
 - City allocations
 - State allocations
 - Corporate contributions
 - Federal/State loan programs

Local Capabilities

- ▶ Nexus wants to understand technical capabilities of YOU!
- ▶ We collect quad charts on your capabilities
- ▶ We present these to interested vendors or federal requirements inquiries
- ▶ You follow on to demonstrate the value
- ▶ If you would like to submit a quad of your capabilities, email Ruchi Singhal at
- ▶ ruchi@nexusenergycenter.org

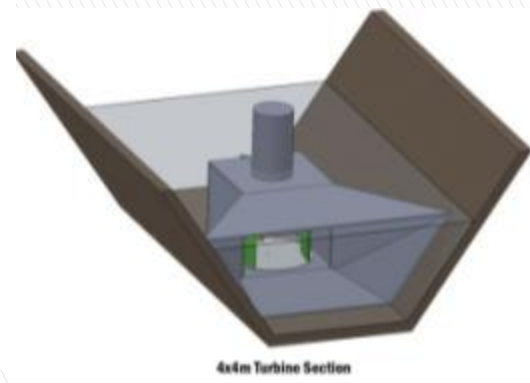
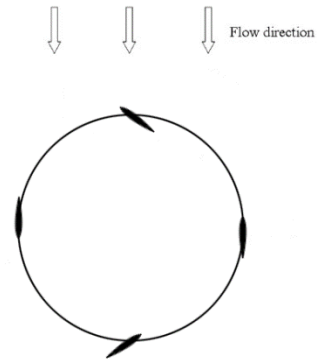
Hydrokinetic Cyclo-Turbine, 50kW Pilot Plant, follow-on 5MW Plant

Company: BRI (Boschma Research, Inc.), Jim Boschma, Huntsville, Alabama

POC: Nexus Energy Center
Ruchi Singhal, 256-539-6225



50,000 Watt Pilot Plant	River in Stream Energy Conversion (RISEC)
Boat mounted 50kW Cyclo-Turbines	1m x 2m vertical mount turbines
Three 20kW generators	Submerged near north shore line of Tennessee River
Power output interfaces directly to existing power Grid at RSA	Automated Monitoring and integrated safety system



Operational Capabilities

- Minimal Infrastructure required
- Flow accelerator for enhanced power production
- Vertical or horizontal installation for shallow or deep waters
- Debris guards included, flood stage inlet closure
- Safety features preclude injury to people, animals, and fish

Proposed Technical Approach

- Task 1: Permits
FERC, USACE, AL Dept of Conservation & Natural Resources, AL Dept of Fish & Game, USCG, TVA
- Task 2: Integrated turbine/generator and vessel design
- Task 3: Build, Deploy & Operate
Turbine fabrication, power generator integration
Installation and operations W/automated alerts
- Task 4: Reports and Plans for Phase 2, 5 MW plant at RSA
Performance reports and projections from pilot plant

NOTE: DOE Power Purchase Agreement (PPA) – No upfront Capital Cost for RSA, payback from power produced by the installed system

ROM Cost and Schedule for Pilot Project

	Period of Performance	ROM Prep	ROM Operate
Task 1:	Permits	\$12,000	N/A
Task 2:	Environmental Survey	N/A	N/A
Task 3:	Build, Deploy & Operate 24/7/8 months- Reports	\$185,000	\$48,000
		\$200,000	\$48,000

Deliverables

- Pilot system within 120 days w/full system test completed
- SPARES for duration of pilot operation
- Training for operations/maintainers & 8 month operations
- All reports and documentation relevant to O&M
- 5MW plant plan for DOE PPA application

Next meetings

- ▶ February 25 – Symposium on Future of City
 - Knight Center at A&M – 7:30am – 2:30pm
 - TOWARDS PROGRESS, PROSPERITY, AND SUSTAINABILITY FOR NORTHERN ALABAMA
 - ▶ HASBAT – Huntsville association small business in advanced technologies
 - Nexus now honorary member
 - Promote small businesses in the area
 - ▶ Feb 28 – March 4 – Lean Enterprise Certificate Series
 - Alabama Technology Network and UAH
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