November, 2011
Fuel for America
Jobs for Southside

Coles Hill Uranium
Deposit Location – Pittsylvania County, Virginia

• Discovered in 1978
• Of Undeveloped Resources
  • Largest uranium resource in US
  • 7th largest in the world
• Mining Regulated by States
• Milling and Tailings Regulated by Federal NRC
• What is Uranium?
  • Heaviest naturally occurring element
  • One of the most common elements on earth
    • Average Seawater ~ 2-4ppb U
    • Average Granite ~ 2-4ppm U
    • Average Coles Hill Ore ~ 600ppm U
    • Average backyard has ½ lb of U
• Primary fuel for nuclear power plants
• Safer to transport than common fuels
Virginia's Nuclear Heritage
- Dominion (North Anna & Surry)
  - 4 Nuclear Reactors
  - Provide 36.3% of Virginia's Power
- Babcock & Wilcox (Lynchburg)
  - Military Fuel Fabrication
  - IST mPower reactor facility, Bedford VA
- AREVA (Lynchburg)
  - Commercial Fuel Fabrication
- Naval Fleet in Norfolk
- Nuclear Engineering Curriculum
  - Old Dominion, Virginia Commonwealth, Virginia Tech
- All need FUEL = Virginia Uranium
  - 119 million lbs of Resources

Virginia's Mining Heritage
- Colonist began mining in 1609
- First US Coal mine in Richmond 1748
- 400 different minerals found and
  - 30+ different minerals produced in Virginia
- Annual value of nearly $2 billion
- 10th largest producer of coal
- 5th largest producer of crushed stone
- Home to many prominent mining companies
  - Alpha Natural, Luck Stone
- One of four companies to manufacture 400 ton mining trucks
  - Liebherr, Newport News
- Virginia Tech Mining Engineering & Geosciences

North Coles Hill Deposit
South Coles Hill Deposit
Site Office
Core Shed

North
Energy Independence

- Coal – Net Exporter
- Natural Gas – 16% Imported
- Oil – 57% Imported
- Uranium – 92% Imported

- Virginia is 2nd only to California in amount of energy imported

Energy Equivalent

- 119 Million lbs Uranium
  - VA reactors use 1.6 million lbs/yr
    - Supply 36.3% of Virginia’s Power
    - Over 70 years worth of Virginia’s existing demand
  - US Reactors use 55 million lbs/yr
    - Supply 20% of US Power
  - 119 Million lbs Uranium
    - 1.19 Billion tons of Coal
    - 3.7 Billion barrels of Oil
    - 22 Trillion cubic feet of Natural gas

- Single Largest Energy Resource in Virginia

1 lb. Uranium = 31 Barrels Oil = 10 Tons Coal

Source: US EIA
From 1950 - 1983 the US was the largest producer of uranium.
The US is currently the largest importer of uranium.

- Coles Hill Water
  - 110 million gallon/year water requirement
  - 158 million gallon/year treatment plant
Tailings will be placed both in the mine space, as backfill, and in impoundments.

Nuclear Fuel Cycle

- Natural Mining
- Milling
- Conversion
- Enrichment
- UF₆
- UO₂
- Fuel Fabrication
- Reprocessing
- Power Plant
- Electricity
- Spent Fuel Storage
- H & W
- US Navy
- North Anna and Surry, VA
- Lynchburg, VA
- Paducah, KY
- Eunice, NM
- Metropolis, IL
- Ground water monitoring wells
- UF₆
- U₂₃₅
- U₂₃₈
- Nuclear Fuel Cycle
- Fuel for America

Virginia Uranium Inc.
Engine of Economic Growth

- Potentially ~$140 million/year in revenue
  - 1,300 Pittsylvania County Farms have $63 million/year in revenue
  - Billions of dollars in revenue

- Capital Expenditures
  - $173 million – Initial
  - $350-400 million – Total
  - 250-350 construction jobs to build facility

- 325 Direct Employees
  - Average salary ~ $65,000
  - 30-35 year mine life
  - Unemployment ~15% in Southside

- Potentially $6 MM/yr in (4%) excise/severance taxes
  - Stay in surrounding localities for:
    - Agriculture, conservation, economic development, education

- New business start-up: 1:6 spin off
  - Direct and indirect annual economic benefit
    $240 - $300 million

Examples of Uranium Mining & Milling
Elliot Lake, Canada

- Huge ore body of uranium was discovered in early 1950s
- For the next 40 years, produced most of the world's uranium
- Last 5 mines closed in 1990’s
- Between retirement living, tourism and some logging, the area is thriving

East Coast Phosphate Uranium Production

- **Florida**
  - About 20% of US uranium production came from central Florida deposits to the mid 1990’s
  - Historically up to six operating production facilities
  - 1981-1992 production averaged over 2,000,000 lbs/year U3O8 [www.world-nuclear.org](http://www.world-nuclear.org)
  - 2,000,000 lbs/yr is similar to the amount VUI proposes to produce

- **Louisiana**
  - Uncle Sam and Sunshine Bridge facilities in Louisiana
  - Processed ore from Florida phosphate mines
  - Combined production of 950,000 lbs U3O8 in 1997
    - Accounted for ~16% of US uranium production in 1997 ([UI News Briefing](https://ui-library.hub.univ.nov/98.49, Dec. 9, 1998))
  - Production ceased in 1999
Path of Hurricane Katrina and Uranium Recovery Facilities

Sunshine Bridge & Uncle Sam, LA
New Wales & Plant City, FL

Limousin France Agricultural Economic Impact
Department Results 2009
(Million USD)

Crop Production $161.84 $179.76 $196.39 $537.99 $49,330.35
Animal Production $253.73 $297.16 $311.64 $862.52 $31,102.22
Production Services $20.21 $22.79 $24.66 $67.80 $5,151.93
Subsidies on Products $53.61 $61.64 $57.48 $172.73 $3,288.40
Total $489.25 $561.35 $590.16 $1,640.76 $88,872.89

Rainfall* 38 in 43.5 in
Humidity* 78% 80%
Temperature* 43-77°F 39.78°F
Topography* 1,082 ft 670 ft
Main Agricultural Product Beef and Dairy Cattle Beef and Dairy Cattle
Population Density 171 people/sq. mile 64 people/sq. mile
Industrial Site of Bessines in 1978

- extraction shaft
- mining waste
- tailings
- ore treatment plant
- ore stock pile
- Bruegeaud's open pit

Industrial Site in 2001

- mining stripping recovering the tailing storage: Lavaugrasse
- water treatment plant
- mining stripping recovering the tailing storage: Bruegeaud open pit
- water collector
- Gartempe river
Uranium Mining Moratorium

- Per Virginia Code §45.1-274, Uranium exploration is permitted
- Per Virginia Code § 45.1-283 (1982)

“Notwithstanding any other provision of law, permit applications for uranium mining shall not be accepted by any agency of the Commonwealth prior to July 1, 1984, and until a program for permitting uranium mining is established by statute.”
Virginia’s Uranium Studies

1981: Virginia General Assembly approved House Joint Resolution No. 324 Requesting Virginia Coal & Energy Commission ("CEC") to evaluate uranium development.

1983: Uranium Administrative Group ("UAG") established in SB-155 that finds that a preliminary study “…has not identified any environmental or public health concern that could preclude uranium development in Virginia.”

1984: Recommendation by 16 of 18 (89%) UAG members “We conclude that the moratorium on uranium development can be lifted…”

2008: CEC creates uranium mining sub-committee to evaluate uranium development again.

2010: CEC engaged National Academy of Sciences ("NAS") for evaluation study.

2011: NAS study results expected any day.

Uranium Resources in Virginia World-Class Deposit

www.VirginiaUranium.com