

ENVIREPEL ENERGY, INC.



National Energy Policy

“America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment.”

President George W. Bush

Envirepel Energy Strategy

- *Develop Clean energy and fuel production facilities without air emissions offset credit issues*
- *Use Best Available Commercial Technology rules to force industry change towards lower emissions and redefine the concept of “distributed generation”*
- *Produce up to 40 percent of the Nations energy needs in electrical and renewable fuels using local waste supplies, reprocessing greenhouse gases, and fuel crops such as corn and sugar beets.*
- *Fund a breeding and repopulation plan with State and Federal Agencies for endangered species of animals, reptiles, birds and plants as a joint effort.*

EEI Addresses Problems:

- 'Permitability' of Energy Production Plants
- Limited Landfill Capacity & Rising Costs
- Use of Renewable Fuels at Source
- Helps Energy Distribution & Improves Grid Reliability (lessens risk of electr. 'black-outs')
- Fulfillment of Renewable Portfolio Standards

Market Opportunities for EEI

California Markets

- California's Renewable Portfolio Standard calls for 20% Renewable by 2010
- 265 megawatts (MW) of feedstock capacity exists in San Diego County, much of which can be filled by Biomass Waste To Energy (WTE)

US Domestic Markets

- The North American waste to power market opportunity is ~ 16,000 MW in sales
- The North American renewable fuels market amounts to approx. \$8 billion

Sources:

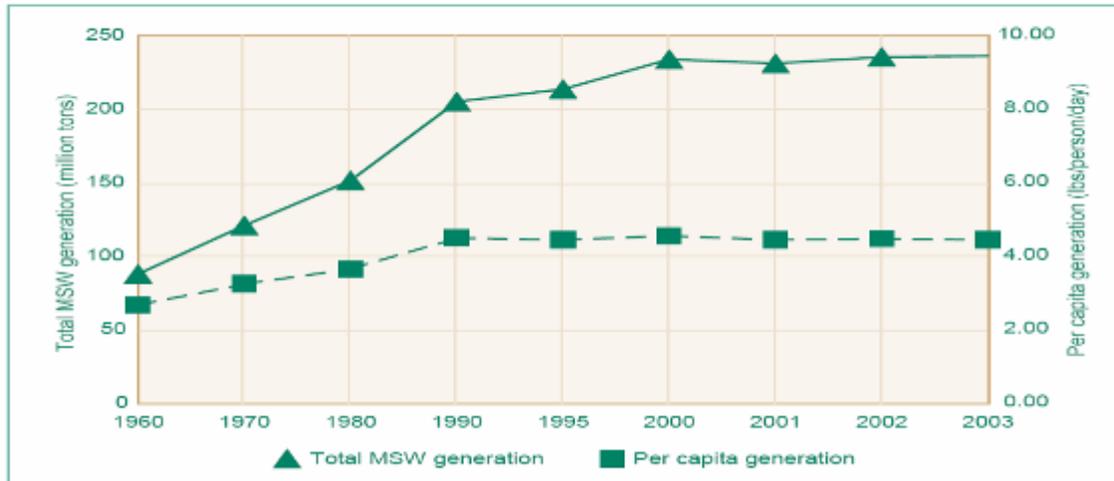
DOE Biomass Program, DOE Web-Site (http://www1.eere.energy.gov/biomass/news_detail.html?news_id=11458)
US Renewables' web-site www.usrg.com

Engineering and Design Advantage

- Envirepel WTE Plants can obtain permits to construct and operate
- EEI facilities can be permitted and operated in urban w/o major grid interconnection issues
- EEI plant components can be assembled on site by General Contractors, no EPC required
- Major plant components are supplied from within the corporate structure of affiliates

Waste Up - Landfills Down

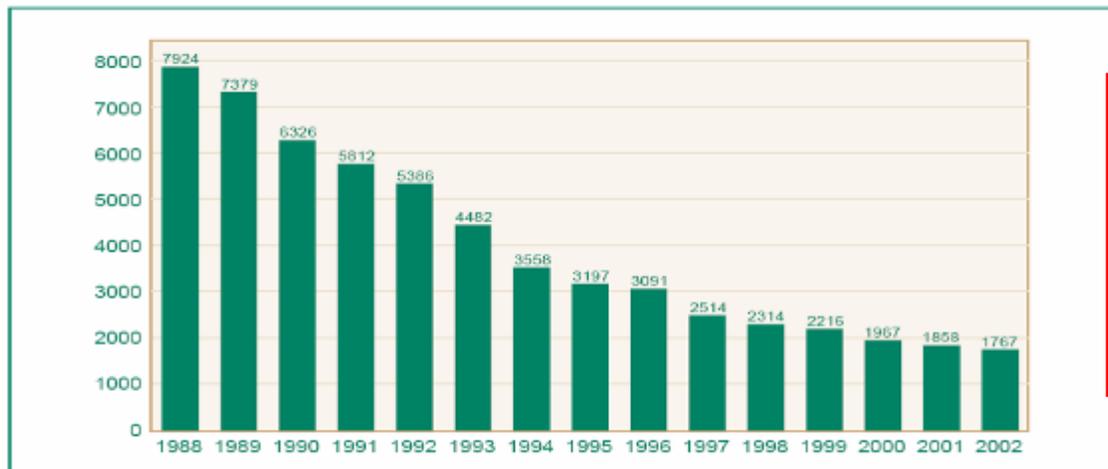
MSW Generation Rates from 1960 to 2003



Waste Generation
Increasing
with Population

4 lbs / Person / Day

Number of Landfills in the United States by Year.



Landfills Decreasing
with time:

1990 = 6326
2002 = 1767

U.S. Waste and “Recovery”

Generation, Materials Recovery, Composting, and Discards of Municipal Solid Waste, 1960 - 2003
(in millions of tons)

Millions of Tons									
	1960	1970	1980	1990	1995	2000	2001	2002	2003
Generation	88.1	121.1	151.6	205.2	213.7	234.0	231.2	235.5	236.2
Recovery for recycling	5.6	8.0	14.5	29.0	46.2	52.4	52.8	53.8	55.4
Recovery for composting*	Neg.	Neg.	Neg.	4.2	9.6	16.5	16.6	16.7	16.9
Total Materials Recovery	5.6	8.0	14.5	33.2	55.8	68.9	69.3	70.5	72.3
Discards after Recovery	82.5	113.0	137.1	172.0	158.0	165.1	161.9	165.0	163.9

*Composting of yard trimmings, food scraps, and other MSW organic material.
Does not include backyard composting.
Details may not add to totals due to rounding.

After Recovery (Recycling and Composting) – Discards remain Constant

California WTE Plants:

3 Facilities built in the 1980's

Commerce Refuse-to-Energy Facility

Commerce, CA

Trash Capacity: 1 units @ 350 tpd = 350 tpd
Energy Capacity: ELE: 10 MW
Project Startup: 1987
Technology: MBWW
CEMS: CO; NOx; O₂; SO₂
APC System: SDA; FF; SNCR
Owner: Commerce Refuse-to-Energy Authority
Operator: Sanitation Districts of Los Angeles County

Southeast Resource Recovery Facility (SERRF)

Long Beach, CA

Trash Capacity: 3 units @ 460 tpd = 1,380 tpd
Energy Capacity: ELE: 37.5 MW
Project Startup: 1988
Technology: MBWW
CEMS: CO; CO₂; NOx; O₂; Opacity; SO₂
APC System: SDA; FF; SNCR
Owner: City of Long Beach
Operator: Montenay Pacific Power Corp.

Stanislaus County Resource Recovery Facility

Crow's Landing, CA

Trash Capacity: 2 units @ 400 tpd = 800 tpd
Energy Capacity: 22 MW
Project Startup: 1989
Technology: MBWW
CEMS: CO; CO₂; Link; NOx; Opacity; SO₂
APC System: SDA; FF; SNCR; CI
Owner: Covanta Stanislaus, Inc.
Operator: Covanta Stanislaus, Inc.

■ Combined Capacity

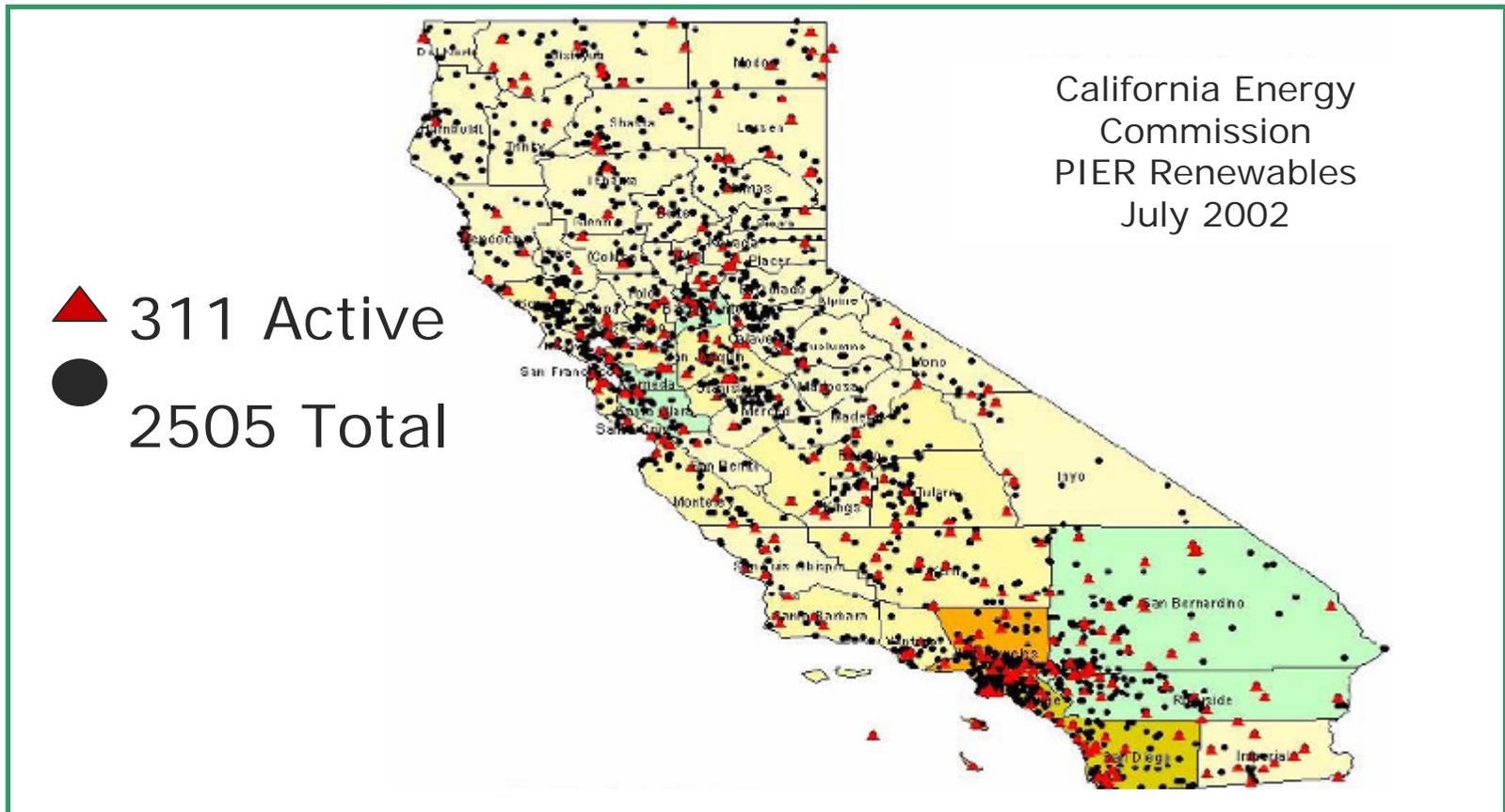
○ 2,530 TPD

○ 69.5MW



California Landfill Supply

- 4,000 MW generation potential statewide



San Diego Landfill Supply

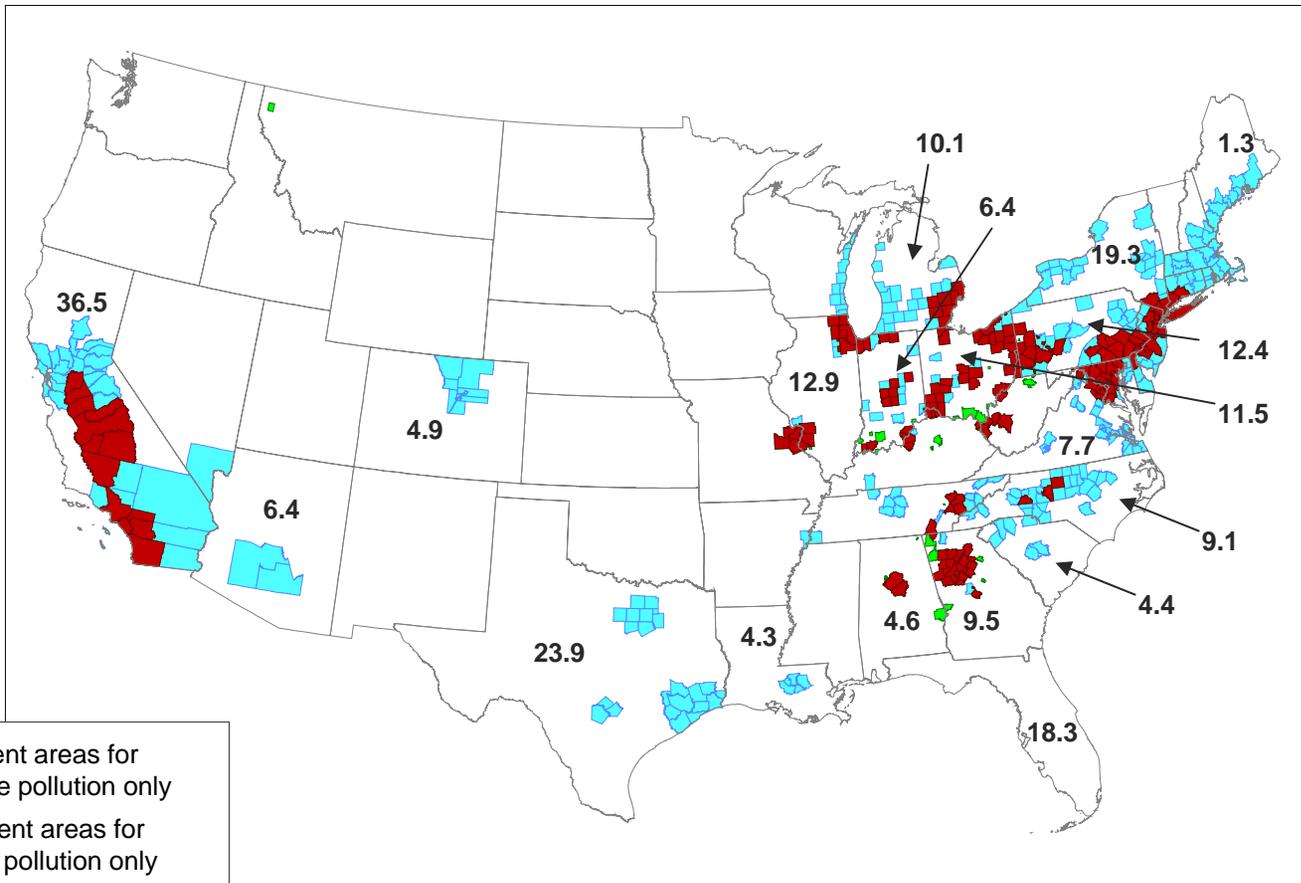
- 279 MW generation potential in SD County
 - Enough electricity to power 279,000 homes



Nonattainment Areas

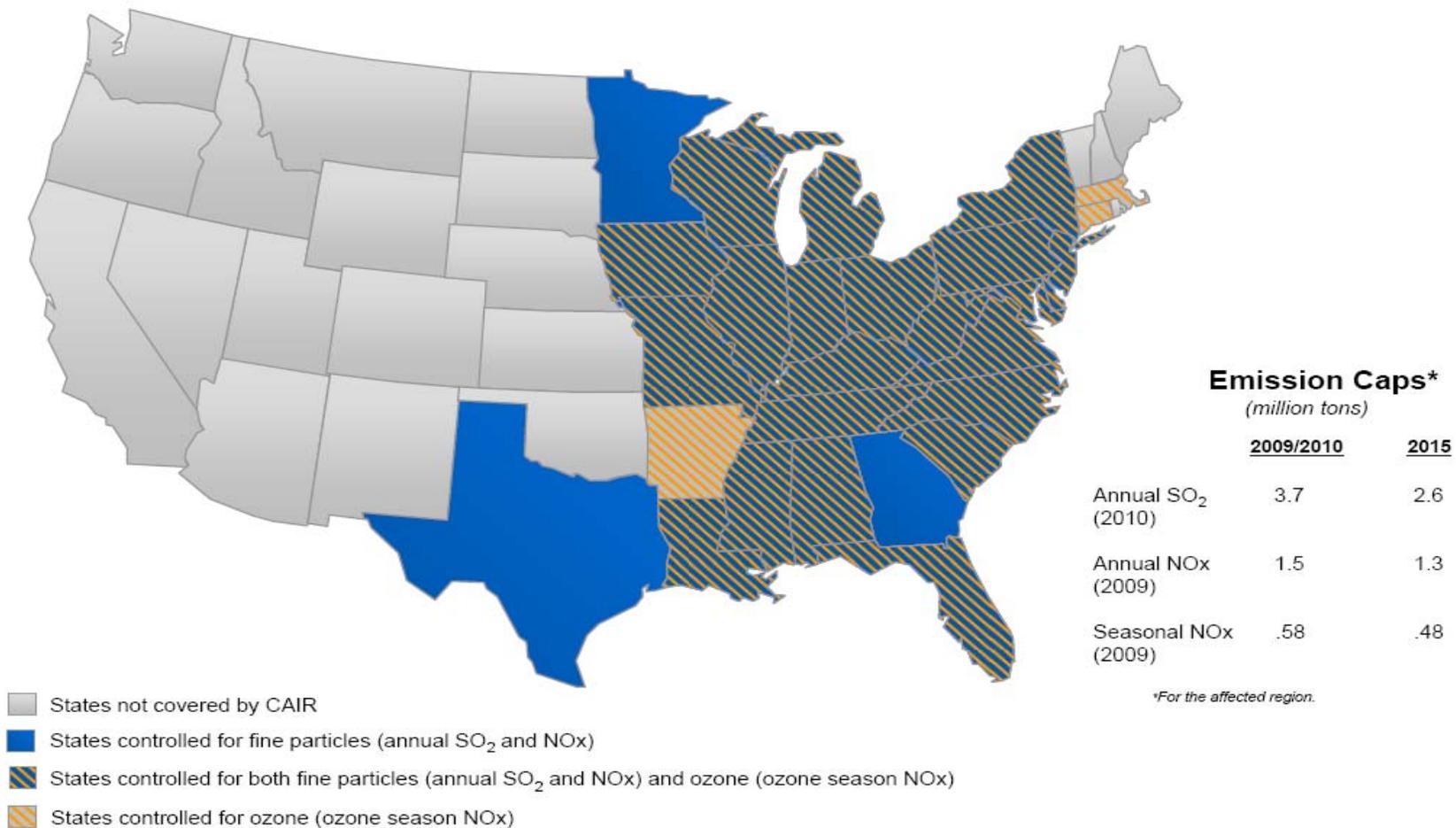
Air basins with significant air emission issues where permitting projects requires off-set credits, where available

Numbers are Population Estimates in Million (07/'07 Census)



- Nonattainment areas for 8-hour ozone pollution only
- Nonattainment areas for fine particle pollution only
- Nonattainment areas for both 8-hour ozone and fine particle pollution

CAIR: Affected States, Emission Caps



Envirepel Goals

- Establish US standard for Biomass to Energy
 - Brescia, Italy is current modern technology
 - Same “fire pit” process used throughout the world



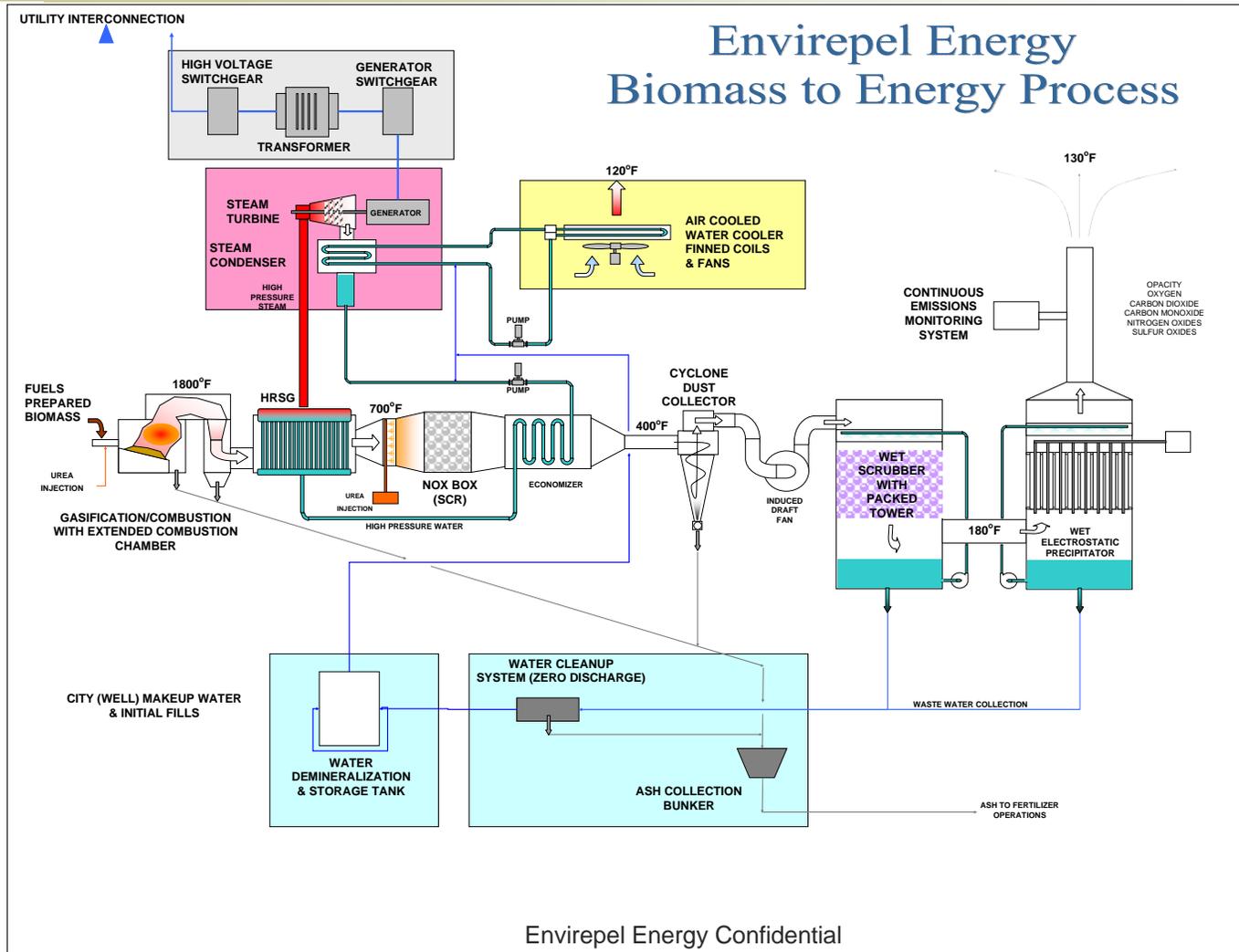
Emissions Advantage

- Near zero emissions versus current systems
 - Eliminate conventional “pollution waiver” requirement

Company	Fuel Source	Revenues	Max Permitted Emissions (tons)	
			NOx	CO
Covanta (18 MW)	Wood waste MSW	Electricity	337	25
AES (56 MW)	Wood waste MSW	Electricity	150	252
Wheelabrator (55 MW)	Wood waste MSW	Electricity	598	1914
Colmac (53 MW)	Wood waste MSW	Electricity	196	4
Envirepel (90 MW)	Wood waste MSW Green waste	Electricity Fuel Source Bio-Fuels By-Products	40	21
			(tested data 85% less)	



EEL Energy Facility



Envirepel Energy Confidential

DWG: EE-BEP-SSD1 06/02/2006

AES Delano

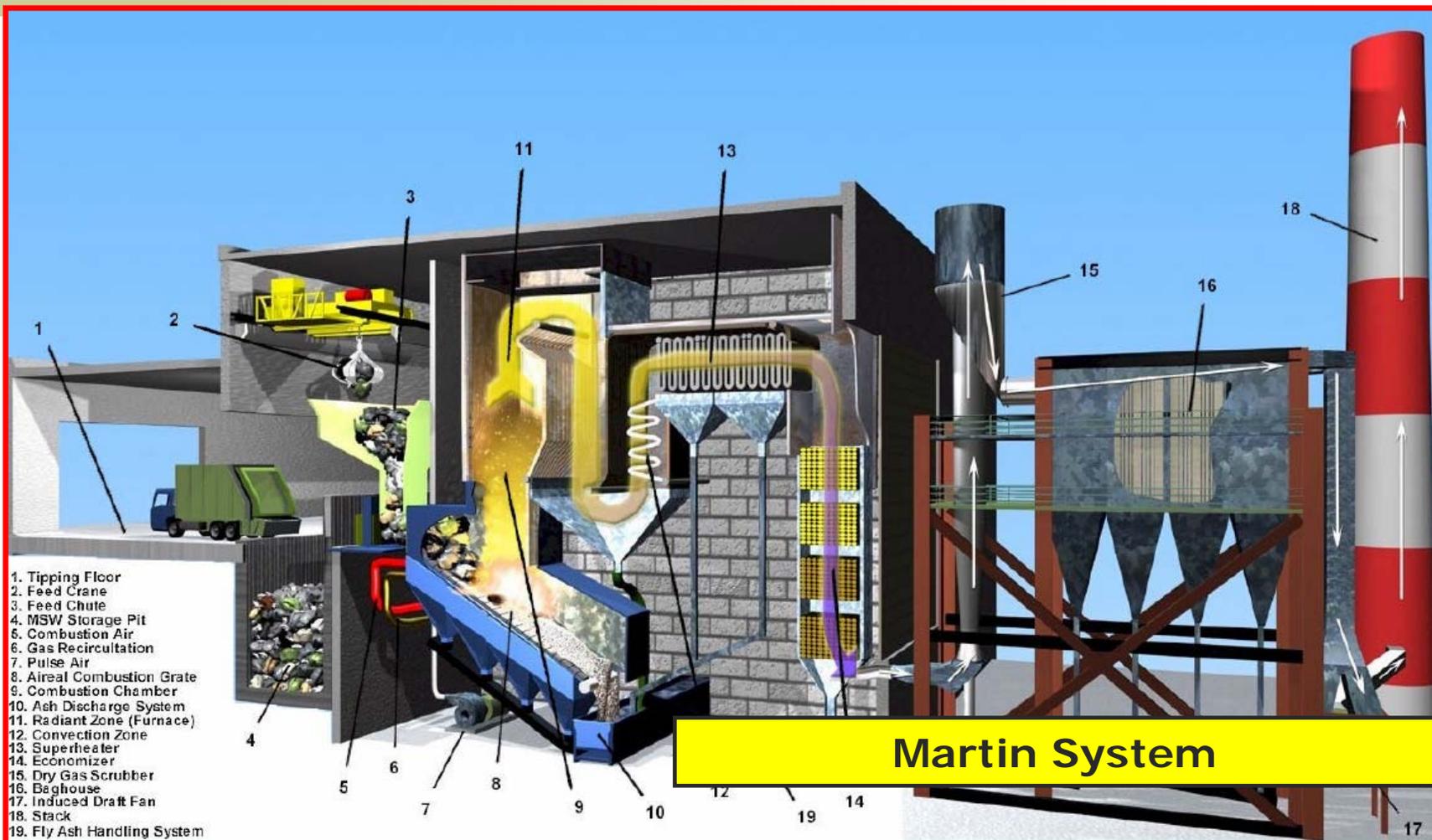
Traditional Biomass Facility



Fluidized Bed System

Traditional Waste to Energy

Aging and Inefficient Process



Forest Thinning in Southern California

2003 Power Industry Perspective on Barriers to Biomass Utilization by William H. Carlson, Wheelabrator Technologies

*Will Biomass Power Plants
Be Part of the Solution?*

*By : William H. Carlson, Vice President, Wheelabrator Technologies
Anderson, California*

The Model

Biomass Power Plant Economics:

Assumptions:

20 year financing

80% debt @ 8%

20% equity @ 15% return

Fuel Cost of \$15/BDT



Costs:

Debt/Return	2.5 ¢/KWH
O & M	1.8
Fuel	1.5
A & G, Profit	0.8
	<u>6.6 ¢/KWH</u>

Revenue:

Bulk Power Market	3.8 – 4.0	¢/KWH
Renewable Premium (RPS, Tradable Credit, Etc)	1.0 – 1.2	¢/KWH
Subtotal	<u>4.8 – 5.2</u>	¢/KWH
Federal Biomass Tax Credit (pending)	1.8	¢/KWH
Total	<u>6.6 – 7.0</u>	¢/KWH

Permitting Regulations (or lack thereof)

- Size of project or type of technology utilized dictates who's rulebook gets used
 - Integrated Waste Management Board (IWMB)
 - California Energy Commission (CEC)
 - Local jurisdiction
- Local zoning and building codes
 - Vary by County and City (Kern vs San Diego biomass)
 - Not updated with State and Federal standards
- State Permitting rules and technology definitions
 - Conflicts between Agencies definitions of technology ... “what is this thing you want to permit?” or, “I don't have a box to check for this”

Permitting Regulations

- Take the confusion on “what is it?” and combine that with local politics in an permitting environment that does not have a finite timelines and you understand why nobody (bankers, financing, engineering) wants to be first when it comes to emerging technologies utilizing biomass.
- **(keep in mind “nobody” doesn’t want to be last either)**

Financing

Construction Phase

- Equity - Tax Issues rule the day
 - Debt - Risk Issues rule the day
 - Grants - How well can you write a report
 - EPC Wrap - Who will guarantee that it works
-
- Money is available, it's who will own and control it that is of concern to the developer, and the Regulatory Agencies

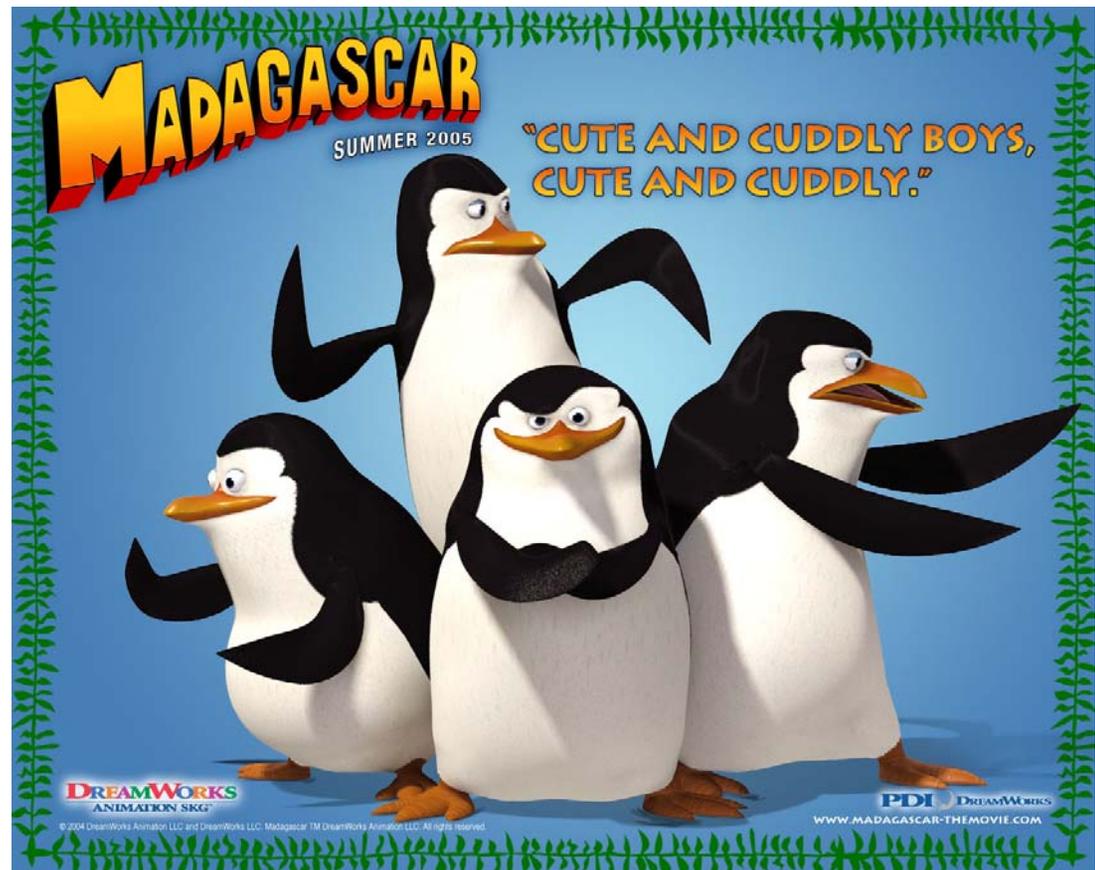
Technology and Fuel Supply

- Biomass usually means “from the forest”
- Waste to Energy means “from the garbage”
- Technology choice is determined by who will finance it (risk)
- Risk is determined by the lack of a clear path and timeline to permit and construct a project
- Time means more than money

A Barrier to Entry that someone left out of the guide book

Politics

Where Cute
and Cuddly
doesn't
work, and
political
influence
rules the
day



Politics

■ Project to Project

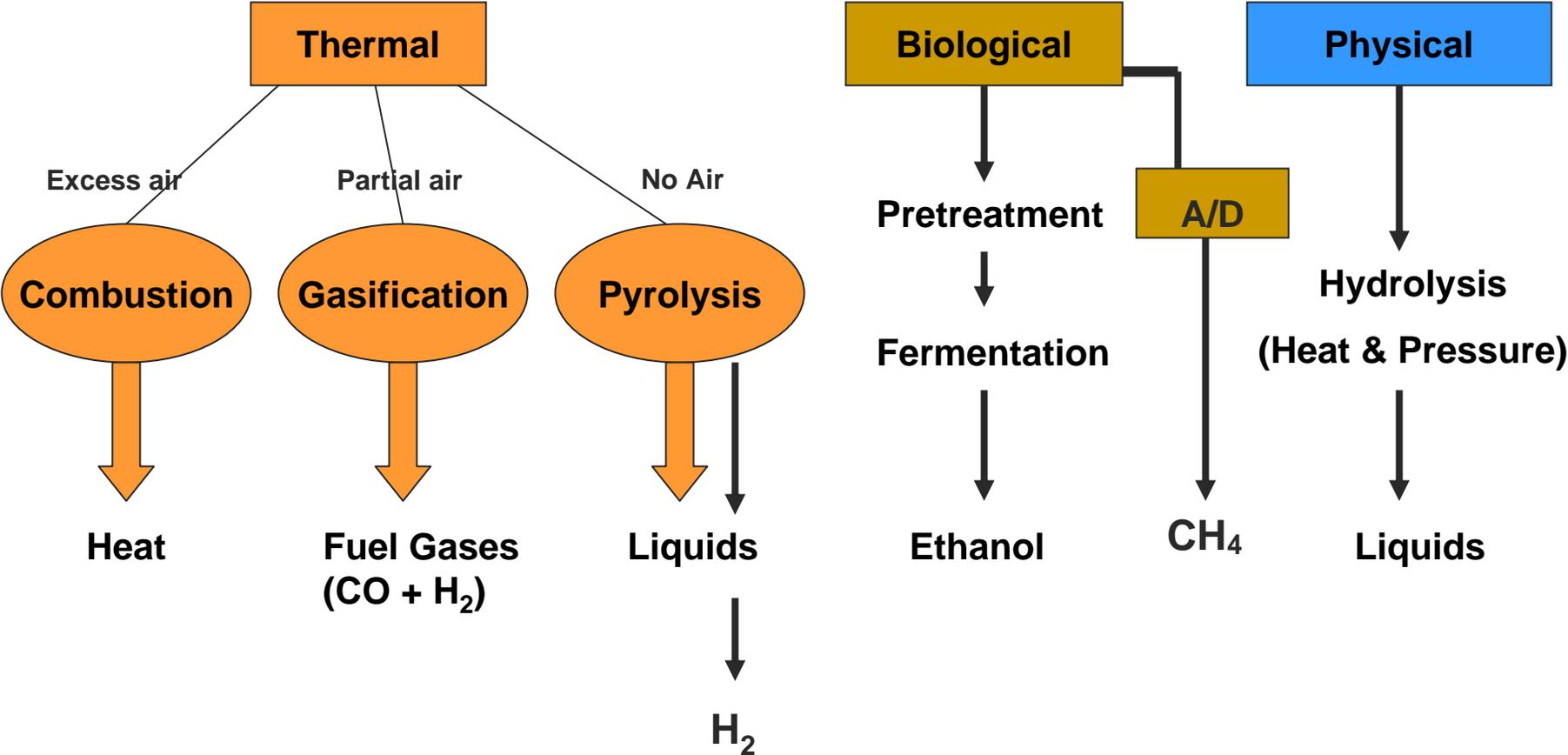
- Projects like high density houses, landfills, & commercial development, have significant environmental impacts and try to stay out of the public eye as much as possible until land use environmental issues are removed by re-zoning, or General Plan Updates.
- These projects can have political influence with local Politicians and can directly impact the processing of local permit applications that they see as attracting unwanted public attention to their re-zoning efforts.

BACT

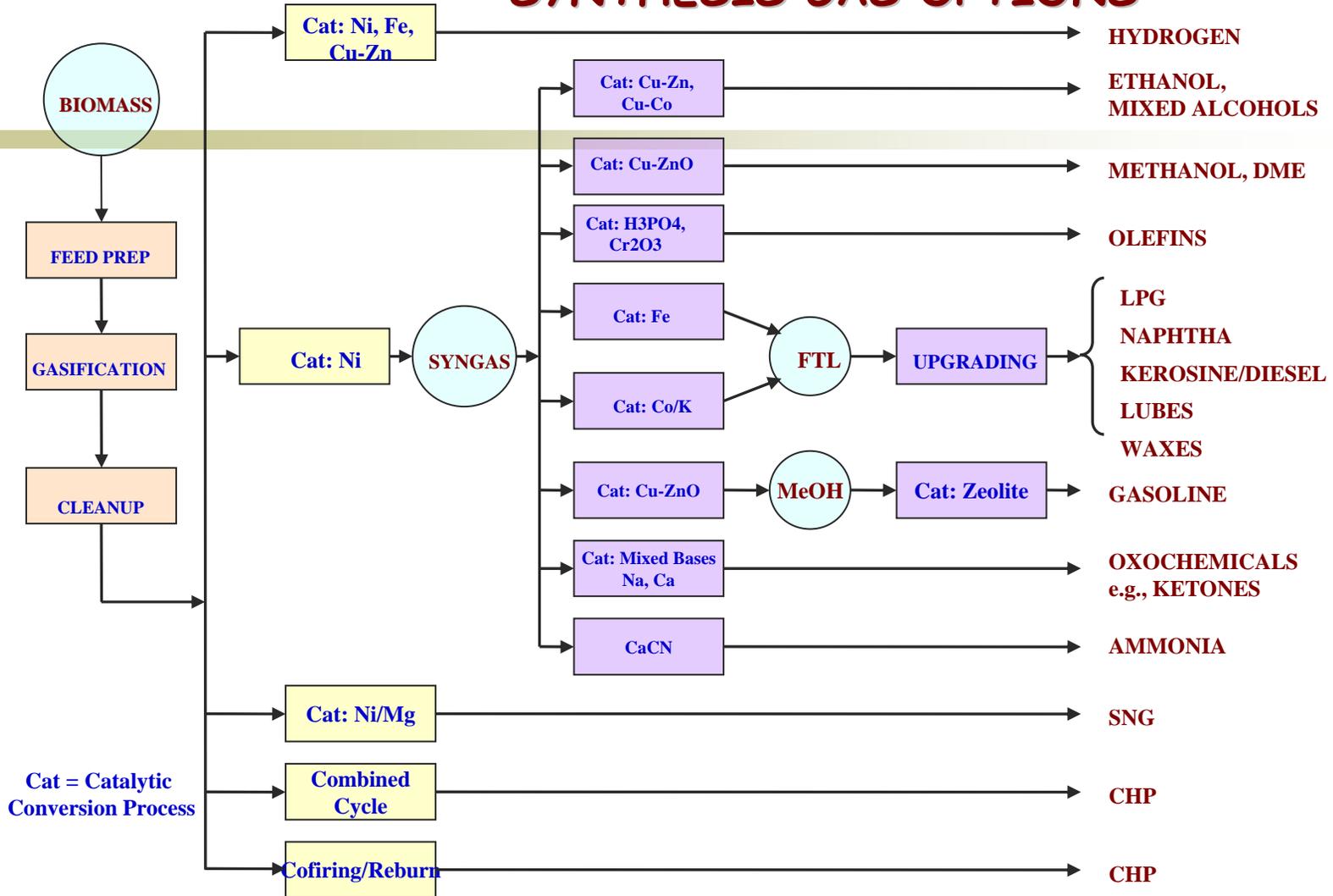
Gasification / Combustion Hybrid



Biomass Conversion Pathways



SYNTHESIS GAS OPTIONS



Historical Natural Gas Costs

05/30/2003 C=6.251 +.866 O=5.370 H=6.440 L=5.220 Mov Avg 3 lines



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Thank You

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