Presentation
To
International Pittsburgh Coal Conference

The Future of Coal
It Is Up To Us!

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CONSOL Energy Inc.

Topics

- Summary of CONSOL Energy Inc.
- Impact of EPA Regulations
- New generation in a low price market
- Where do we go from here?

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CONSOL Energy Inc.

- Founded in 1864
- $5.2 billion revenue, 2nd largest of U.S. coal producers
- Member – Fortune 500; S&P 500
- Largest underground coal producer in the U.S.
- Largest natural gas producer in Appalachia
- 11 mining complexes in four states, including the largest underground mines in the world
- 4.4 billion tons of proven and recoverable coal reserves
- 6 natural gas operations across the U.S., spanning 7 states, with a net total of 12,500 wells
- 27 vessels and 620 barges transporting ~19 MTPY
- Baltimore Export Terminal ~12 MTPY
- R&D facility
- Over 9,000 employees

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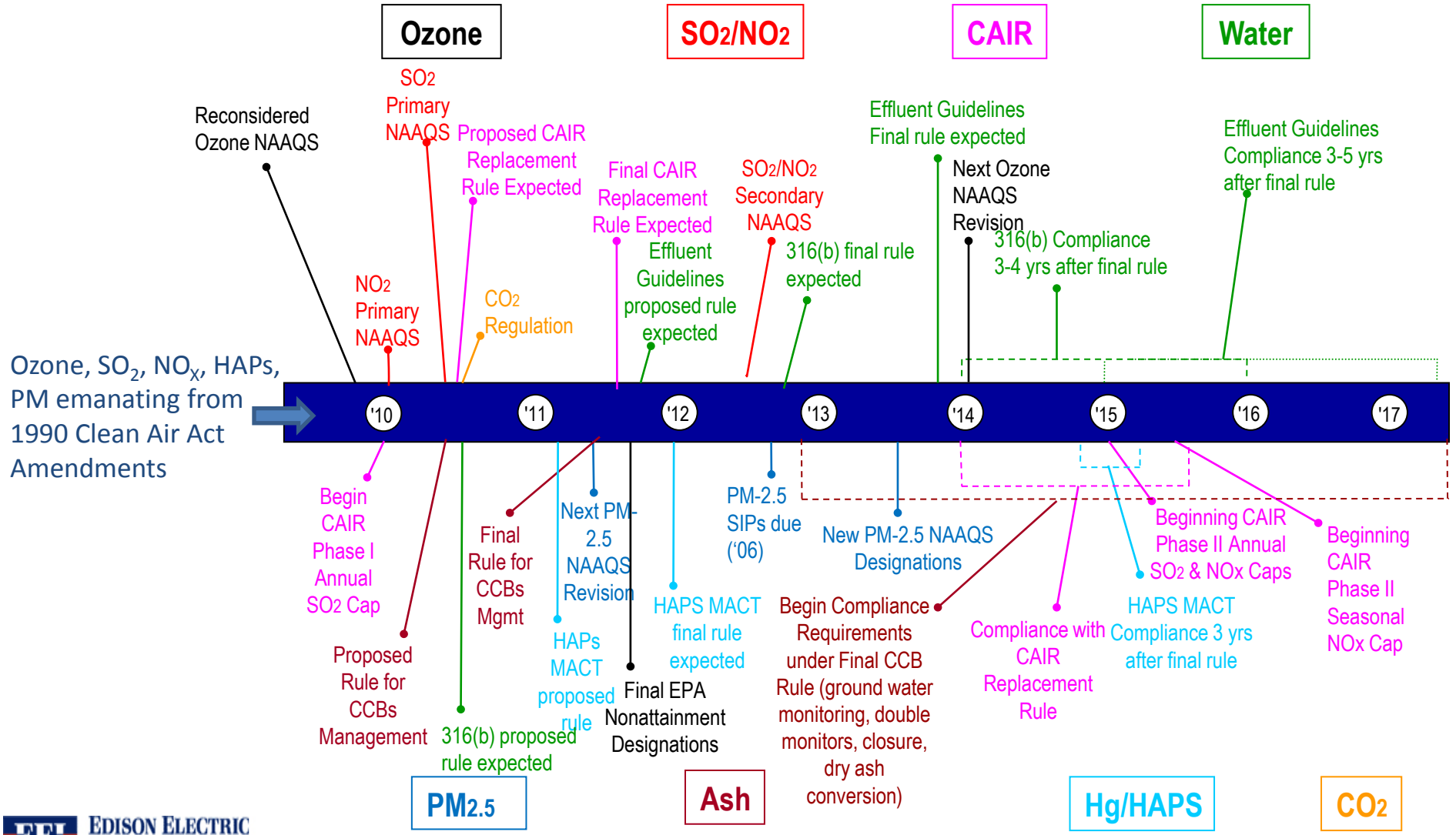
Planned Regulations Impacting Coal-Fueled Power Stations



-- adapted from Wegman (EPA 2003) Updated 2.15.10

Projected Coal Unit Retirements by 2020

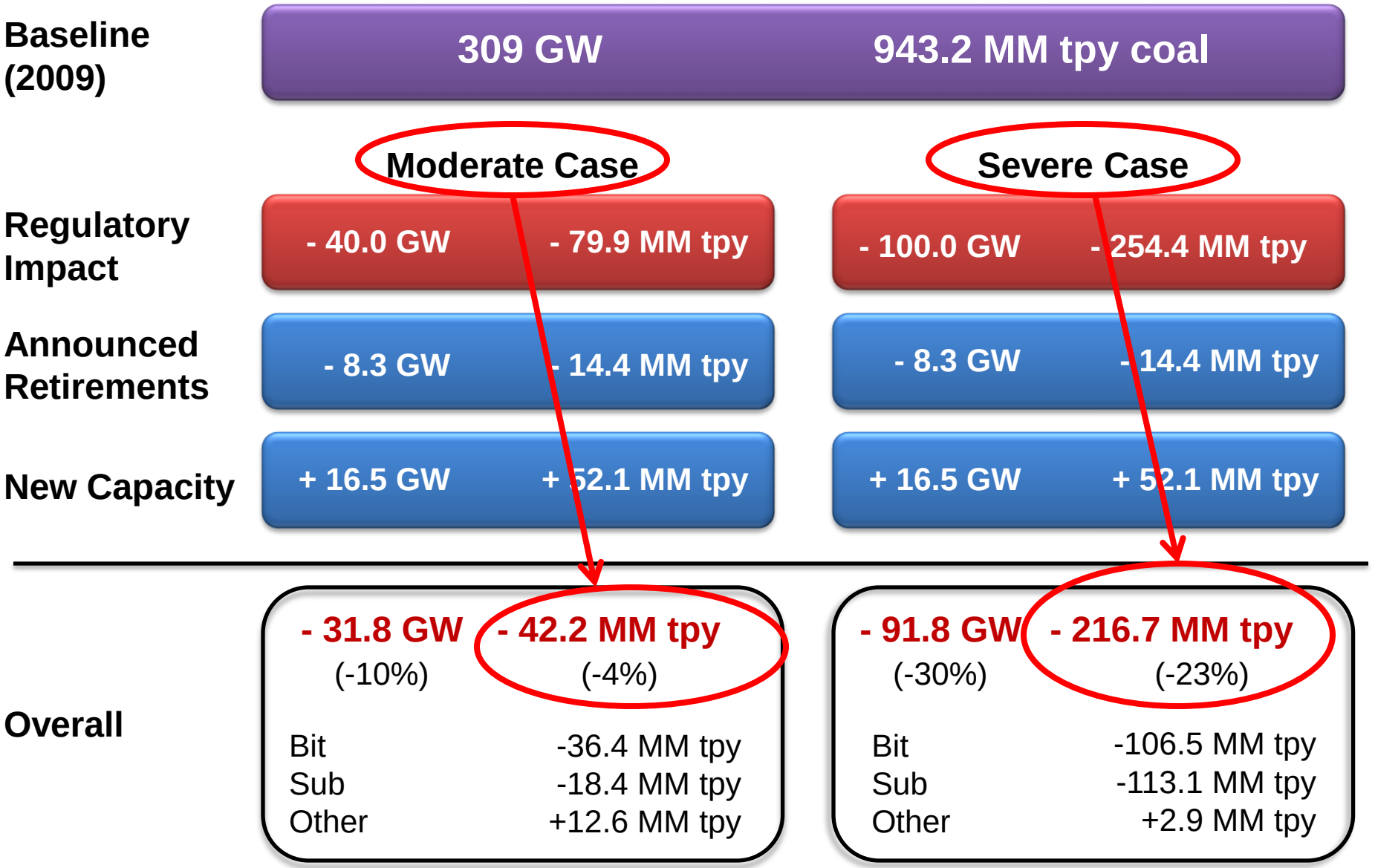
	Conventional Coal Regs (i.e., CSAPR, MACT, 316(b), CCR) Only	Conventional Coal Regs + CO_2 Uncertainty
NERC	18-44 GW[a]	
M.J. Bradley	25-40 GW	
ICF	40 GW	
Arch Coal	43 GW	
Burns & McDonnell	40-50 GW	
FBR Capital Markets	50 GW	
EEI / ICF	46-56 GW	41-101 GW
Fitch	51 GW	
Black & Veatch	52 GW	
ACCCE / NERA	53 GW	
Brattle Group	50-67 GW	
Wood Mackenzie		60 GW
Credit Suisse	60 GW	
Sanford Bernstein	68 GW	
NETL	78 GW[a]	108 GW[a]
NMA / McIlvaine	32-144 GW	
CERA		75-159 GW

[a]NERC and NETL forecasts do not include announced retirements. Hence, the numbers presented here represent the retirements forecasted by these studies, plus 8.3 GW of announced retirements identified in Energy Velocity.

CONSOL Analysis

- Weighted plants by:
  - Capacity Factor
  - Age
  - Size
  - Heat Rate
- Lowest weighted plants were assumed to be shut down first
- Performed some sensitivity around scrubbed plants

Potential Impact of EPA Regulations on U.S. Coal-Fired Capacity and Coal Demand



HAP MACT Regulation

Impact on Pittsburgh #8

	SO_2 (% reduction)	HCl (% reduction)	Ash (% reduction)	Hg (% reduction)
Existing Sources	96%	96%	99.8%	80%
New Sources (NSPS)	99%	99.9%	99.9%	99.7%

Cross States Air Pollution Rule (CSAPR)

	2012 SO_2 Reductions (%)*	2014 SO_2 Reductions (%)*	2012 NOx Reductions (%)*	2014 NOx Reductions (%)*
Group 1 States	18%	56%	8%	14%
Group 2 States	24%	30%	(4%)	3%

* Percent Reduction using a 2010 baseline

Group 1 States: IA, IL, IN, KY, MD, MI, MO, NC, NJ, NY, OH, PA, TN, VA, WI, WV
Group 2 States: AL, GA, KS, MN, NE, SC, TX

Summary Thoughts on EPA Regulations

- Clearly need relief on HAP Rule NSPS
- Need an extended compliance schedule
- EPA needs to clean-up data errors on HAP rule
- Significant job creation opportunities to install emissions control equipment on remaining coal-fueled fleet but only if time to install is allowed
- Opportunities for SO_2, NOx, HAPs, & particulate control technology advances that improve reductions, reduce cost and reduce parasitic load

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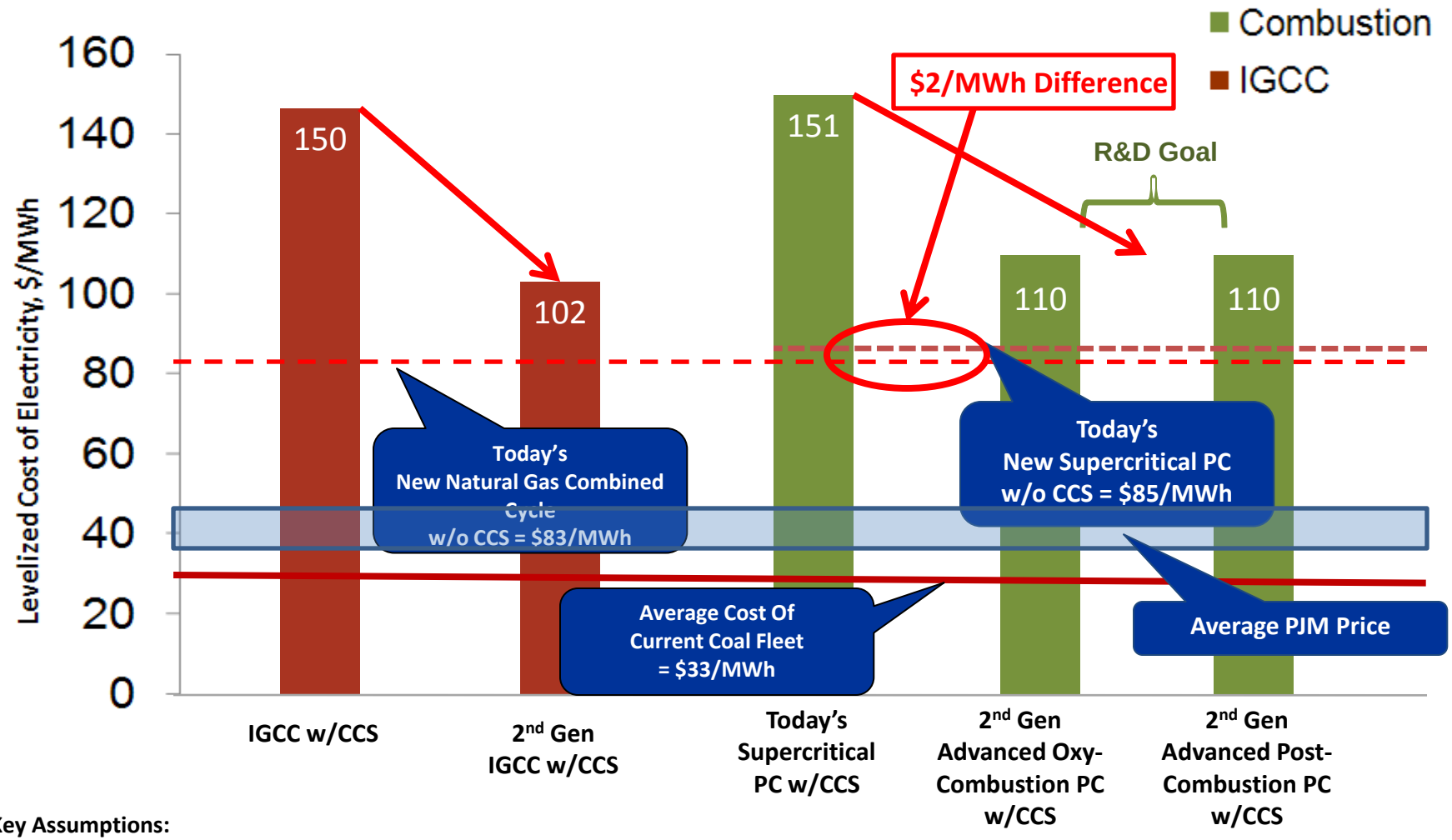
New Plants



Key Assumptions:

- 30 year, current dollar levelized coe;
- 2012 dollars.
- Capital cost component includes owner's costs
- $1.64/MMBtu coal & $6.55/MMBtu gas price
- "R&D Progress to Date" cases based on DRAFT Rev 2 of Bituminous Baseline Study
- "2nd Gen IGCC w/CCS" case based on NETL's IGCC Pathway study, upgraded to incorporate more complex Rev 2 Bit. Baseline study costing methodology

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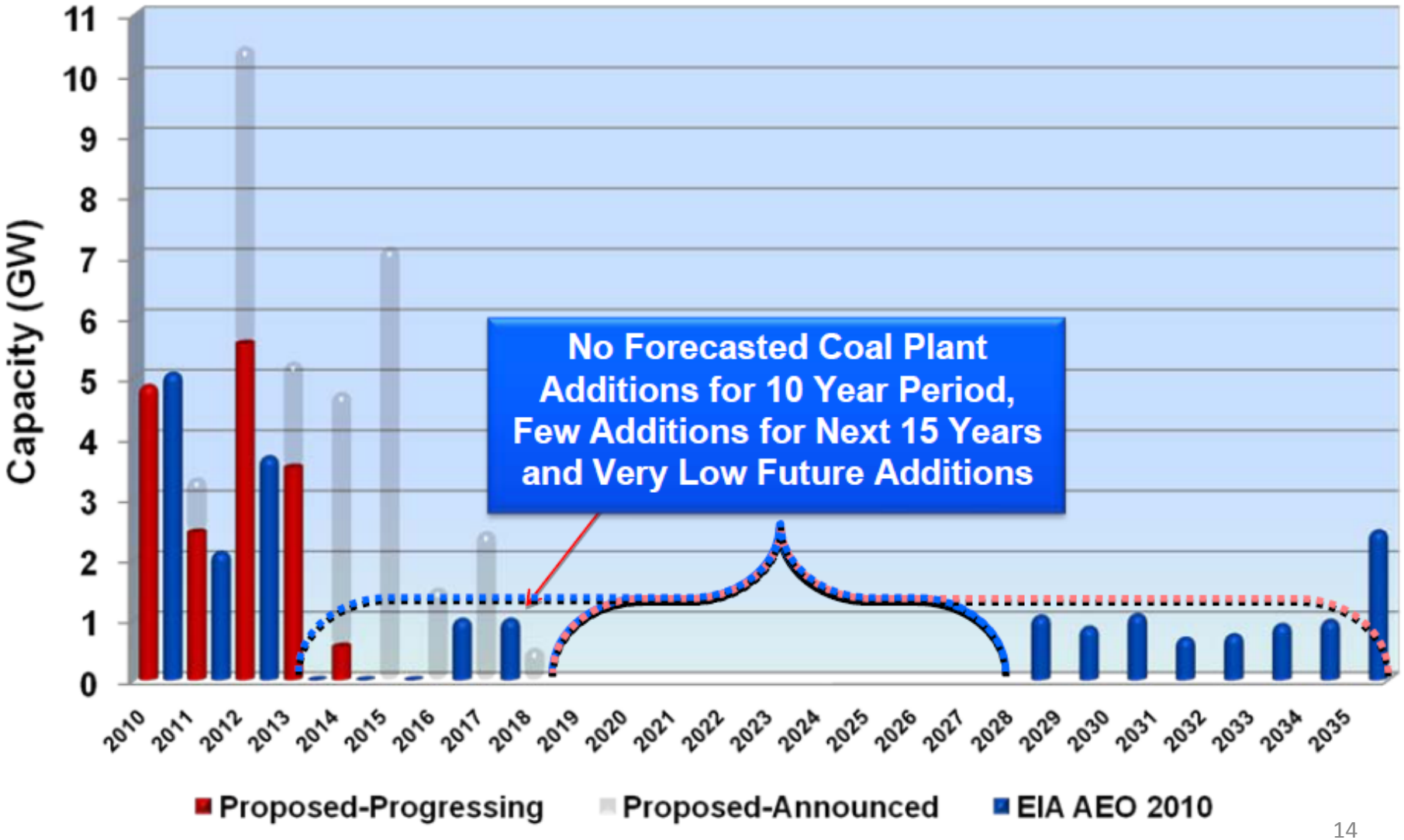
Prospects for New Coal Generation



Source: NETL

Summary Thoughts on New Generation

- Natural gas will fill the new plant void over the next 10 years
  - Lower capital cost
  - Shorter lead time
  - Easier permitting
  - Less financial risk

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A Path to Transformational Technologies

IGCC with CCS … A Path to Commercialization

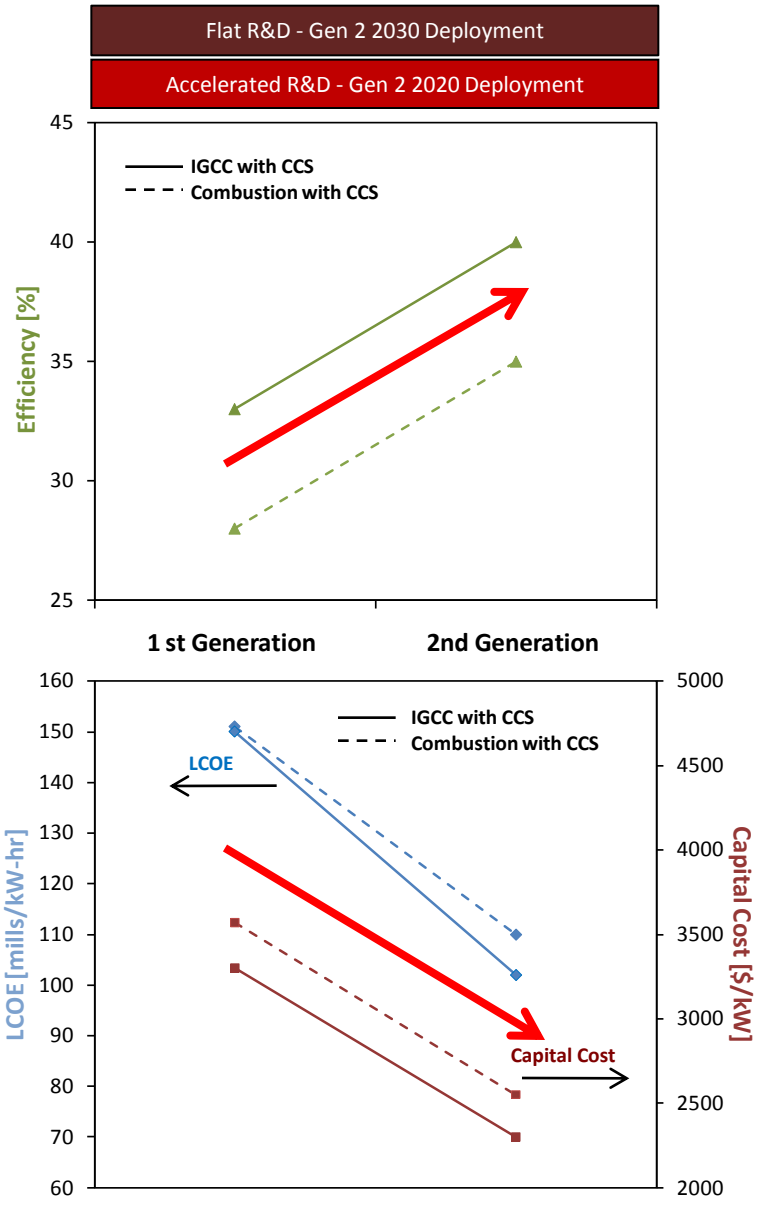
System Components	Baseline	1 st Generation	2nd Generation		Transformational Technologiies
Coal Feed / Gasifier	IGCC w/o CCS	Slurry Feed	Coal Feed Pump		IGFC Catalytic Gasification Chemical Looping ARPA-E/Office of Science Advances
Oxygen Production		Cryogenic Air Separation	Ion Transport Membrane		
Gas Cleanup		Selexol	Warm Gas Cleanup		
Power Block		F Class H_2 Turbine	H Class H_2 Turbine (2500F TIT)	Advanced H Class H_2 Turbine (2650F TIT)	
CO_2 Separation		Selexol	H_2 Membrane		

Performance	Baseline	1 st Generation	2nd Generation		Transformational Technologiies
LCOE (mills/kWh)	109	150	107	102	Safe, Economic and Reliable Baseline Performance
Capital Cost ($'s/kW)	2450	3300	2300	2300	
Efficiency (%)	39	33	38	40	
Availability	80%	80%	85%	90%	

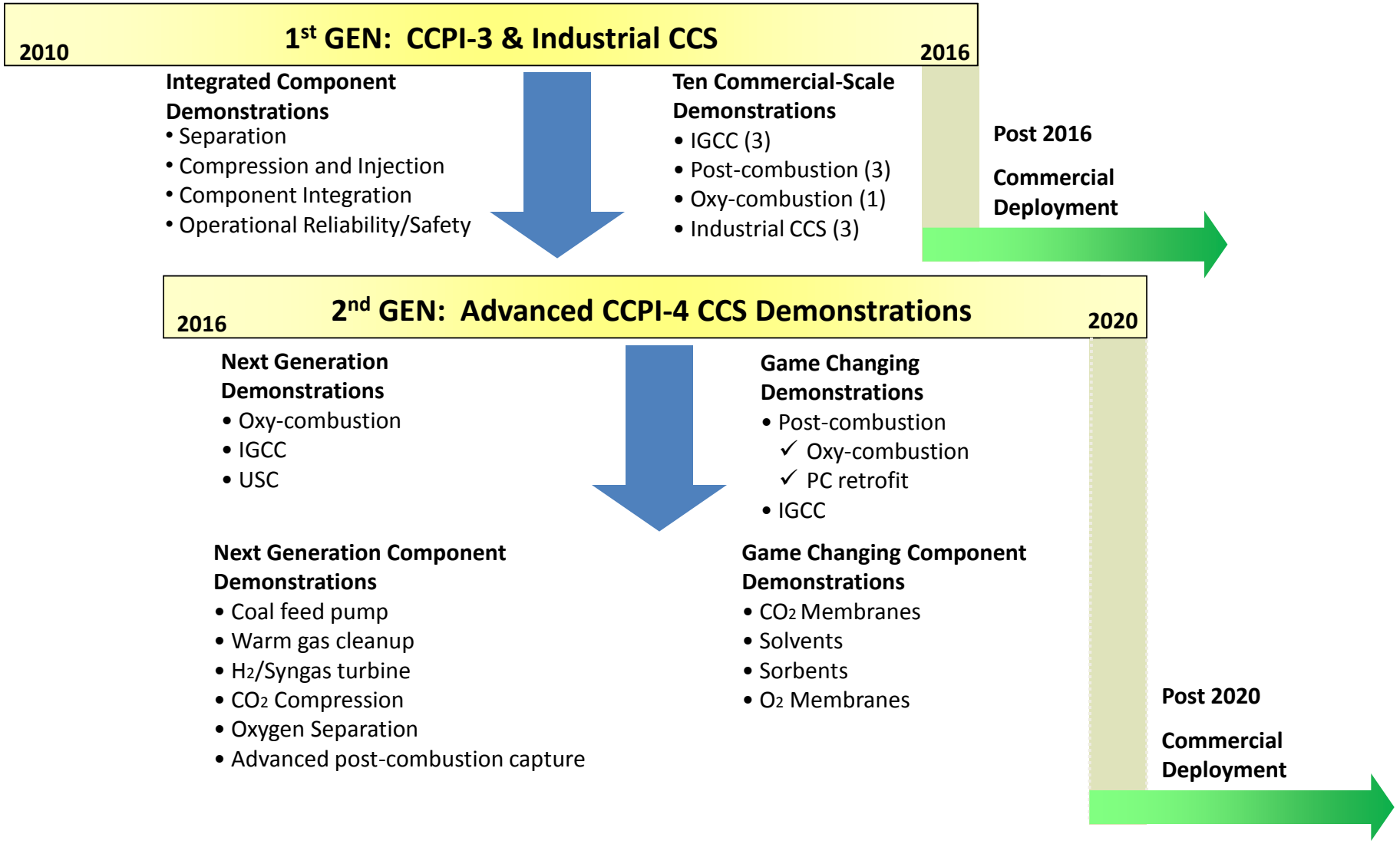
Combustion with CCS … A Path to Commercialization

System Components	Baseline	1 st Generation	2nd Generation	Transformational Technologiies
PC Oxy-combustion	Supercritical PC w/o CCS	O2 Boiler/Sub-critical	O2 Boiler/USC	Chemical Looping OTM ARPA-E/Office of Science Advances
		Cryogenic	Ion Transport Membrane	
		SOA CO2 Purification	Adv Purification (Integrated Pollution Removal)	
		SOA Compression	Shock Wave	
PC Post-combustion		PC Boiler/Supercritical	PC Boiler/USC New Plants	
		CO_2 Capture (MEA)	Solvents Sorbents Membranes	
		SOA Compression	Shock Wave	

Performance	Baseline	1 st Generation	2nd Generation	Transformational Technologiies
LCOE (mills/kWh)	85	142/151	110	Safe, Economic and Reliable Baseline Performance
Capital Cost ($'s/kW)	2025	3300/3570	2550	
Efficiency (%)	39	29/28	35	
Availability	85%	85%	90%	



CCS Technology Deployment Roadmap



Summary Thoughts on where we go from here?

- Focus on component technologies that will
  1. Improve efficiency
  2. Reduce cost
  3. Cut across combustion & gasification technologies
- Continue to push for demonstration funding


Thank you
And
Enjoy Your Time
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Pittsburgh