McClellan-Kerr Arkansas River Navigation System

Oklahoma’s Greatest Liquid Asset

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October 31, 2017
Oklahoma’s Greatest Liquid Asset

RAINFALL

- More Than 230,000 Square Miles of Drainage Basin (Colorado; New Mexico; Texas; Kansas; Missouri; Arkansas; Oklahoma)
- More Than 3200 Miles of River Flow Into Upstream Reservoirs (Arkansas; Canadian; Grand; Verdigris; Illinois)

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The MKARNS
Authorized in 1946
Construction Completed in 1970
$1.2 Billion Federal Investment
Largest Civil Works Project in American History.

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McClellan-Kerr Arkansas River Navigation System
(MKARNS)
Conservation and Beneficial Use of Natural Resources

Navigation  Flood Control
Hydropower
Municipal and Industrial Water Supply
Wildlife Conservation
Recreation

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Maintenance of the MKARNS... Who?

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In 2016, it is estimated that the Arkansas River Basin Projects prevented $525 Million in flood damages within the Tulsa and Little Rock Corps Districts. Cumulative damages prevented are estimated to be $14.9 Billion.
System Flood Storage - 11 Reservoirs
Based on Conservation Pool Elevations
Total Flood Storage = 7,687,055 ac-ft

- Eufaula 1,510,793
- Tenkiller 576,700
- Wister 366,056
- Kaw 920,615
- Keystone 1,167,232
- Hulah 263,332
- Copan 186,857
- Oologah 1,007,060
- Hudson 244,210
- Pensacola 525,000
- Fort Gibson 919,200

Total Flood Storage = 7,687,055 ac-ft
26MAY2015  Lake Eufaula releases as much as 172,000 cubic ft per second (twice the rate of water going over Niagara Falls.)
The MKARNS:
Generates Electricity for Millions of Households
The USACE operates eight dams in the Arkansas River Basin that Generate Hydropower.

These eight projects account for:

- Electric Service to over 7 million people.
- 2.5 Million kilowatt-hours per year.
- A return of 37.4% of the total construction cost of the eight projects to the U.S. Treasury.

In addition to the eight USACE dams, there are seven non-federal hydropower plants on the Arkansas River and it’s tributaries.
The MKARNS:

Provides NAVIGATION!

445 navigable miles of inland waterway bringing the advantages of the most efficient, greenest, and cost-effective form of transportation to Arkansas, Oklahoma, and surrounding states.

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Importance of Waterway Transportation

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A 12-barge tow, loaded to 8½-foot draft can carry the equivalence of 720 semi-trucks!

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Transporting freight by water is also the most energy-efficient choice.

Barges can move one ton of cargo 616 miles per gallon of fuel. A rail car would move the same ton of cargo 478 miles, and a truck only 150 miles.
Barges have the smallest carbon footprint among other transportation modes.

To move an identical amount of cargo by rail generates 30% more carbon dioxide than by barge, and 1,000% more emissions by trucks than by barge.
### CY16 Commodity Comparison on the Oklahoma Segment of the McClellan-Kerr Arkansas River Navigation System (MKARNS)

**5,928,612 (Tons) / $1,996,731,024 (Value)**

<table>
<thead>
<tr>
<th>Commodity/Value Type</th>
<th>Tonnage</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron/Steel</td>
<td>369,350</td>
<td>$207,992,066</td>
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<tr>
<td>Chemical Fertilizer</td>
<td>2,458,714</td>
<td>$1,014,121,176</td>
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<tr>
<td>Other Chemicals</td>
<td>132,191</td>
<td>$54,523,500</td>
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<tr>
<td>Petro Prod</td>
<td>100,200</td>
<td>$32,958,786</td>
</tr>
<tr>
<td>Sand/Gravel/Rock</td>
<td>151,200</td>
<td>$1,253,448</td>
</tr>
<tr>
<td>Coke &amp; Coal</td>
<td>322,200</td>
<td>$14,982,300</td>
</tr>
<tr>
<td>Minerals/Building Materials</td>
<td>172,600</td>
<td>$14,954,870</td>
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<tr>
<td>Food/Farm Products</td>
<td>219,400</td>
<td>$46,427,234</td>
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<tr>
<td>Wheat</td>
<td>1,090,600</td>
<td>$142,934,036</td>
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<tr>
<td>Equip/Mach</td>
<td>26,457</td>
<td>$132,285,000</td>
</tr>
<tr>
<td>Soybeans</td>
<td>885,700</td>
<td>$334,298,608</td>
</tr>
<tr>
<td><strong>Totals:</strong></td>
<td><strong>5,928,612</strong></td>
<td><strong>$1,996,731,024</strong></td>
</tr>
</tbody>
</table>
**CY07 - CY16 10 YEAR COMMODITY COMPARISON BY TON ON THE OKLAHOMA SEGMENT OF THE McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM (MKARNS) 49,905,160 (TONS) / $26,182,355,447 (VALUE)**

### TONNAGE

- **IRON/STEEL**: 5,228,815 Tons
- **CHEM FERT**: 16,965,183 Tons
- **OTHER CHEM**: 806,934 Tons
- **PETRO PROD**: 3,629,316 Tons
- **SAND/GRAVEL/ROCK**: 1,100,200 Tons
- **COKE & COAL**: 4,191,500 Tons
- **MINERALS/BLDG MAT'S**: 1,770,800 Tons
- **FOOD/FARM PROD**: 3,100,100 Tons
- **WHEAT**: 6,845,082 Tons
- **EQUIP/MACH**: 185,018 Tons
- **SOYBEANS**: 5,755,312 Tons
- **MISC**: 326,900 Tons

**TOTALS:** 49,905,160 Tons

### VALUES

- **IRON/STEEL**: $3,184,348,335
- **CHEM FERT**: $12,769,014,637
- **OTHER CHEM**: $607,346,944
- **PETRO PROD**: $3,370,944,994
- **SAND/GRAVEL/ROCK**: $9,120,658
- **COKE & COAL**: $264,148,330
- **MINERALS/BLDG MAT'S**: $1,456,394,460
- **FOOD/FARM PROD**: $656,012,161
- **WHEAT**: $913,202,390
- **EQUIP/MACH**: $925,090,000
- **SOYBEANS**: $1,961,352,776
- **MISC**: $65,379,762

**TOTALS:** $26,182,355,447
10 YEAR LINE CHART ON VALUE TOTALS ON THE OKLAHOMA SEGMENT OF THE MKARNS FROM CY07 THRU CY16
Tulsa Port of Catoosa - head of navigation
Oakley’s Port 33
35-Acre Original Facility
Oakley’s Port 33
Port 33 – South Facility
80-Acre New Development
This regenerator head was built in Tulsa by HSI and was shipped to a Chevron plant in Pascagoula, Mississippi by barge. The dimensions were 30 feet high by 42 feet wide, and it weighed 250 tons.
MJ&H Fabrication in Ponca City built this 219-ton, 27.5' by 180' Contained Burn Chamber for the Louisiana National Guard. It took a 4-day journey to the Tulsa Port of Catoosa by truck, and then was loaded via the Port’s Low Water Wharf to barge where it began a 10-day trip to Camp Minden, Louisiana.
### The McClellan-Kerr Arkansas River Navigation System

#### Vital Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Investment:</td>
<td>$5 Billion</td>
</tr>
<tr>
<td>Jobs:</td>
<td>8,000</td>
</tr>
<tr>
<td>Annual Payroll:</td>
<td>$350 Million</td>
</tr>
<tr>
<td>Total Annual Barge Tonnage:</td>
<td>5.5 Million Tons (4,000 barges annually) <em>Enough cargo for 240,000 trucks, long enough to stretch 2,640 miles</em></td>
</tr>
</tbody>
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**Governor’s Water Conference**

**October 31, 2017**
The River Center,
Three Forks Harbor and Marina
Arkansas River Flotilla
Arkansas River Flotilla
100-metric ton Marine Travel Lift
“...unless and until we can change our federal resourcing model, which in my view is fundamentally unsustainable, or shut down some of our projects or defund some of our projects, the reliability quotient is going to continue to go down.”

Priorities for the MKARNS:

- Three Rivers/Melinda Structure
- Backlog of Critical Maintenance – more than $143 million
- 12-Foot Channel