

Panel Questions

1. Is it better to buy or lease your compression?
2. Is it better for the producer or the gatherer to do the compression?
3. Does the operator see a difference in availability given alternatives of
 1. A) Self-maintenance B) Equipment leasing company performing the maintenance C) Maintenance by a dedicated 3rd party?
4. How important is equipment age to operational integrity?
5. Is predictive health monitoring being used on reciprocating equipment? If so, how are the benefits measured?
6. How does an operator company ensure that leased equipment is optimally configured for the latest operating conditions?
7. What is the impact of the MLP on the operator? Short term?, Long term?
8. Within a producer company, how does contractual record keeping & other controls compare to non-compressor categories (like drilling for example)?



Defining the Upstream- Who we are

UPSTREAM

DOWNSTREAM

- ◆ Producers
 - Over 6,300 producers in US (21 majors)
 - 18.5 TCF production
- ◆ Processors
 - 530 Processing plants in the US
 - Per year: 15 TCF, 630 million barrels of NG liquids
- ◆ Pipelines
 - 160 pipeline companies in US
 - 300,000 miles of pipe
 - Transporting 148 BCF / day
- ◆ Storage
 - 123 natural gas storage operators
 - 400 underground storage caverns
 - Storage deliverability of 85 BCF / day
- ◆ Marketers
 - ~260 Companies involved in marketing
 - 80% of Gas consumed goes through marketers
- ◆ Local Distribution Companies
 - 1,200 LDC's
 - Own 1.2 million miles of distribution pipe



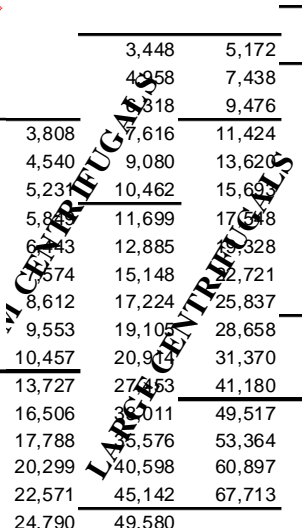
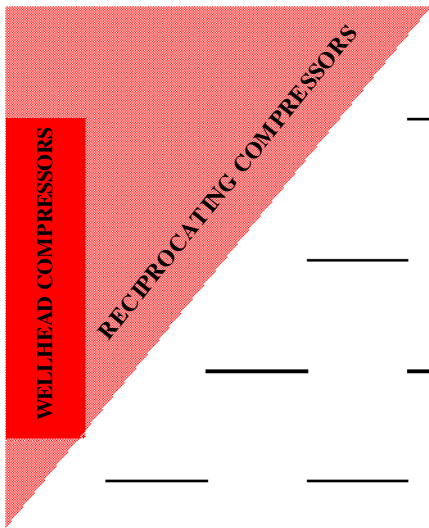
Defining the Upstream- Applications



GIVEN:

Inlet Pressure, psia= 500
 Inlet Temp, F= 60
 MW= 17.4

Pressure Ratio	Head, FT-LB/LBm	MMSCFD--> ACFM----->	10	15	25	50	100	200	300	500	750	1000	1250	1500	1750	2000
1.1	4,156		190	285	475	949	1899	3798	5696	9494	14241	18988	23734	28481	33228	37975
1.2	8,014									4,548	6,822	9,096	11,370	13,644	15,918	18,192
1.4	15,191							3,448	5,172	8,621	12,931	17,241	21,551	25,862	30,172	34,482
1.6	21,844							4,558	7,438	12,396	18,594	24,792	30,990	37,189	43,387	49,585
1.8	27,832							5,818	9,476	15,794	23,691	31,588	39,485	47,382	55,279	63,176
2	33,553							3,808	7,616	11,424	19,041	28,561	38,081	47,602	57,122	66,642
2.25	40,000							4,540	9,080	13,620	22,699	34,049	45,399	56,748	68,098	
2.5	46,091							5,231	10,462	15,693	26,156	39,234	52,312	65,389		
2.75	51,537							5,843	11,699	17,048	29,246	43,870	58,493			
3	56,765							6,454	12,885	19,328	32,213	48,320	64,427			
3.5	66,731							7,574	15,148	22,721	37,869	56,803				
4	75,881							8,612	17,224	25,837	43,061	64,592				
4.5	84,166							9,553	19,105	28,658	47,763	71,645				
5	92,133							10,457	20,914	31,370	52,284					
7	120,943							13,727	27,453	41,180	68,633					
9	145,427							16,506	33,011	49,517						
10	156,727							17,788	35,576	53,364						
12	178,852							20,299	40,598	60,897						
14	198,868							22,571	45,142	67,713						
16	218,419							24,790	49,580							
18	238,384		4,058	6,765	13,528	27,056	54,112									

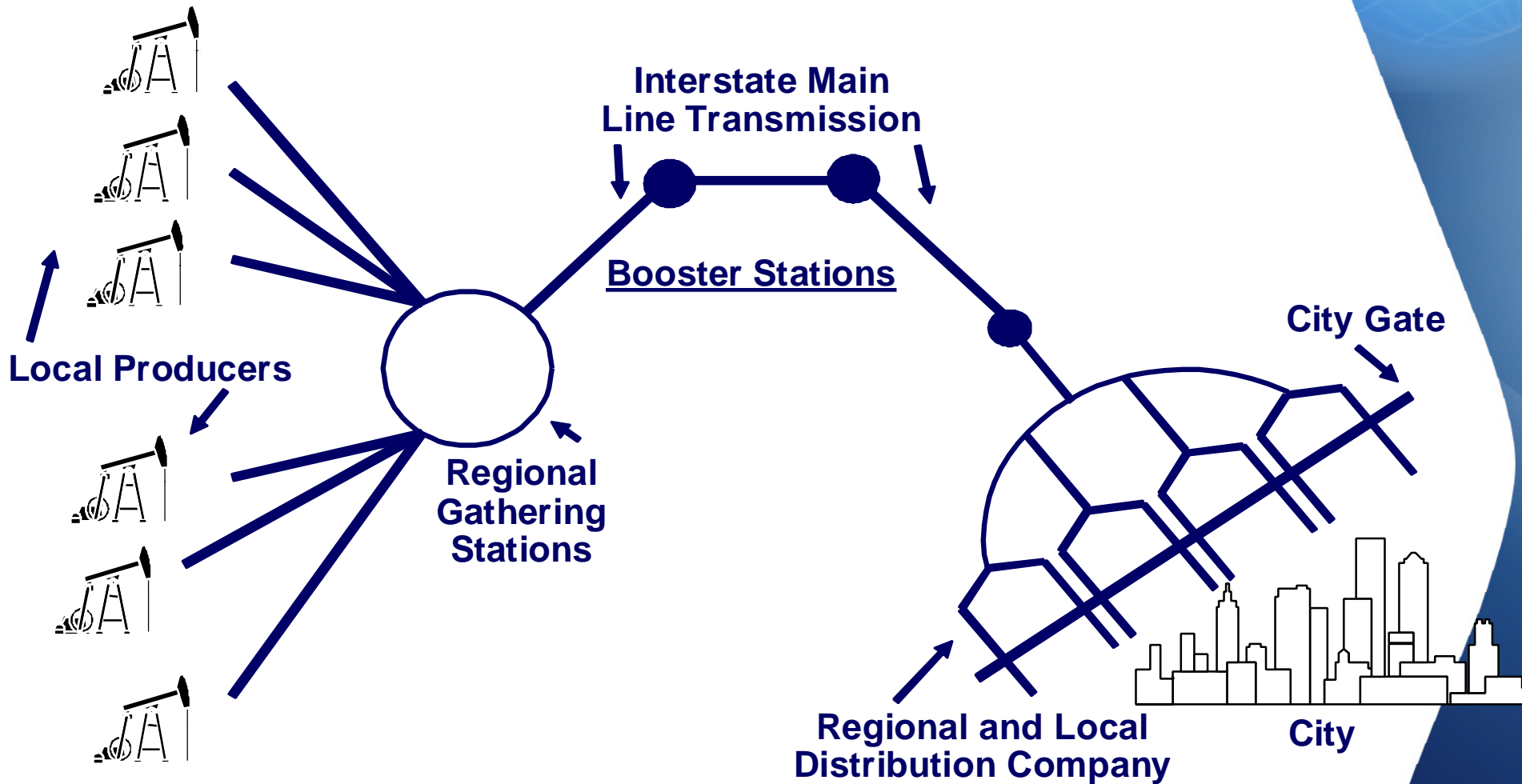


MULTIPLE...
 LARGE GAS TURBINES...
 AND CENTRIFUGALS ARE USED IN THIS RANGE

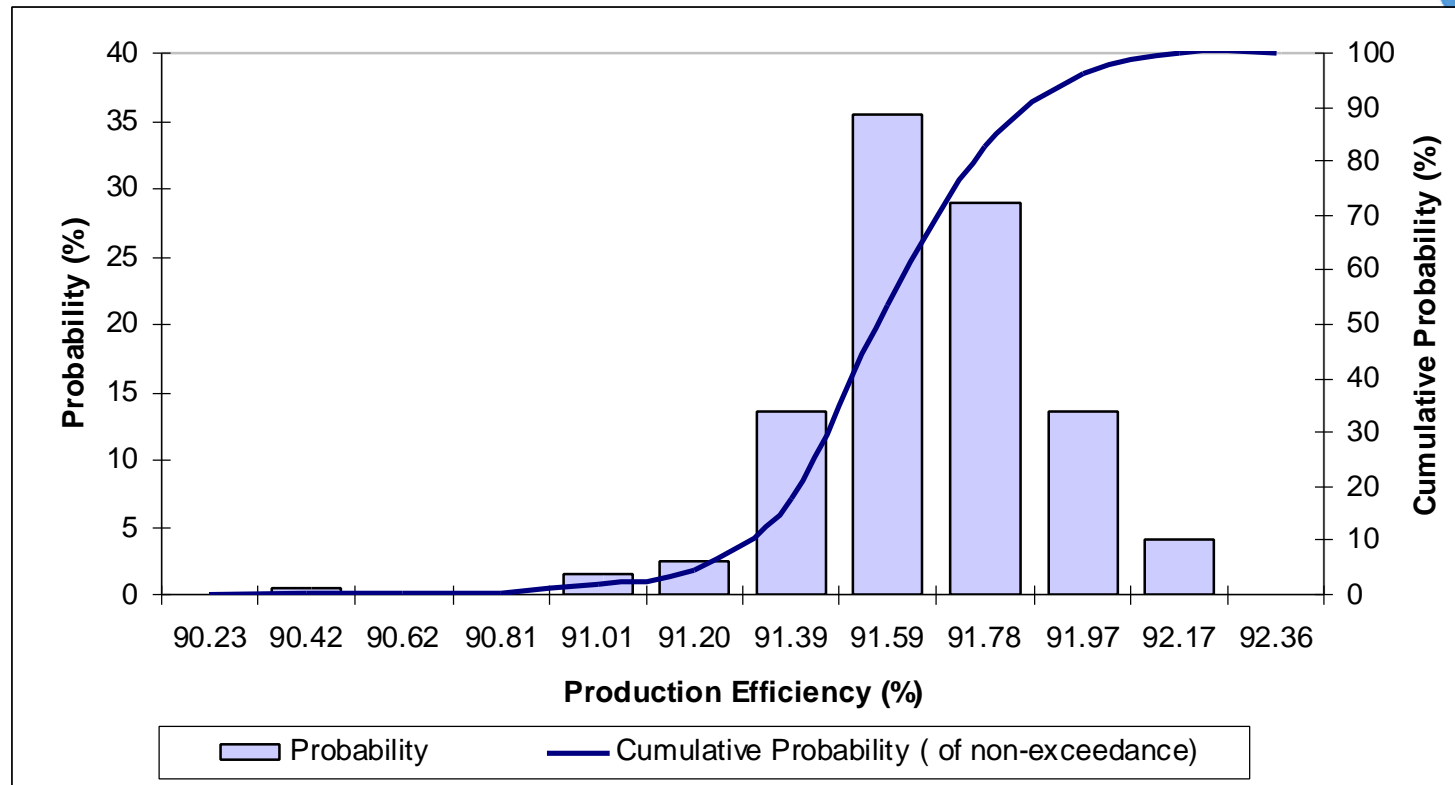
- NOTES: 1. Italics print for pressure ratio & head most exclusively represents pipeline transmission applications (Pipeline style compressors)
 2. Normal print for pressure ratio & head most exclusively represents oil & gas gathering & production (Barrel style compressors)

Technology Application Differences Across the Power Spectrum





RAM Analysis Example



There is a 92% probability that the plant production availability will be between 91.4% and 92.0%.

Centralized Compression- High Plant Availability not Easy to Achieve

