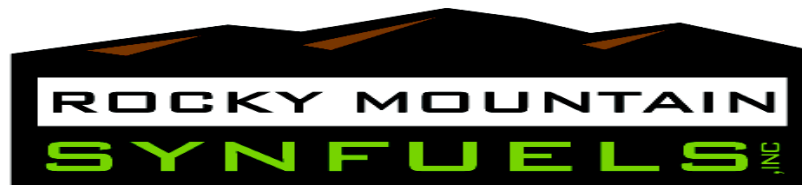


MARKETING UTAH'S NON-CONVENTIONAL HYDROCARBON RESOURCES

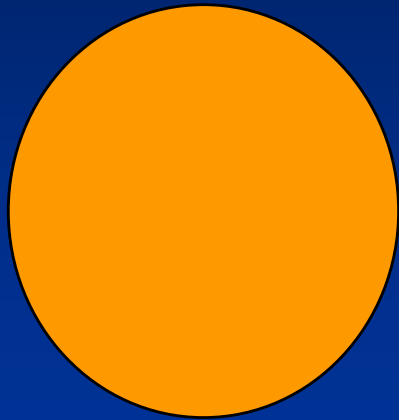


Vincent J Memmott
President



Developing the Infrastructure to
Support Utah Oil Sands and
Shale Oil Production

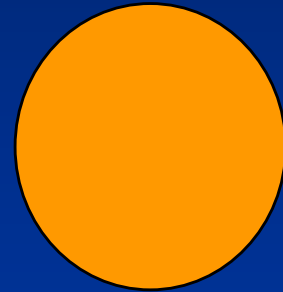
RELATIVE RESOURCES



ALBERTA
TAR SANDS



UTAH
TAR SANDS



UTAH
SHALE OIL



Oil Sands Development

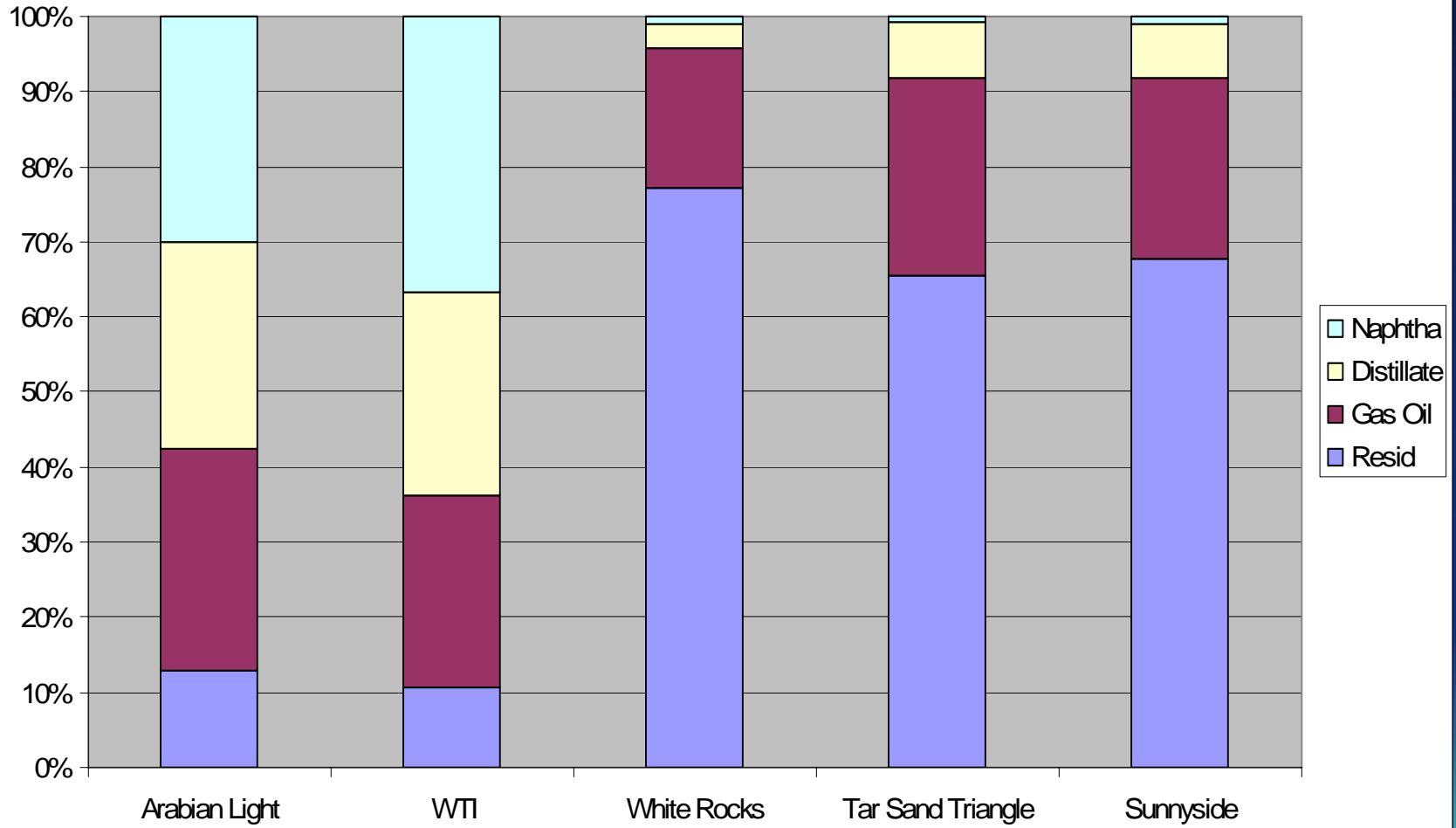
Develop a resource that has market value.



Bitumen Marketing Challenges



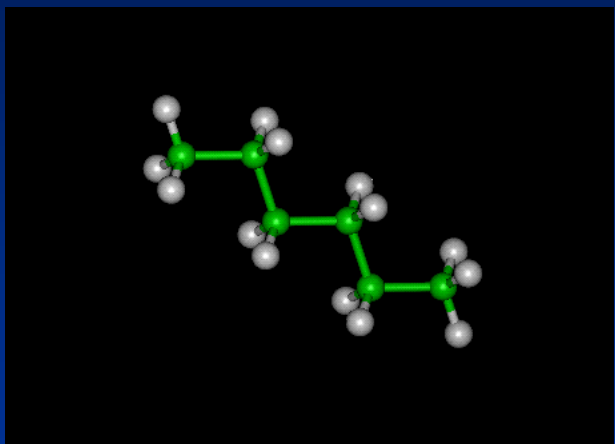
Crude vs. Bitumen



Crude vs. Bitumen Properties

	Arabian Light	WTI	White Rocks	Tar Sand Triangle	Sunnyside	Alberta
API Gravity	34.4	39.6	10.3	8.6	5.5	10
Sulfur, wt. %	1.69	0.333	0.4	4	0.6	4.7
Nitrogen, wt. %	0.07	0.073	1.3	0.4	0.7	0.5

Chemical Structure

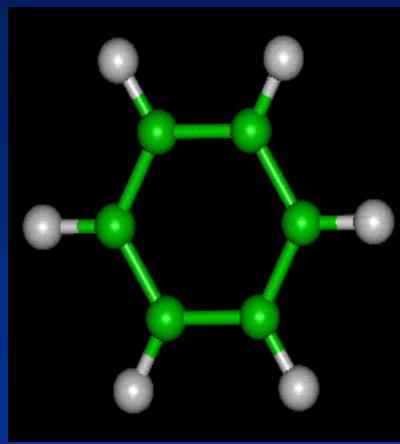


Hexane

6 Carbon

14 Hydrogen

H/C = 2.33

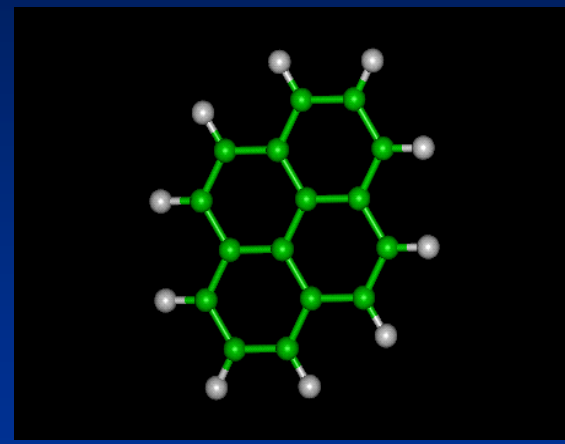


Benzene

6 Carbon

6 Hydrogen

H/C = 1.0



Pyrene

16 Carbon

10 Hydrogen

H/C = .63

Add Hydrogen or Remove Carbon

	Arabian Light	WTI	White Rocks	Tar Sand Triangle	Sunnyside	Alberta
H/C Atomic Ratio	1.82	1.89	1.61	1.47	1.56	1.49



Proven Technologies

- Carbon Removal
 - Delayed Coking
 - Fluid Coking
- Hydrogen Addition
 - Hydrotreating



Shale Oil Upgrading

- More Shale Oil in the West than Crude Oil in the World
- Attractive Product Distribution
- High Nitrogen Content – 1.5 wt.%
- Hydrotreating for Nitrogen Removal
- Requires Significant Hydrogen for Upgrading



Learning from Canada

- Economy of Scale
- Produced Syncrude to Create Market
- Pipeline to Markets
- Raw bitumen needs diluent
- Persuaded Market Refiners to Upgrade
- Helped Capitalize Some Refinery Projects



Local Bitumen Market

- 5,000 B/D as Asphalt
- 8,000 B/D Coking



Market

- Rocky Mountain Refineries
 - Utah – 160,000 B/D
 - Wyoming – 160,000 B/D
 - Colorado – 100,000 B/D
 - Montana – 190,000 B/D
- Pipeline to Casper
- Pipeline to West Texas
- Pipeline to California



ROCKY MOUNTAIN SYNFUELS

- Regional Upgrading Facility
- Transportation to Larger Refining Market
- Jointly Developing a 10,000 B/D Shale Oil Hydrotreating Facility



ROCKY MOUNTAIN SYNFUELS

- 50,000 B/D Shale Oil Upgrading
 - High Quality Synthetic Crude
 - Bitumen/Synthetic Crude Blend
- Pipeline to larger refinery market
- Expand every other year to 300,000 B/D
 - 50,000 B/D Shale Oil Hydrotreating
 - 50,000 B/D Bitumen Coking/Hydrotreating





Developing the Infrastructure to
Upgrade and Market Utah's
Non-Conventional
Hydrocarbon Resources

QUESTIONS

