
AREVA

Nuclear Energy, Environmental Sustainability and Economic Growth

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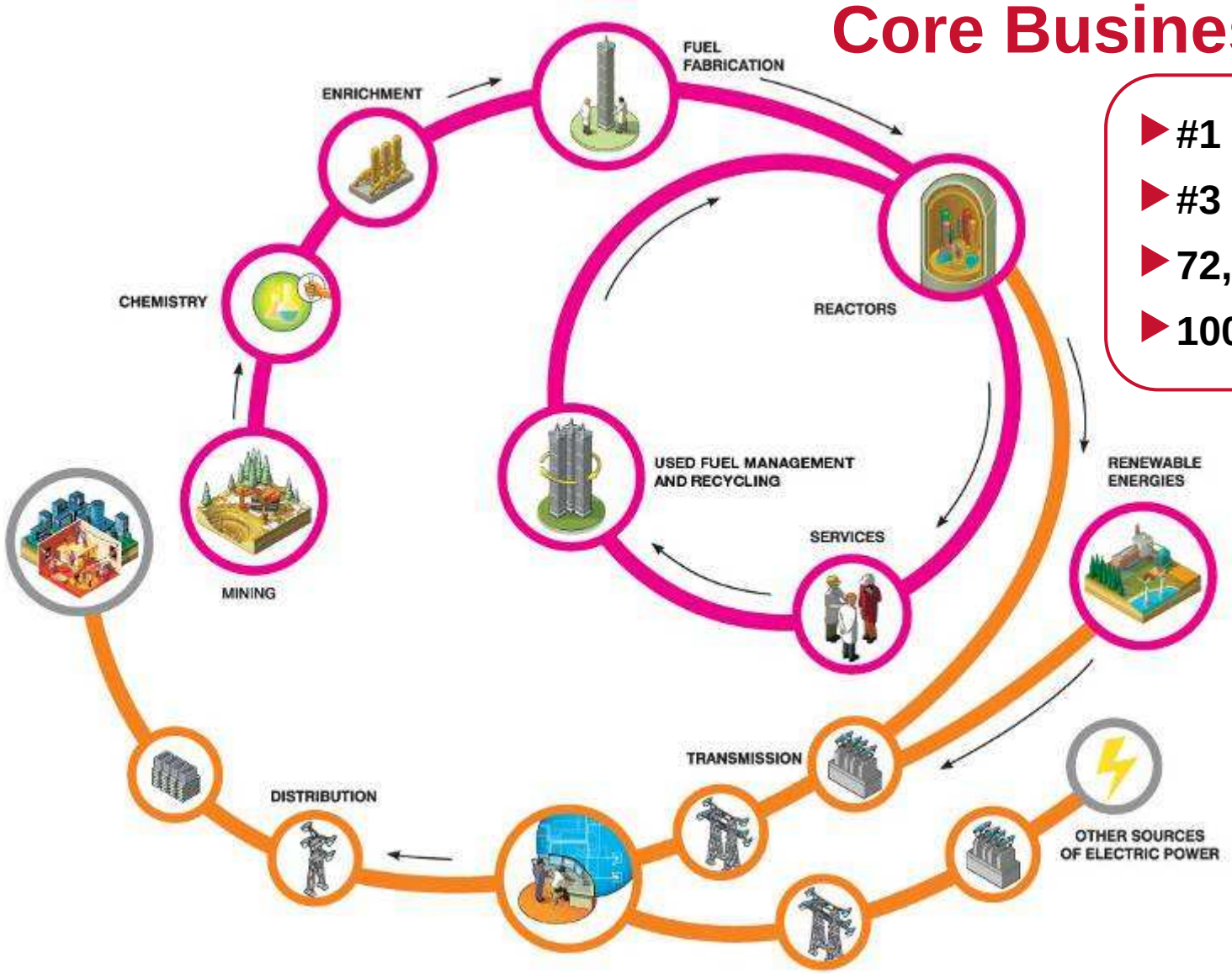
Chief Technology Officer, AREVA Inc.

Washington DC, February 7, 2011

About AREVA

AREVA…Carbon-Free Energy is Our Core Business



- #1 in Nuclear
- #3 in T&D
- 72,000 people
- 100 countries

Key data for 2008

BACKLOG	***€48.2B***	***+ 21.1%***
SALES REVENUE	***€13.2B***	***+ 10.4%***
OPERATING INCOME	***€417M***	***i.e. operating margin of 3.2%***
CONSOLIDATED NET INCOME	***€589M***	***i.e. €16.62 per share***
EMPLOYEES	***75,414***	***+15%***

Includes T&D- Divested 2009

AREVA's footprint in North America

- No. 1 supplier of nuclear energy products/services in N. America (and the world)
- N. American sales = $2.5 billion
- Major investments in progress
  - Enrichment facility in Idaho Falls
  - Large component manufacturing, Newport News
  - US EPR™ DC
  - Fuel manufacturing facilities
- 4 decades providing jobs and economic support to local communities across the U.S.

>6,000 Employees in 45 locations in U.S.

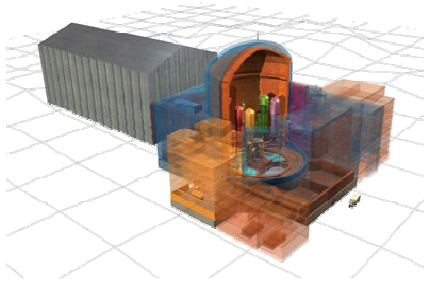
Plus >1,000 in Canada & Mexico

The AREVA Reactors Portfolio
Evolutionary Reactor Designs

OFFERED TODAY

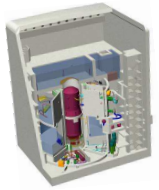
1600+ MWe PWR

EPR™ by AREVA



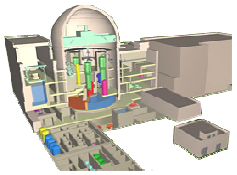
COMPLETING DESIGN

1200+ MWe BWR



KERENA by AREVA

1000+ MWe PWR



ATMEA1

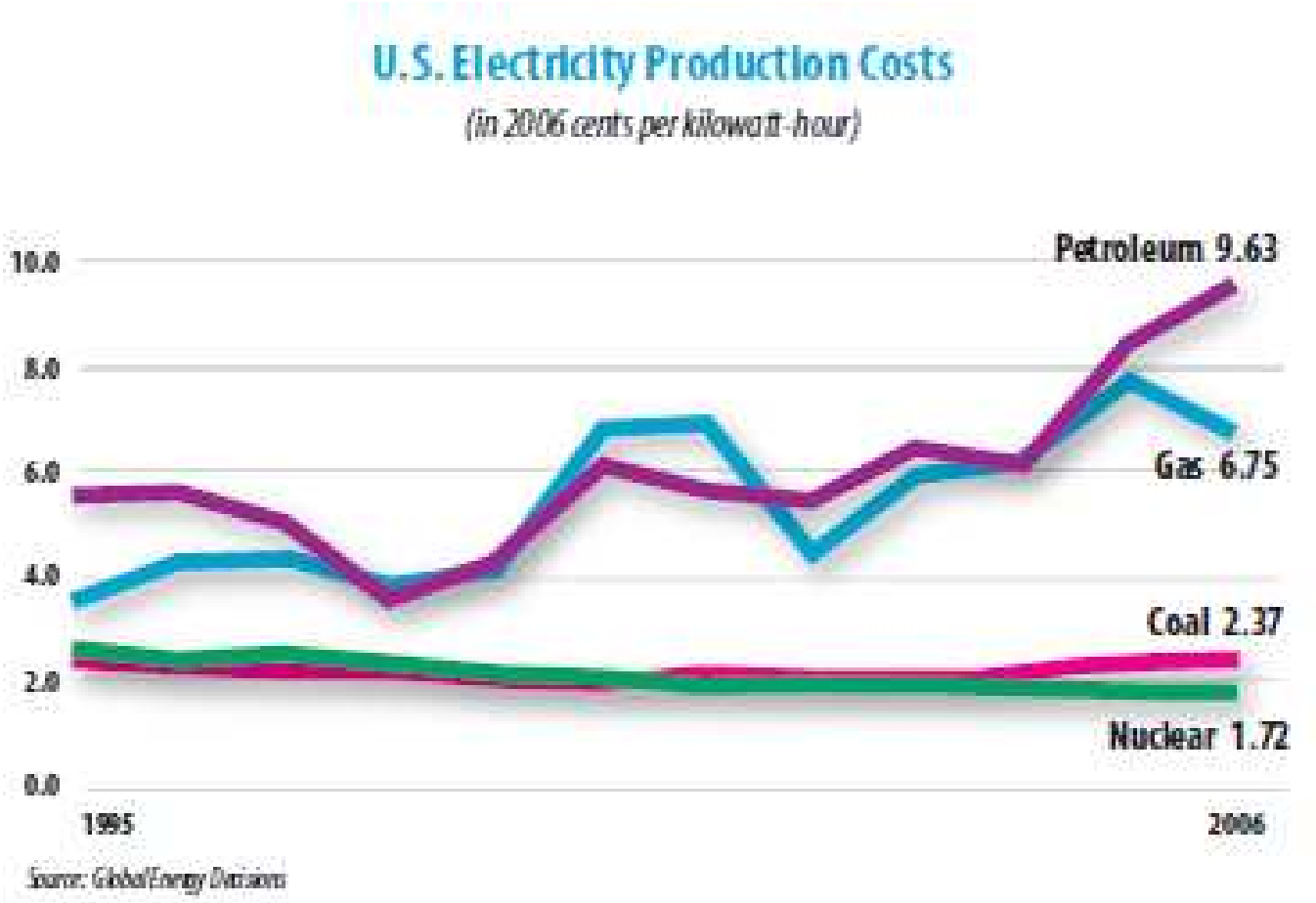
RESEARCH & DEVELOPMENT

- Generation IV
- Fast Breeders
- High Temperature

AREVA has the reactor range and expertise to meet diverse customer needs.

Current Role of Nuclear Power in the US

Cost of Current Electricity Generation



Nuclear power has the highest on-line availability in the industry

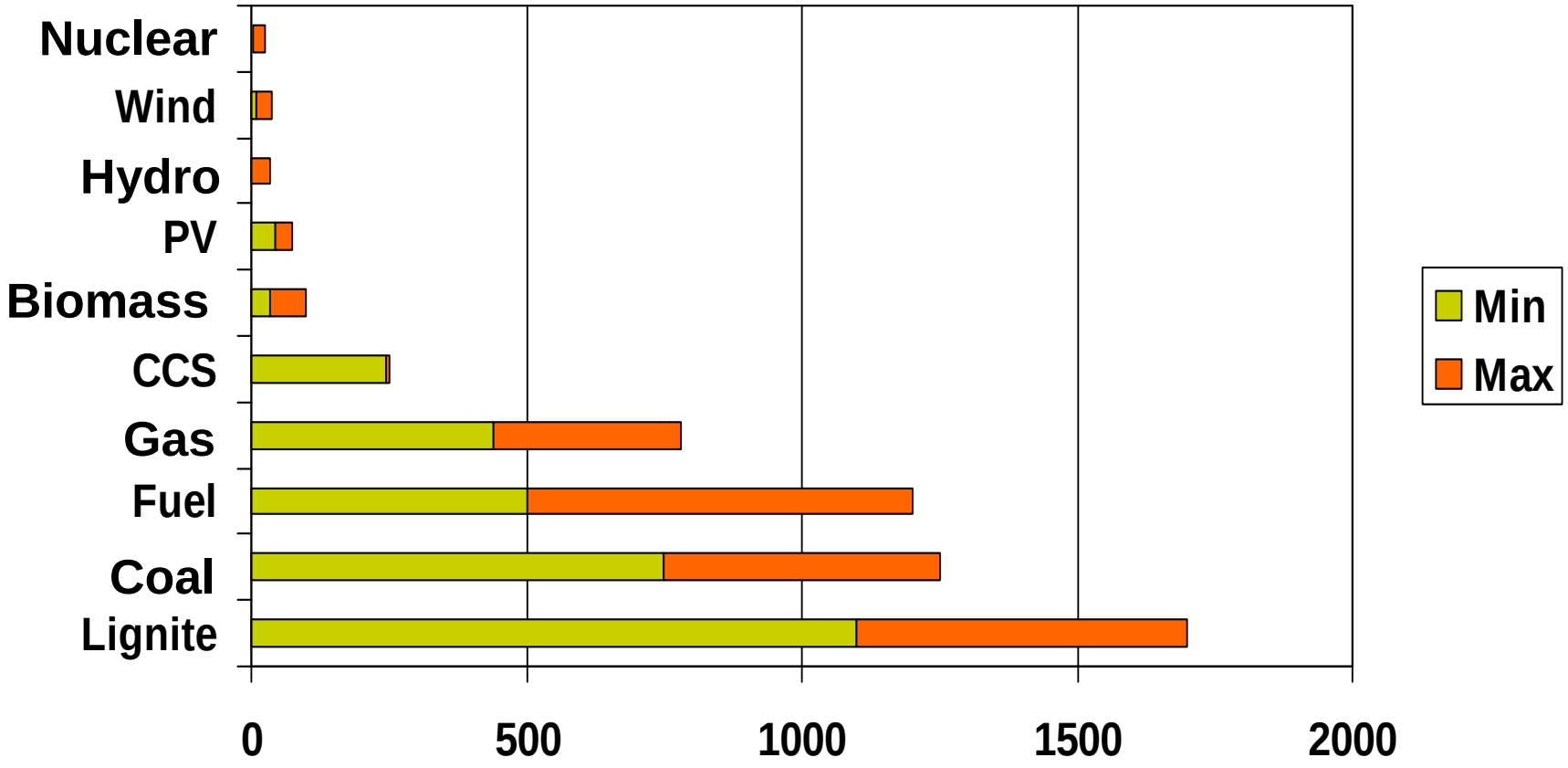
Fuel Type	Average Capacity Factors (%)
Nuclear	91.5
Coal (Steam Turbine)	70.8
Gas (Combined Cycle)	41.7
Gas (Steam Turbine)	14.6
Oil (Steam Turbine)	12.6
Hydro	27.4
Wind	31.1
Solar	21.1

Source of Table: Nuclear Energy Institute, www.nei.org

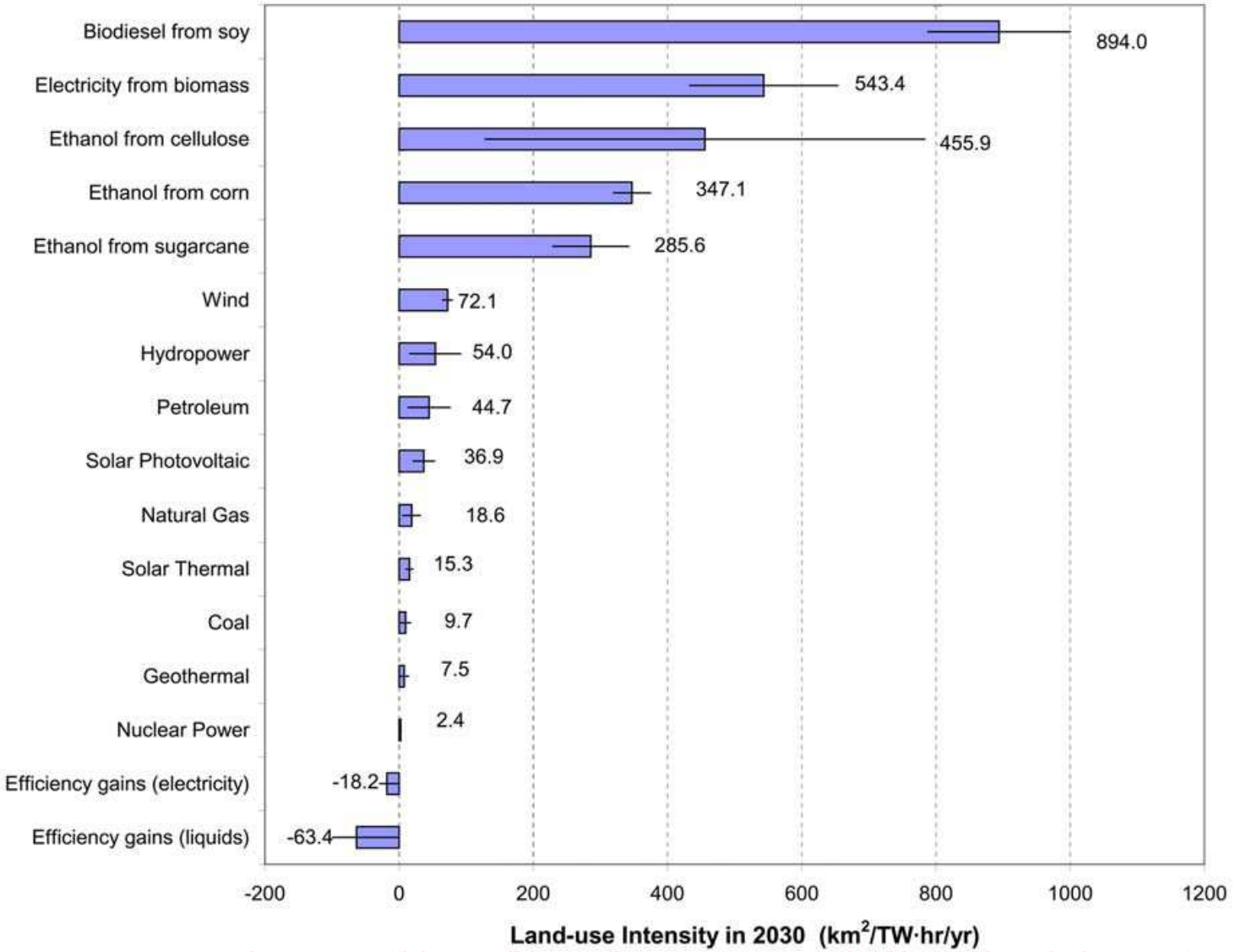
U.S. Capacity Factors by Fuel Type (2008)

Nuclear Energy has few CO_2 Emissions

CO2 emissions, g CO2 eq by kWhe *(The brackets show the differences between the various evaluation methods, thermal output, scopes…)*



Land Use



Source: **Energy Sprawl or Energy Efficiency: Climate Policy Impacts on Natural Habitat for the United States of America**
Robert I. McDonald1*, Joseph Fargione2, Joe Kiesecker3, William M. Miller4, Jimmie Powell5 – August 2009

Safety Comparison

Summary of severe* accidents in energy chains for electricity 1969-2000

--	OECD	--	Non-OECD	--
Energy chain	**Fatalities**	**Fatalities/TWy**	**Fatalities**	**Fatalities/TWy**
Coal	2259	157	18,000	597
Natural gas	1043	85	1000	111
Hydro	14	3	30,000	10,285
Nuclear	0	0	31	48

Data from Paul Scherrer Institut, in OECD 2010. * severe = more than 5 fatalities

Nuclear Power Summary

- Safest source of energy
- Most economical source of energy
- Most efficient use of land
- Most reliable source of energy
- Lowest greenhouse gas emissions

So, what should the future role of nuclear power be?

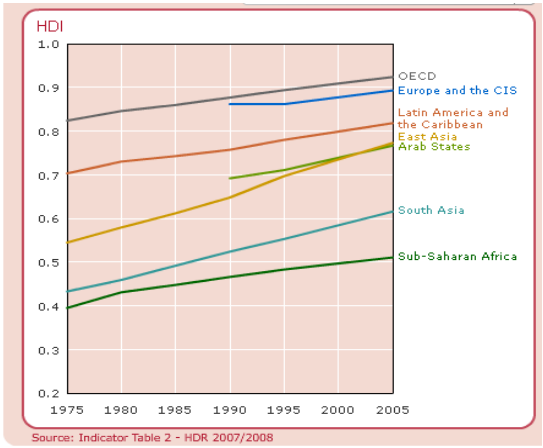
Key Drivers for the Future

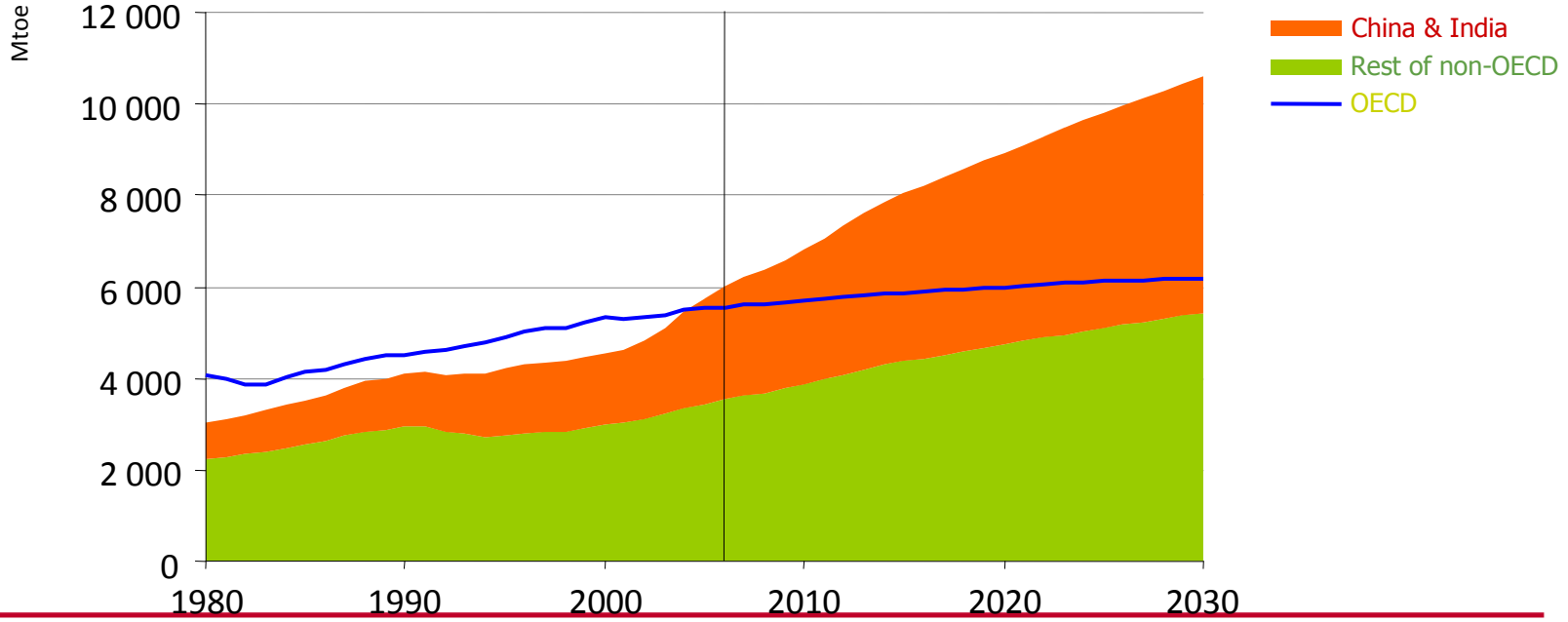
- Climate Change – Reduce GHG Emissions
- Economic-lowest cost for the customer
- Jobs
- Energy Security
- Protecting our common lands

So, what should we do?

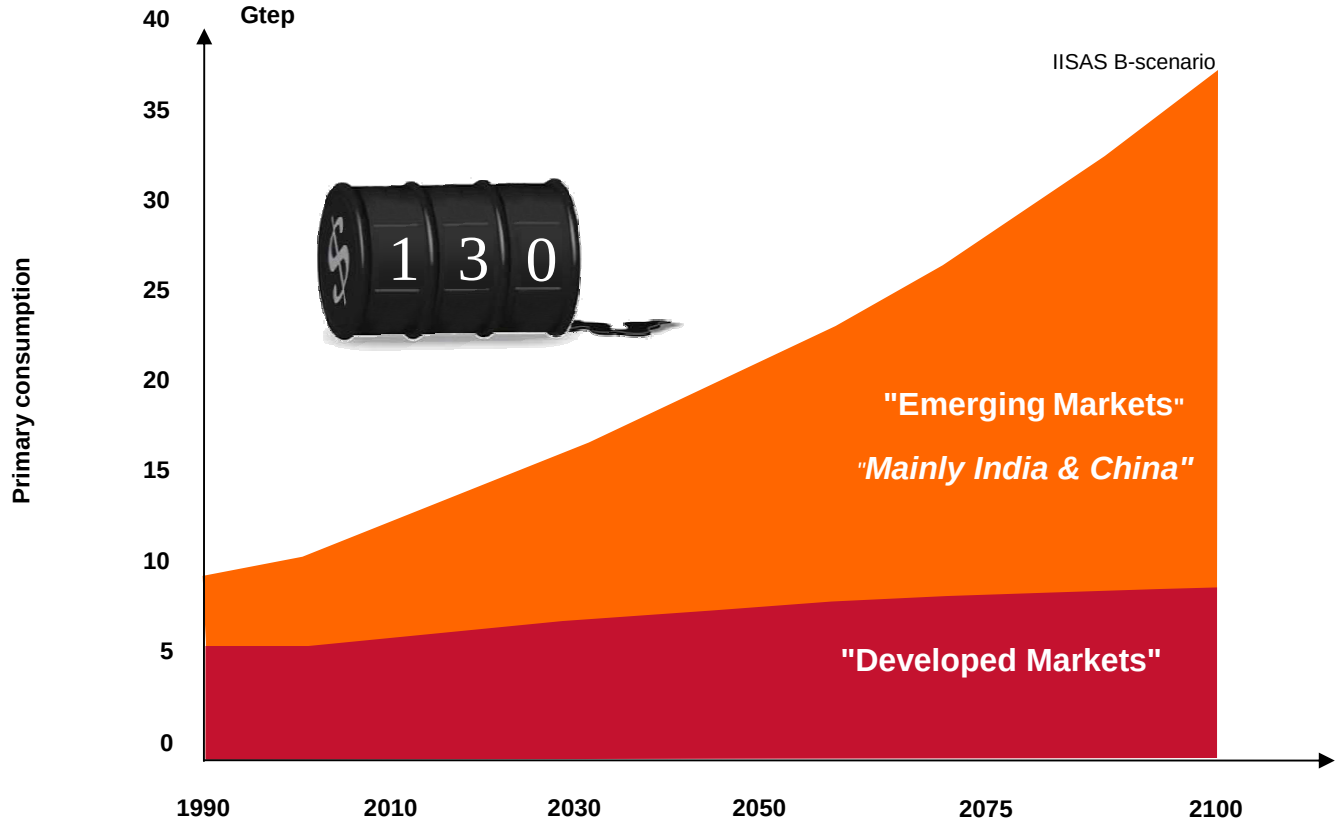
Demographic and Legitimate Economic Growth

- Population is growing
  - 6 billion today; 9 billion by 2050
- Economies are developing
  - World GDP was multiplied by 6 in 50 years
  - Strong economic growth in emerging countries
  - World energy demand will double by 2050





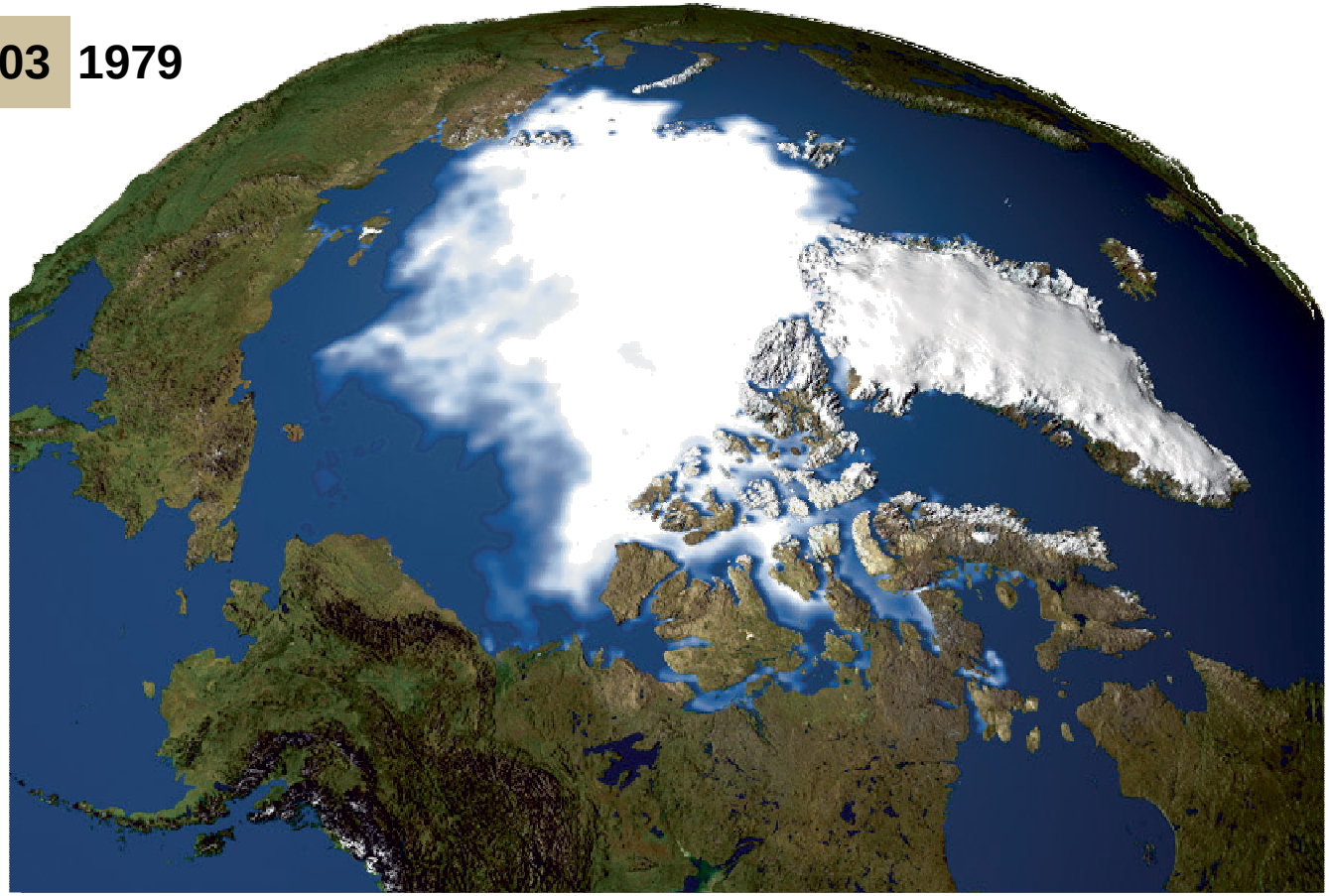
Limited Fossil Resources And Geo-Political Tensions Send Oil and Gas Prices Skyrocketing



Energy Security

Carbon is the Enemy…
The Climate Emergency

2003 **1979**



"No oil, no gas, no CO_2: no choice"


2500 SCIENTISTS SAY
WE'VE CAUSED
GLOBAL WARMING
I'D LIKE A
SECOND OPINION


aninconvenienttruth

Produce More Energy And Reduce Our Carbon Emissions

What are the answers?

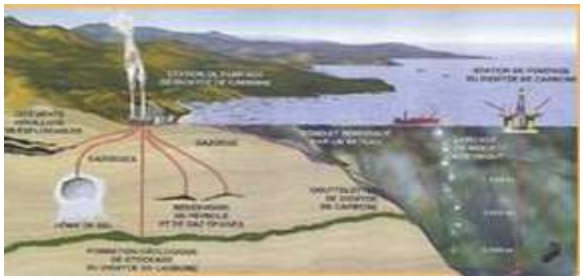
INCREASE ENERGY EFFICIENCY

DEVELOP CO2 FREE ENERGY SOURCES

NUCLEAR ENERGY

- RENEWABLES

DEVELOP CARBON CAPTURE AND STORAGE



Nuclear Energy is one of the answers for the US– so what is happening?

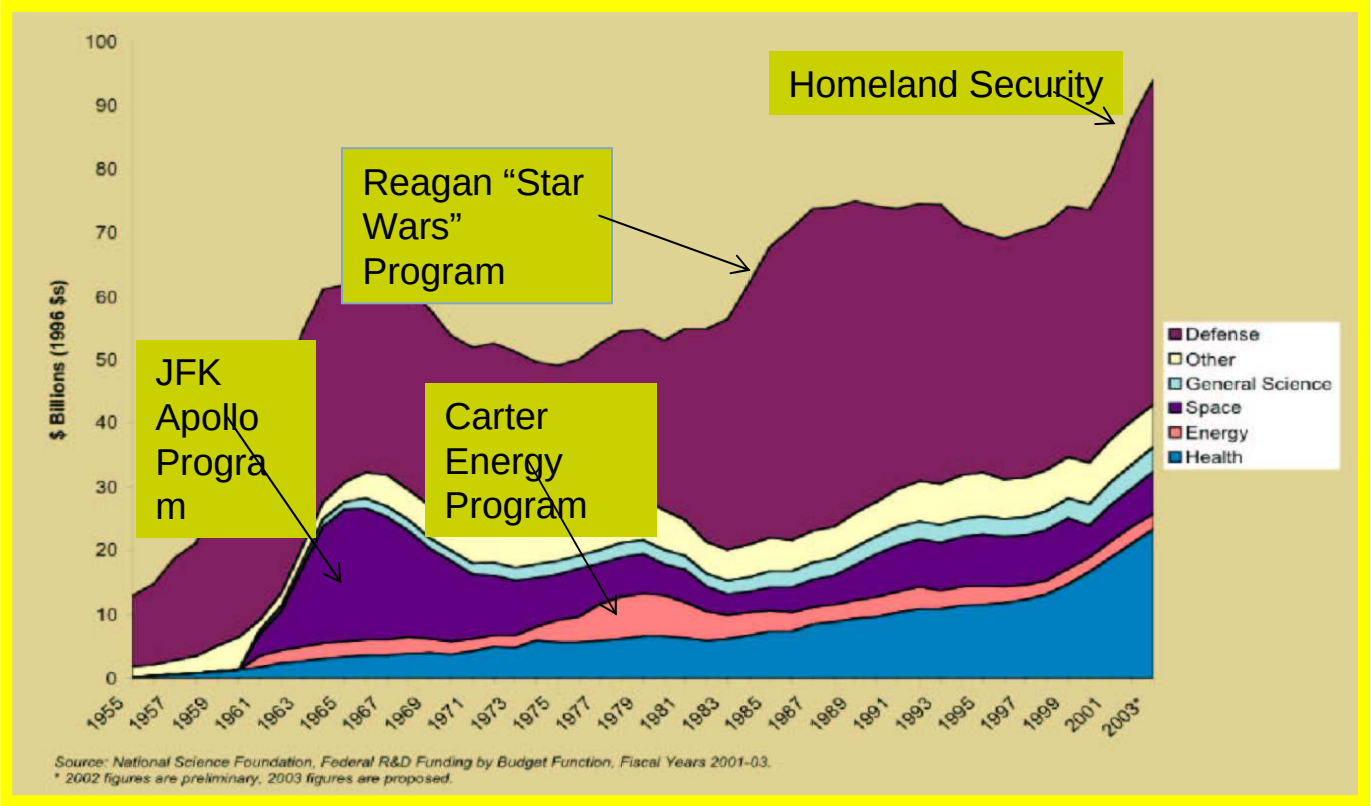
World Nuclear Reactors

	billion kWh	% e	No.	MWe	No.	MWe	No.	MWe	No.	MWe	tonnes U
	NUCLEAR ELECTRICITY GENERATION		REACTORS OPERATING		REACTORS BUILDING		ON ORDER or PLANNED		PROPOSED		URANIUM REQUIRED
China	65.7	1.9	13	10234	27	29790	50	57830	110	108000	2875
India	14.8	2.2	19	4183	6	4120	18	15700	40	49000	908
USA	798.7	20.2	104	101229	1	1218	9	11622	23	34000	19538
Vietnam	0	0	0	0	0	0	2	2000	12	13000	0
WORLD**	2560	14	442	377,222	63	64,576	156	174,773	322	366,515	68,646

Sources:
Reactor data: WNA to 1/1/11, corrected 6/1/11
IAEA- for nuclear electricity production & percentage of electricity (% e) 3/5/10.
WNA: Global Nuclear Fuel Market (reference scenario) - for U.

China, India, and Russia are leading the way on new nuclear. The US is lagging the world.

History of US Federal Government R&D

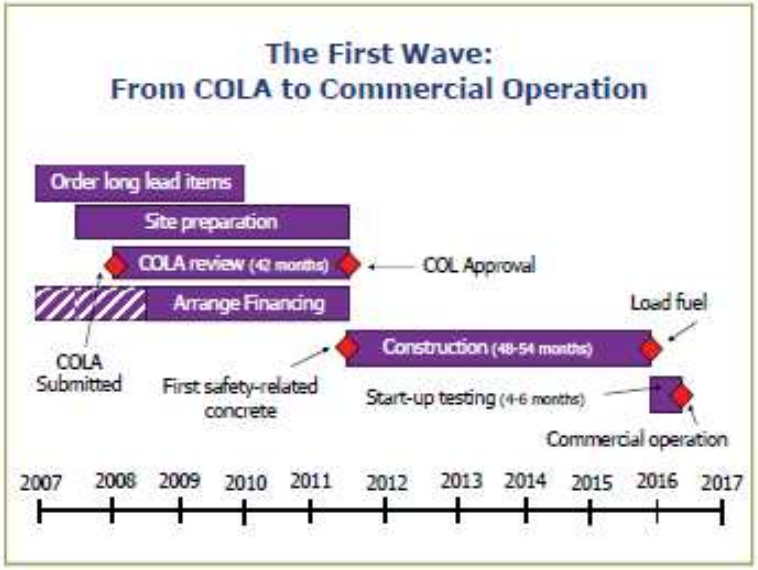


Federal investment for Energy RDD&D is very small

(About $400 Million/year for nuclear energy)

OMB-"The federal government does not invest in nuclear power demonstration and deployment."

Deploying New Nuclear Power Plants



- **Ten years to deploy known nuclear technology**
- **Large capital investment requires system financing**
- **First plants built in 30 years have high financing cost due to perceived risk**

Conclusion: Even currently known LWR technology has high business risk for first adopters. It is not what is best for the customer! It is what is best among those options that the utility / developer can afford to deploy!

What will it take to Re-build the Nuclear Energy Industry?

- **Unwavering commitment to SAFETY**
- **Long-term vision and bi-partisan support**
- **Initial loan guarantees followed by on-time, on-budget delivery**
- **Public policy-imputing a price for CO2 for its environmental harm**
- **Federal Support for RDD&D (Research, Development, Demonstration, and Deployment) (See graph)**
- **Emergence from the financial crisis started in September 2008 (new nuclear plants will help!)**

For A New And Sustainable Deal

Fight *for* energy security, fight *against* climate change, create jobs and long-term regional economic development

Solutions do exist.

Let us implement them seriously!