



Presentation to STAPPA/ALAPCO on Resurgence of New Coal-Fired Power Plants

Joe Miakisz

Senior Consultant

M.J. Bradley & Associates

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Historic Electric Generating Capacity Additions

- 1960's--180 GW
- 1970's--314 GW
- 1980's--172 GW
- 1990's—84 GW
- From 2000-2003—187 GW
- Recently, developers have reported delays and cancellations of new plants



Coal's Share of Electric Generating Mix

- Over last 50 years, coal's contribution to electric generating mix has been relatively stable, varying between 44 and 57% of total mix.
- This is because the price of coal has been relatively stable, due in part to the fact that the U.S. possesses one-quarter of world's coal supply.



Recent Trends With Respect to Electric Generating Capacity Additions

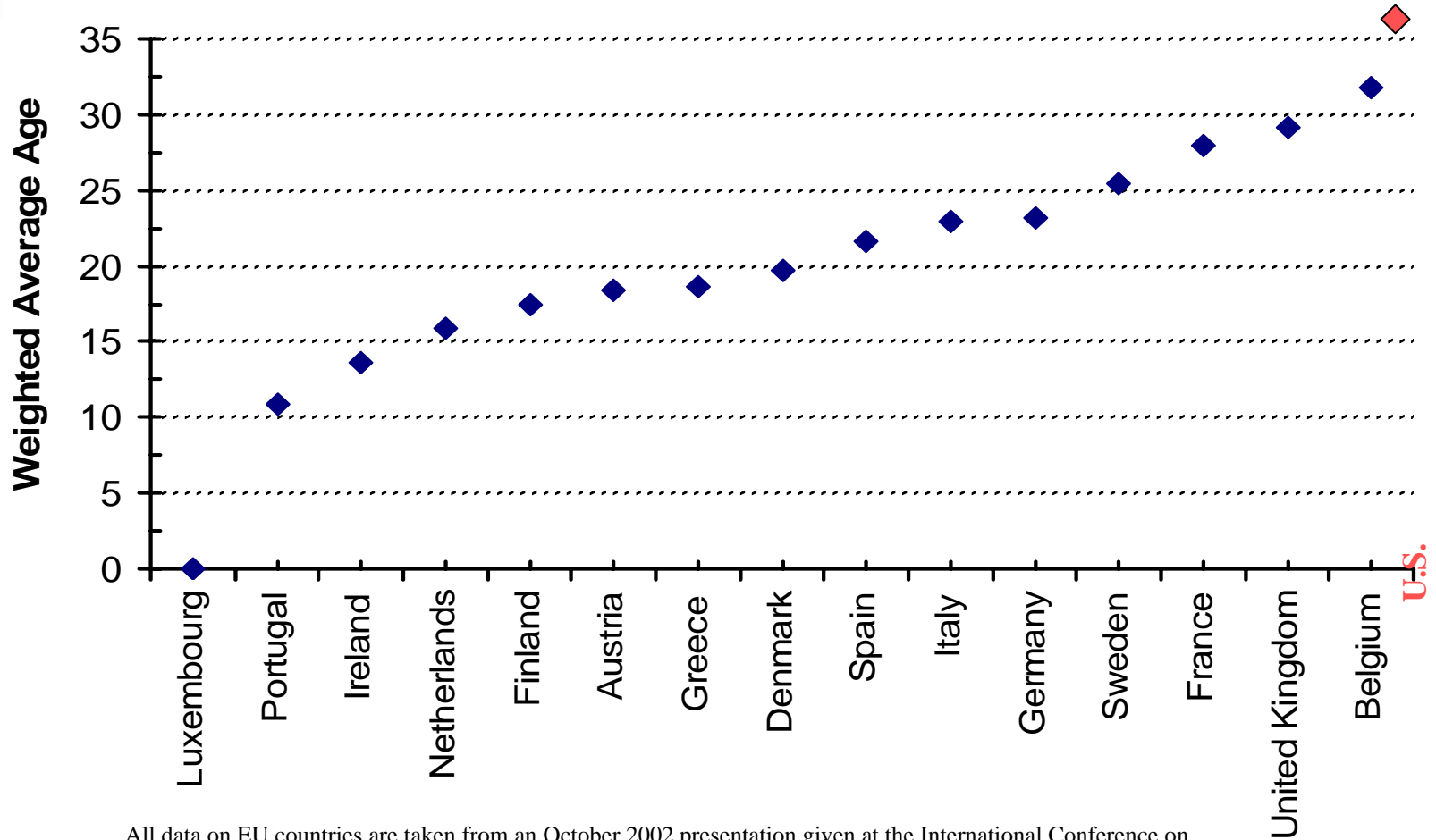
- Most of recent capacity additions have been natural gas-fired
- Of 187 GW added between 2000 and 2003, 175 GW (94%) have been natural gas-fired:
 - **110 GW C/C**
 - **65 GW CTs**
 - **5 GW renewables (mostly wind)**
 - **< 1 GW coal**



Electric Generating Capacity Addition/Retirement Forecasts

- From 2002 to 2025, EIA projects that 356 GW of new generating capacity will be needed, most of it after 2010 when current capacity glut subsides.
- 62 GW of existing capacity, virtually all fossil fuel-fired, projected to be retired over this same period.
- Most of retired capacity expected to be older oil-and gas-fired steam plants, *not* coal plants

Weighted Average Age of Coal-Fired Plants



All data on EU countries are taken from an October 2002 presentation given at the International Conference on Clean Coal Technologies for Our Future, entitled "The Situation of Coal-Fired Power Plants in Europe and European Union's Priorities." The presentation was given by Grammelis P., Kakaras E. & Koukouzas N.



Projected New Coal Capacity

- 112 GW of new coal capacity projected by 2025 (EIA, Sept. 2004)
- Coal accounts for 42% of new capacity addition projections between 2010 and 2025
- Just 2 years ago, in September 2002, EIA was only projecting 31 GW of new coal capacity by 2020, representing 9% of new capacity additions



Projected New Coal Capacity (Cont'd)

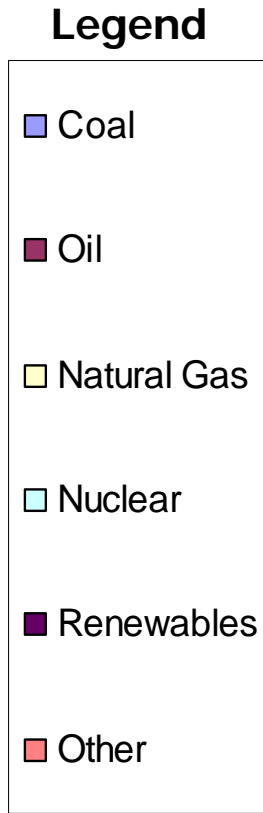
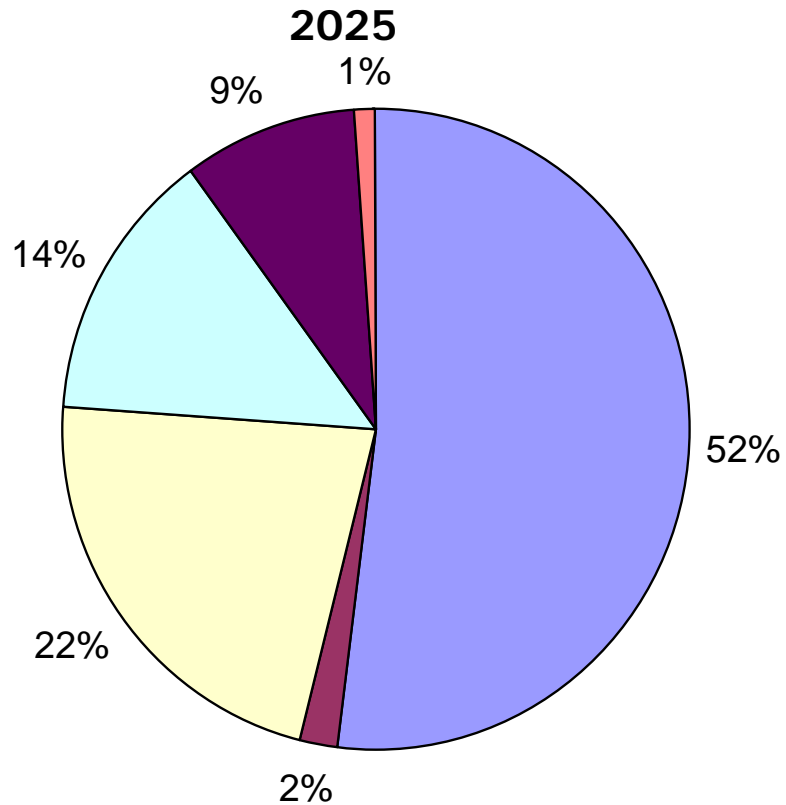
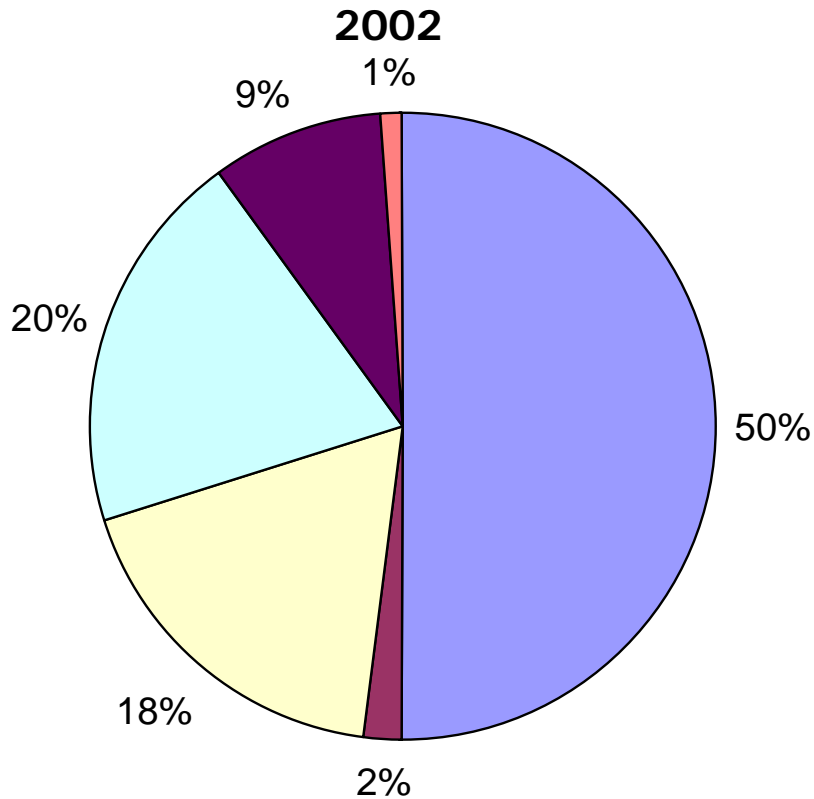
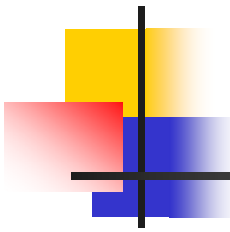
- 100 new coal plants currently on drawing board representing 63 GW of capacity
- 10 plants proposed in Illinois, 7 in Kentucky, 7 in Montana, 6 in Colorado and 5 in Wisconsin
- Proposals often speculative, based on ever-changing economic climate of power generation markets, and many of proposed plants will not be built



Projected New Coal Capacity (Cont'd)

	Plants Under Construction	Plants Approved (tentatively)	Plants in Various Stages of Permitting
#of Plants	5	7	20
Total Plant Capacity (MW)	2300	5800	14,500
States Where Plants Are Being Sited	IA, KS, KY, PA, MT	AZ, IL, KY, MT, NE, WV, WI	KY, MT, AR, GA, IL, IN, NM, ND, OH, SC, TX, UT, VA, WI, WY

Electric Generation by Fuel Type





Reasons for Renewed Interest In Coal

- Steep rise in natural gas prices (according to McIlvaine, coal becomes more attractive option for new electric generating capacity when price of natural gas exceeds about \$3/mmBtu).
- Reductions in estimates of oil and natural gas reserves



Reasons for Renewed Interest In Coal (Cont'd)

- Fuel-diversity/security
- De-regulation of electric generating sector
- An Administration that is friendly towards coal



Barriers to New Coal Plant Development

- Long lead time
- Difficult to license, primarily due to environmental concerns (e.g., NIMBY, air emissions, etc.)
- The lingering threat of CO₂ regulation
- Some states requiring consideration of alternative technologies such as IGCC



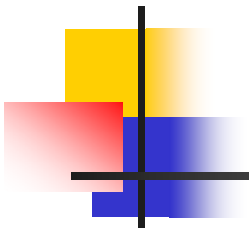
IGCC Technology

- Viewed by some as an appropriate bridge technology between current electric generating technology and a future hydrogen-based technology
- Addresses CO₂ issue
- Utilities have been reluctant to invest in technology due to higher costs, risks, etc.
- Currently, EIA projects only 6 GW of additional IGCC capacity by 2025.



A Boost For IGCC Technology

- GE's purchase of Chevron/Texaco's IGCC design in May
- ConocoPhillips/Fluor and GE/Bechtel Technology Alliances
- AEP's announcement to build a new 1,000 MW IGCC plant by 2010
- Cinergy's plans to retrofit existing facility with IGCC technology
- First Energy's joint project with Consol to research the technology



Questions

