

Murdock Capital - Hallgarten Co. Uranium Symposium

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November 30, 2010

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The Clark Griswold Effect

- The world is on the verge of an electrification effort that will require 5 decades; critical infrastructure components are in development.
- Domestic Supply Chain: Uranium mining, fuel fabrication, reprocessing, Gen III / IV nuclear technology plus MODULAR nuclear reactors are all essential components.

Its Electricity!!!!

“Because we take electricity for granted, it's sometimes hard to imagine that two billion people on our planet live without access to electric power. Yet history has shown that the supply of reliable, affordable electricity is an essential prerequisite to economic and social progress.

“The E7 is committed to promoting sustainable development through electrification and through projects to build human capacity in developing countries.”

E. Lin Draper – Chairman President and CEO AEP
April 2010

Why the Demand for Fuel?

- For the next 30 to 50 years the world must electrify.
- This means a focus on electrifying transportation which will require
 - smart electric grid development,
 - alternative energy sources,
 - advanced battery technology **and**
 - **NUCLEAR ENERGY.**

The Biggest Second Generation Nuclear Players

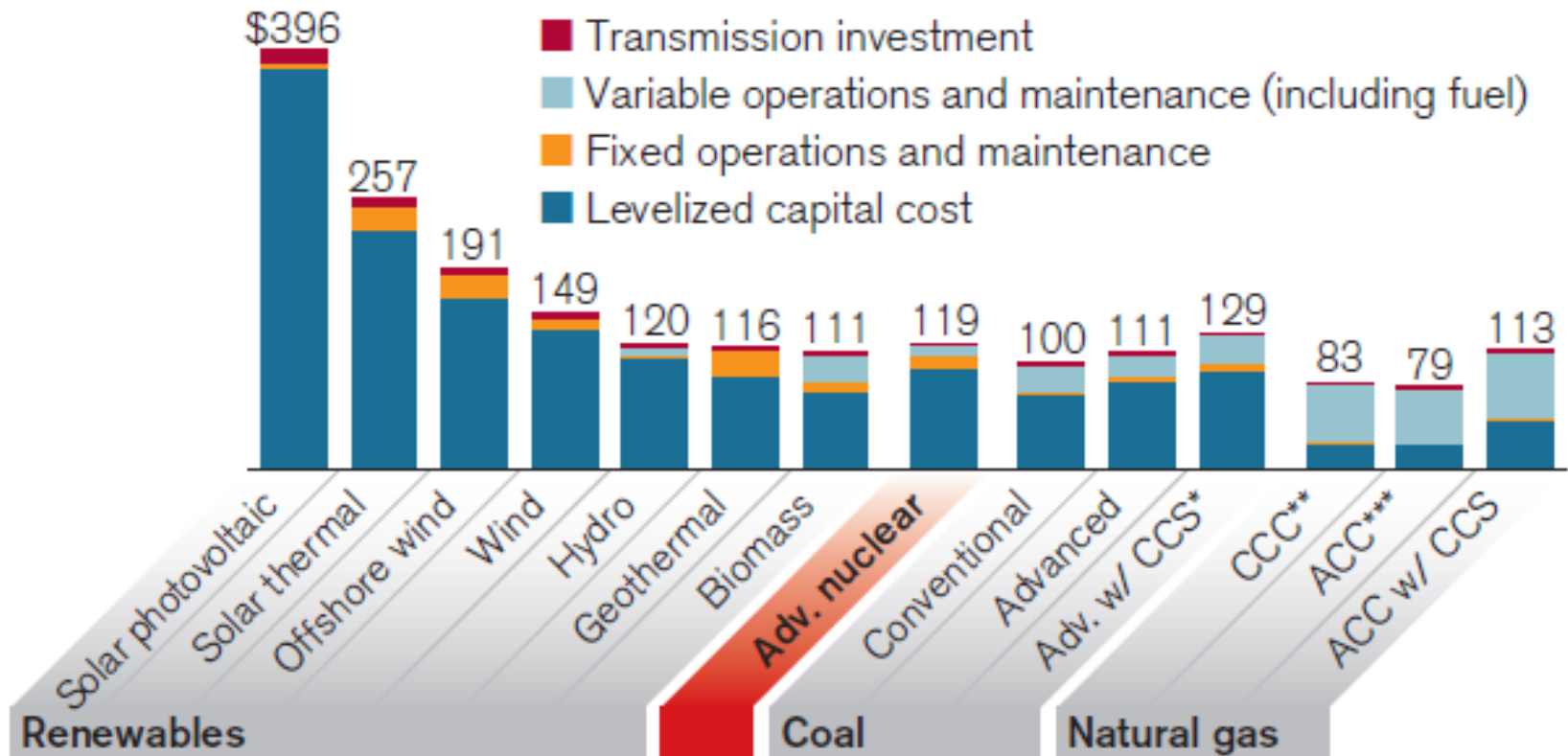
TOP 10 NUCLEAR-POWER-GENERATING COUNTRIES

RANK/ COUNTRY	ELECTRIC POWER GENERATED, 2009		REACTORS OPERABLE		REACTORS UNDER CONSTRUCTION		REACTORS PLANNED	
	Nuclear (billion kWh)	As a percentage of total electric gen.	Number	Total MW	Number	Total MW	Number	Total MW
1 United States	798.7	20.2%	104	101,216	2	2,234*	9	11,800
2 France	391.7	75.2	58	63,236	1	1,630	1	1,630
3 Japan	263.1	28.9	55	47,348	2	2,756	12	16,532
4 Russia	152.8	17.8	32	23,084	10	8,960	14	16,000
5 South Korea	141.1	34.8	20	17,716	6	6,700	6	8,190
6 Germany	127.7	26.1	17	20,339	—	—	—	—
7 Canada	85.3	14.8	18	12,679	2	1,500	4	4,400
8 Ukraine	77.9	48.6	15	13,168	—	—	2	1,900
9 China	65.7	1.9	12	9,624	24	26,550	33	37,450
10 Spain	50.6	17.5	8	7,448	—	—	0	0
World total	2,560.0	14	440	375,805	59	60,065	149	163,744

* Data for the U.S. is from the Energy Information Administration and was not included in World Nuclear Association totals as of August 2010.
Sources: World Nuclear Association (reactor data); International Atomic Energy Agency (generation)

Electrification: Clean and Base Load

AVERAGE LEVELIZED COST TO GENERATE POWER
(\$ per megawatt-hour in the United States)



* Carbon capture and storage; ** Conventional combined cycle; *** Advanced combined cycle.

Source: U.S. Energy Information Administration

The New Class of Strategic Minerals in the “New World” of Electricity

The world must now focus on acquiring secure supplies of:

- 1) Rare Earth Elements - motors and magnets
- 2) Lithium - batteries
- 3) Copper, Molybdenum, Tantalum, nickel and Vanadium
- 4) Graphite

And of course,

URANIUM

The Impact of Resource Nationalism on The Goal of US Energy Independence

- The U.S. spends \$70 Billion Each year **importing** Oil from Governments that are becoming Increasingly **Unfriendly**.
- **The US imports 92% of its uranium fuel needs**
- **The US /Russian Megatons to Megawatts program (500 tons of 90% enriched U₂₃₅) will terminate in 2013.**

The China Uranium Bottleneck (2020)?

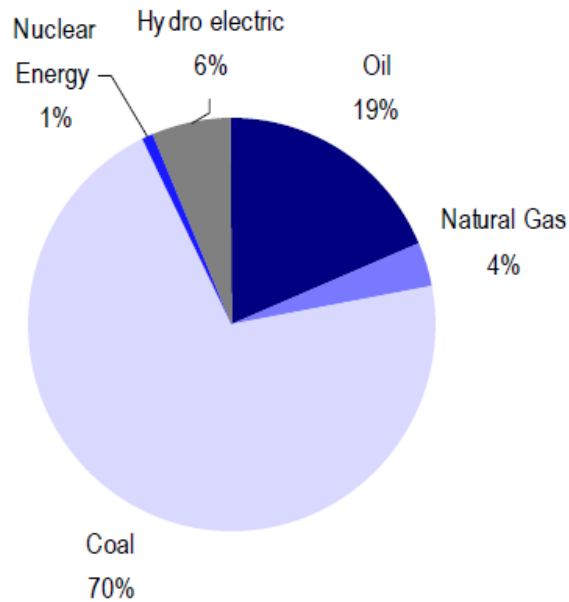
- China is expected to announce a new 2020 target of 70 GW of nuclear capacity, up from 11 GW at the end 2009. A fuel supply bottleneck could slow the pace of construction.
- "It's true there's a lot of uranium in China but it all relates to production costs and the price of uranium ... With a growth program that could take China to 80 GW by 2020, that gives them a uranium demand of something like 40 million lb. a year -- that requires a very large inventory."

CAMECO Vice-President Ken Seitz

November 25, 2010

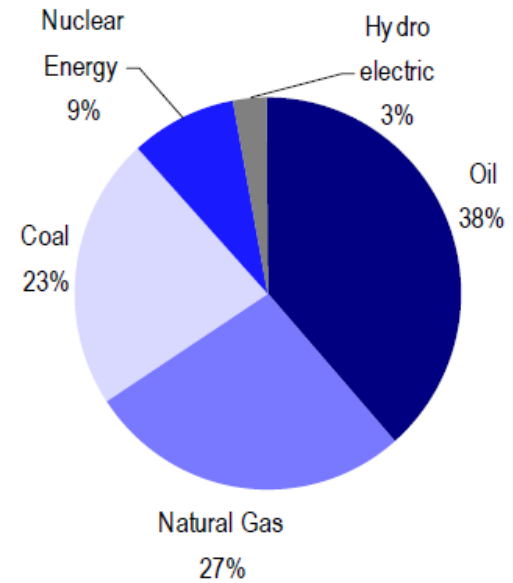
Demand Catalysts

Chart 3: China energy constituents in 2009



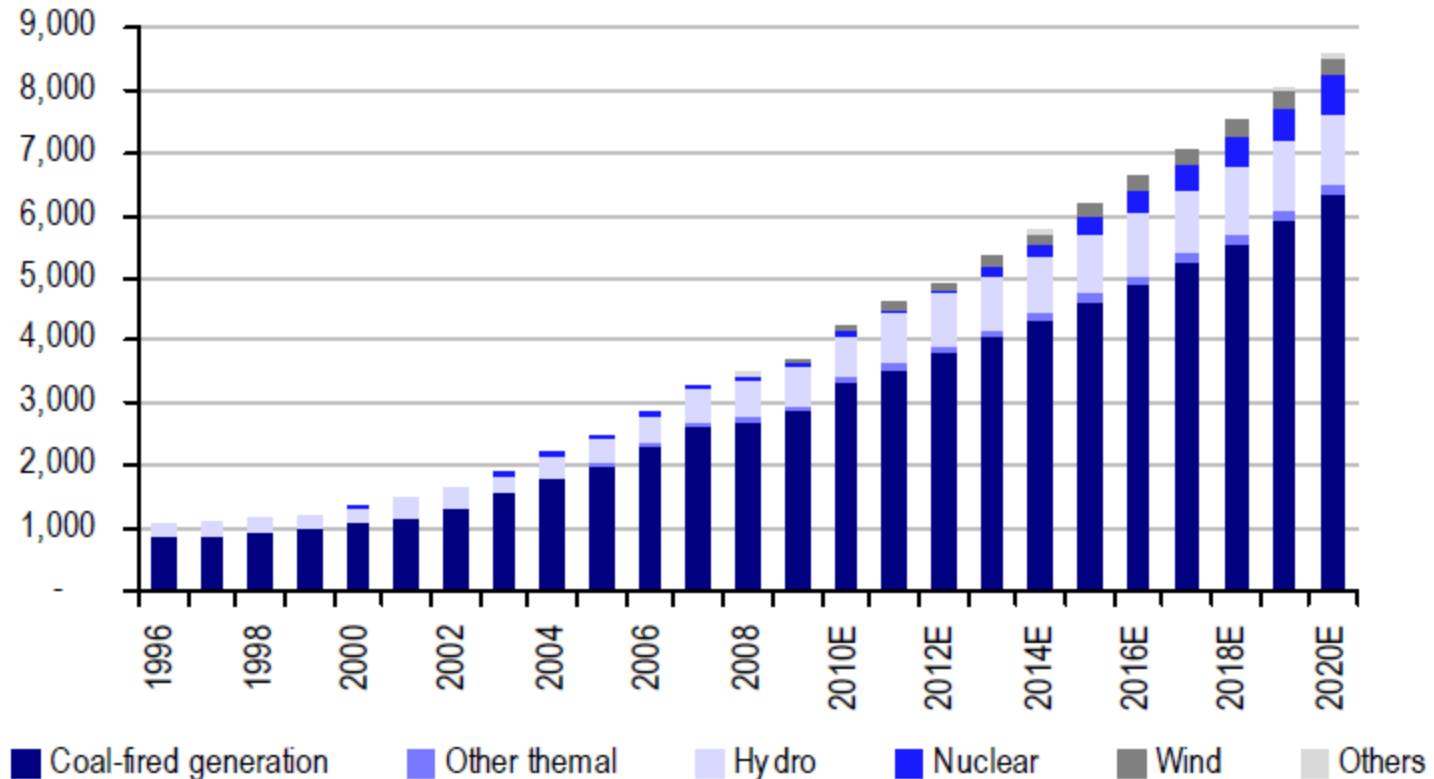
Source: BP Statistical Review 2010

Chart 4: US energy constituents in 2009



Source: BP Statistical Review 2010

China's Nuclear to Compound at 26 % Through 2020



Source: BP Statistical Review 2010, UBS China utilities research

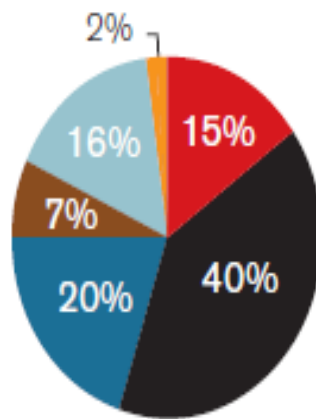
Blue Map Scenario – Nuclear Energy - 23% (driven by a 50% reduction CO₂)

GLOBAL ELECTRIC PRODUCTION

GENERATING TECHNOLOGY

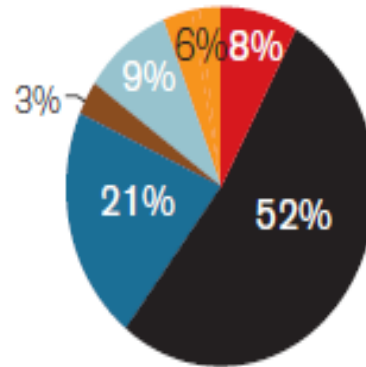
- Nuclear
- Coal
- Coal + CCS
- Gas
- Gas + CCS
- Oil
- Renewables
- Hydro
- All others*

2005

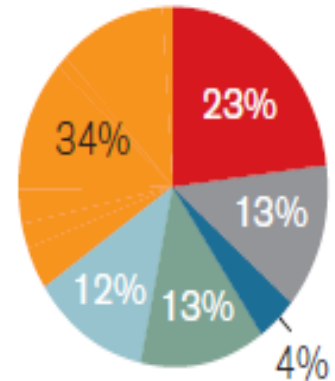


2050 (Projected)

Business as usual



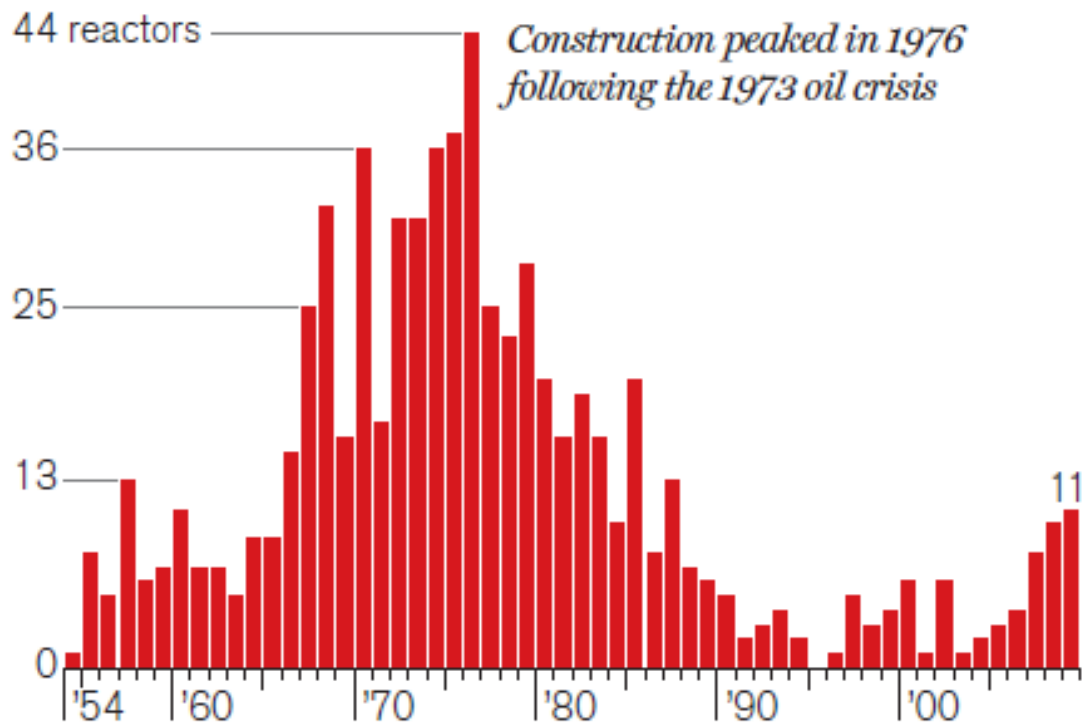
Blue Map scenario



*Includes wind, bio, geothermal, tidal, hydrogen, and solar. Source: International Energy Agency

The Renaissance

GLOBAL NUCLEAR REACTOR CONSTRUCTION
(annually, 1954–2009)



Source: International Atomic Energy Agency

Supply /Demand Dynamics

- 438 plants operating today consume 180 million pounds of uranium annually.
- The uranium industry produces ~ 140 million pounds per year.

Jerry Grandey CEO Cameco (9/29/10)

Once Again Supply / Demand Imbalances Forthcoming

- Planned nuclear expansion implies of **250 to 300 million pounds of global uranium demand each year by 2030.**
- Until about 2005 national leaders everywhere ignored uranium mine supply concerns as a result of nuclear warhead and HEU conversion.

Mined Uranium Production 2000 to 2010

- 2000 to 2003 static at **~93** million lbs.
- 2004 to 2008 averaged **108** million lbs.
- 2009 **125** million lbs.

Potential Overhangs on Uranium Mining

Highly Enriched Uranium from Nuclear Warheads

- Half the US electricity today is produced from down-blending HEU from Russian warheads
- Original project to run for 20 years (from 1993) to be extended through 2020.

Domestic MOX Processing of Spent Fuel Rods

- 3 plants in the US under construction / consideration.
- USEC/ Hitachi/ Babcock and Wilcox, Areva, GE

Facts and Figures on Highly Enriched Uranium Supply

500 Tonnes HEU equates to 15,000 tonnes LEU
~152,000 tonnes of Uranium

or about

2 years of uranium fuel demand today.

Source: World Nuclear Association, October 2009

A Supply Caveat

HEU supplies are finite ~ 2,000 tonnes

Under the 1994 Agreement, USEC recognized the need to release the diluted military uranium to nuclear utilities in such a way as not to impact negatively on the US uranium market.

Weapons Grade Supply

- Highly-enriched uranium in global military stockpiles amounts to ~ 2,000 tonnes, equivalent to about 12 years of CURRENT mine production (6 years supply at peak forecast demand).
- World stockpiles of weapons-grade plutonium are 260 tonnes. If used in MOX fuel in conventional reactors equivalent to ~ 1 year's uranium production.
- Military plutonium can be blended with uranium oxide to form mixed oxide (MOX) fuel or combined with thorium at 3 times the density of MOX.

Bottom Line on HEU Supply

- Four to eight years of weapons grade fuel supply versus a 40 year reactor life.

Conclusion

- Both conventional uranium and HEU inventories are being drawn down.
- US supply (50% of US demand) from Russian HEU ends in 2013. New Russian contract 2014 to 2020 to be approved?
- Through 2009 US electricity consumers paid Russia's Tenex \$8.5 billion for down-blending HEU warheads.

The Global Reactor Infrastructure Build is On (Everywhere Except the US)

- 487 reactors are now in various stages in 36 countries.
- 33% **more** in build, planned and proposed up from 360 reactors planned in 2008

	Current	Planned
• China	13	25
• Russia	8	16
• India	4	23
• Japan	1	13

The Original Megatons to Megawatts Treaty Ends in 2013

By 2013, 500 tonnes of Russia's highly enriched warhead uranium, the equivalent of 20,000 warheads, will have been recycled at a US consumer cost of \$12 billion:

Enough material to produce electric power for the United States for 2 years.

The View from Discovery Investing

Demand for Uranium natural resources will increase. Grade, tonnage and costs will determine the winners in the uranium mining game.

The US must now move to develop a domestic Uranium supply chain.

Tennessee Valley Authority (TVA)

Says nuclear energy has a 90-95 % efficiency rate - better than any power source it employs.

Spent \$1.8 billion to restart Browns Ferry Unit 1, which added 1,100 megawatts to the system. By 2013, it expects to expand generating capacity by 1,100 megawatts with Watts Bar Unit 2.

Plants were shut down in the 1980s.

Watts Bar 1 restarted in 2007, with a projected a 12-year payback which will be 6 years – money recovered from operating revenues as opposed to debt.

"Over the long run, nuclear is cheaper than coal ... Millions of dollars will be invested that will create high employment and clean power."

Gordon Arent, manager at TVA

If predictions are correct and electricity demand rises by 30 % over 25 years then nuclear energy's share of the generation mix will likely expand.

According to the U.S. EIA, to achieve carbon reductions of 80 % by 2050, electricity prices would rise 80 % during that time. If no nuclear or clean coal is used, those prices would climb by 200 %.

When You Analyze These 5 Discovery Investing Companies Consider 10 Discovery Points

- U308 Corp.
- Laramide.
- Strathmore Minerals, Inc.
- Titan Uranium Inc.
- Uranium Energy Corp.

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Ten Questions To Answer

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10. Can you exhibit self control, focus, patience and courage to sustain losses, and continue to invest?