



EPC at UNC

**Maximizing the long-term benefits of
the Energy Performance Contract**

Agenda



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What is EPC?

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EPC at UNC

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Project Highlights

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Lessons Learned

What is Energy Performance Contracting or “EPC”?

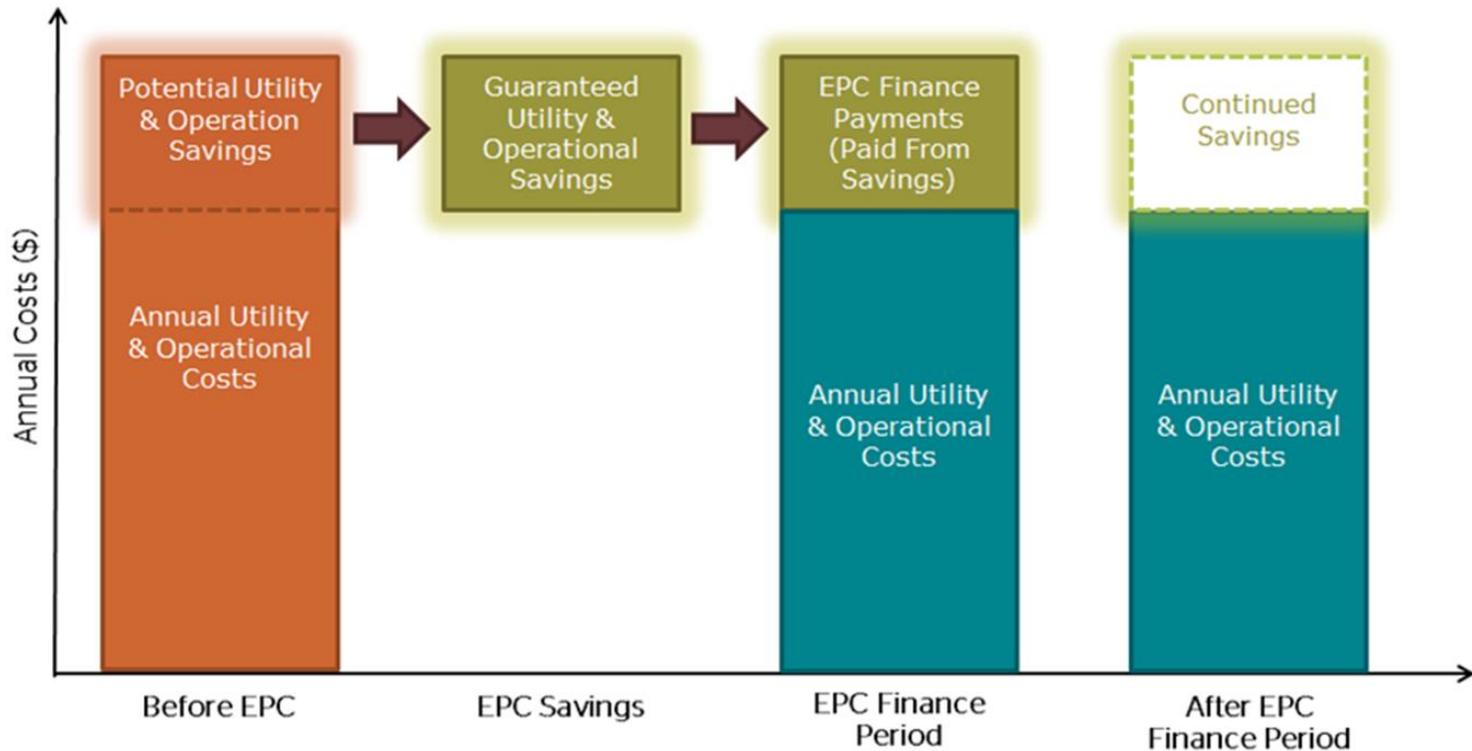


“An innovative contracting mechanism which provides the funding for facility improvements today through future utility and operational cost savings”

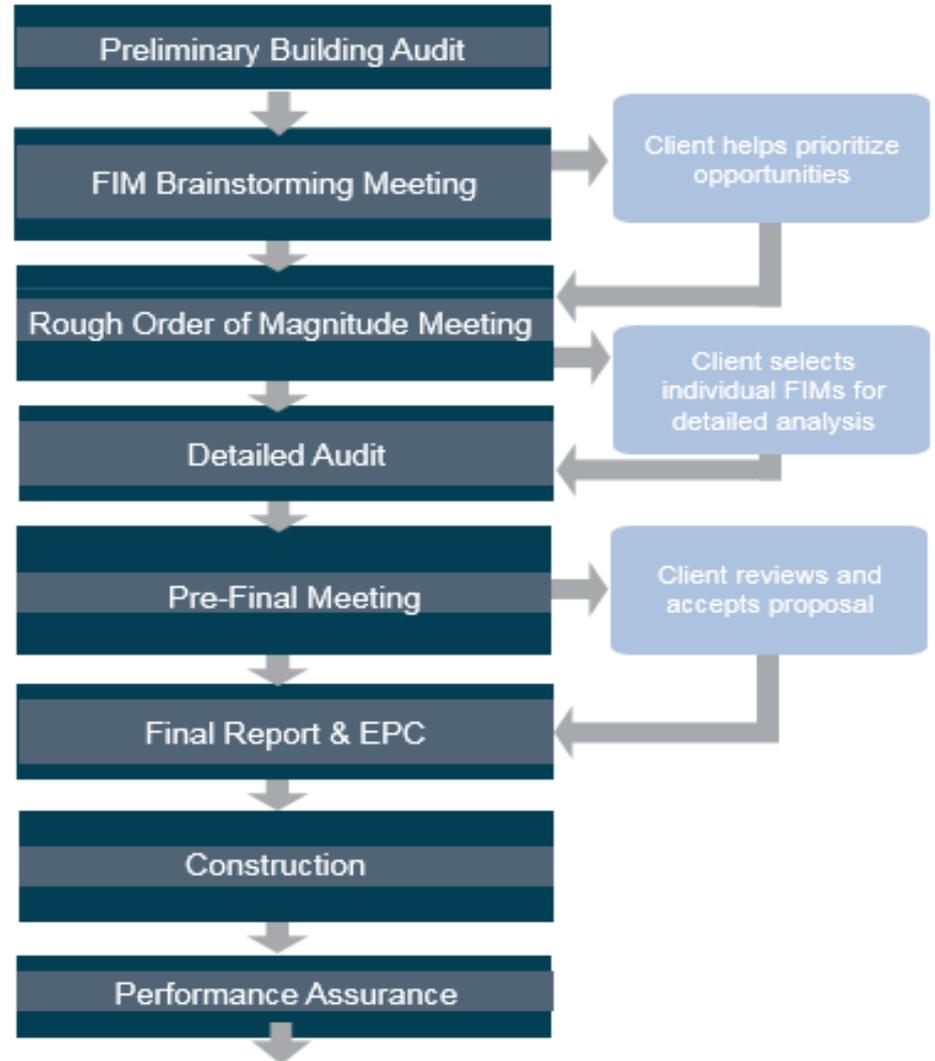
- Energy Services Coalition



EPC Funding Overview



What was the process?



History of EPC at UNC



- First Energy Performance Contract – early 2000s
 - New Boiler
 - T8 lighting upgrade

- Second Energy Performance Contract – 2015
 - New Chiller Plant
 - LED lighting upgrade

UNC By the Numbers



12,000
Total University
Enrollment

260
Acres of university-owned
Land

3 million
Square Feet of facility space

\$5.8 million
Annual Utility Spend

EPC Project Financial Summary



Category	Amount
Project Construction Cost	\$8.87M
Annual Utility Savings	\$547K
Annual O&M Savings	\$39K
Annual CO2 Reduction	5,709 tons
Finance Period	15 years
Estimated rebates	\$286K
Avoided Capital Construction Cost	\$3.36M

EPC Project Highlights



ANNUAL PROJECT OUTCOME



\$546,729 utility savings



21.1% reduction in electric EUI



18.5% building EUI reduction



16% reduction in natural gas EUI

- Turner Hall chiller plant
- Interior lighting – LEDs and occupancy controls
- Controls improvements and HVAC upgrades
- Water conservation measures
- Steam trap and pipe insulation
- 3 year occupant engagement program

Campus Engagement: Facilities & Staff



Campus Engagement: Operators



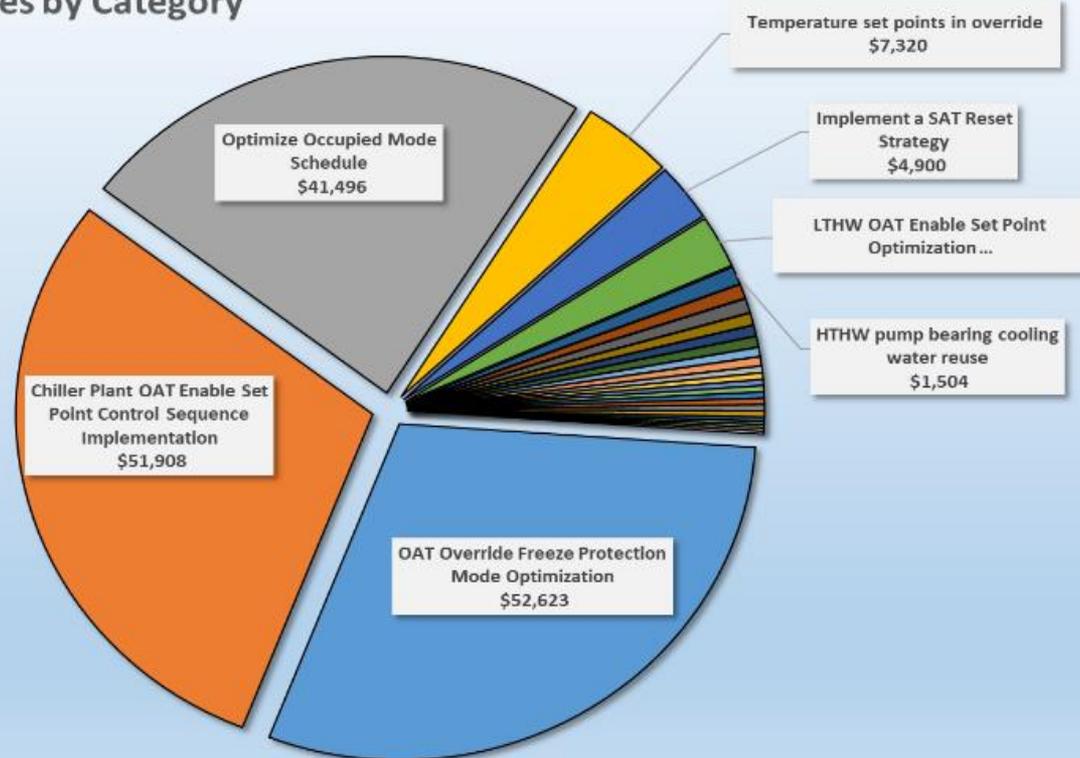
Over \$100k in savings from:

- Elimination of potable water used cooling
- Addition of chiller lockouts
- Optimize air handler operating schedules
- Shut-down concession area equipment
- Optimize air handler operation
- Correct temp controls, remove space heaters
- Kitchen equipment shut-downs over breaks
- Desk/standing lamp bulb swap with LEDs

Tracking Savings: Occupant Engagement



Savings Measures by Category



Tracking Savings



powerED Performance Dashboard

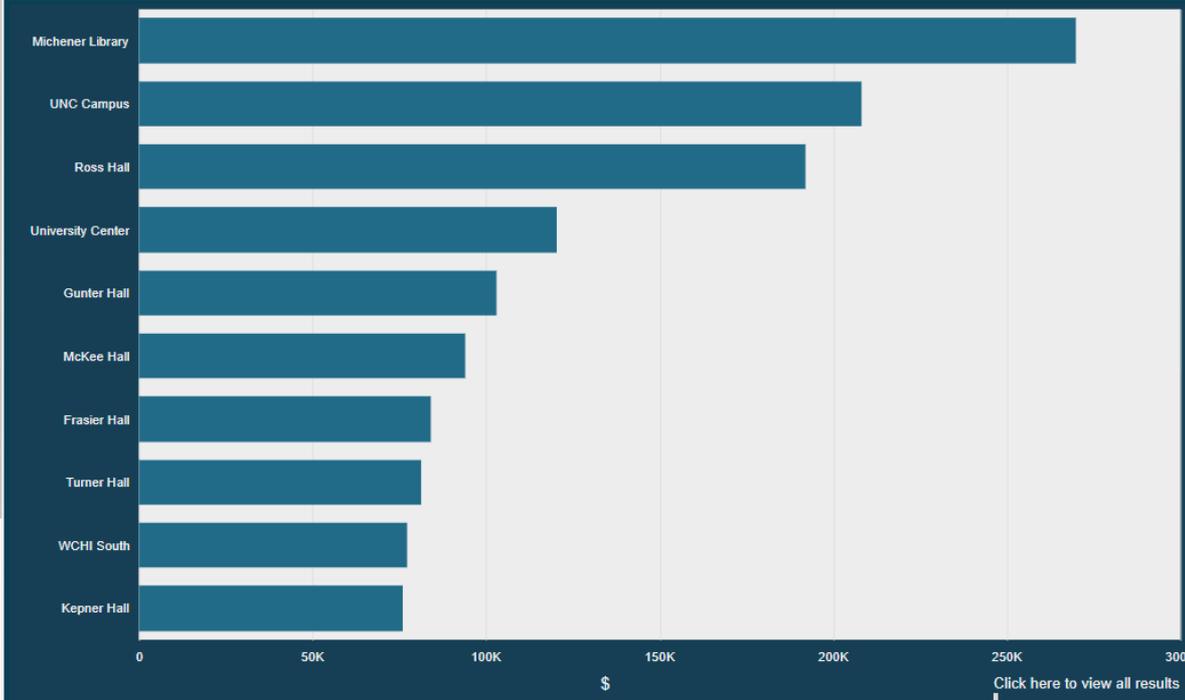
Log off

- OVERVIEW
- SAVINGS SUMMARY
- SAVINGS DETAIL
- BILL DATA
- LEARN MORE

Facility Rankings
Total Cost Avoidance

University of Northern Colorado

Savings Shown: 07/2016 - 04/2019
Baseline Period: 01/2015 - 12/2015



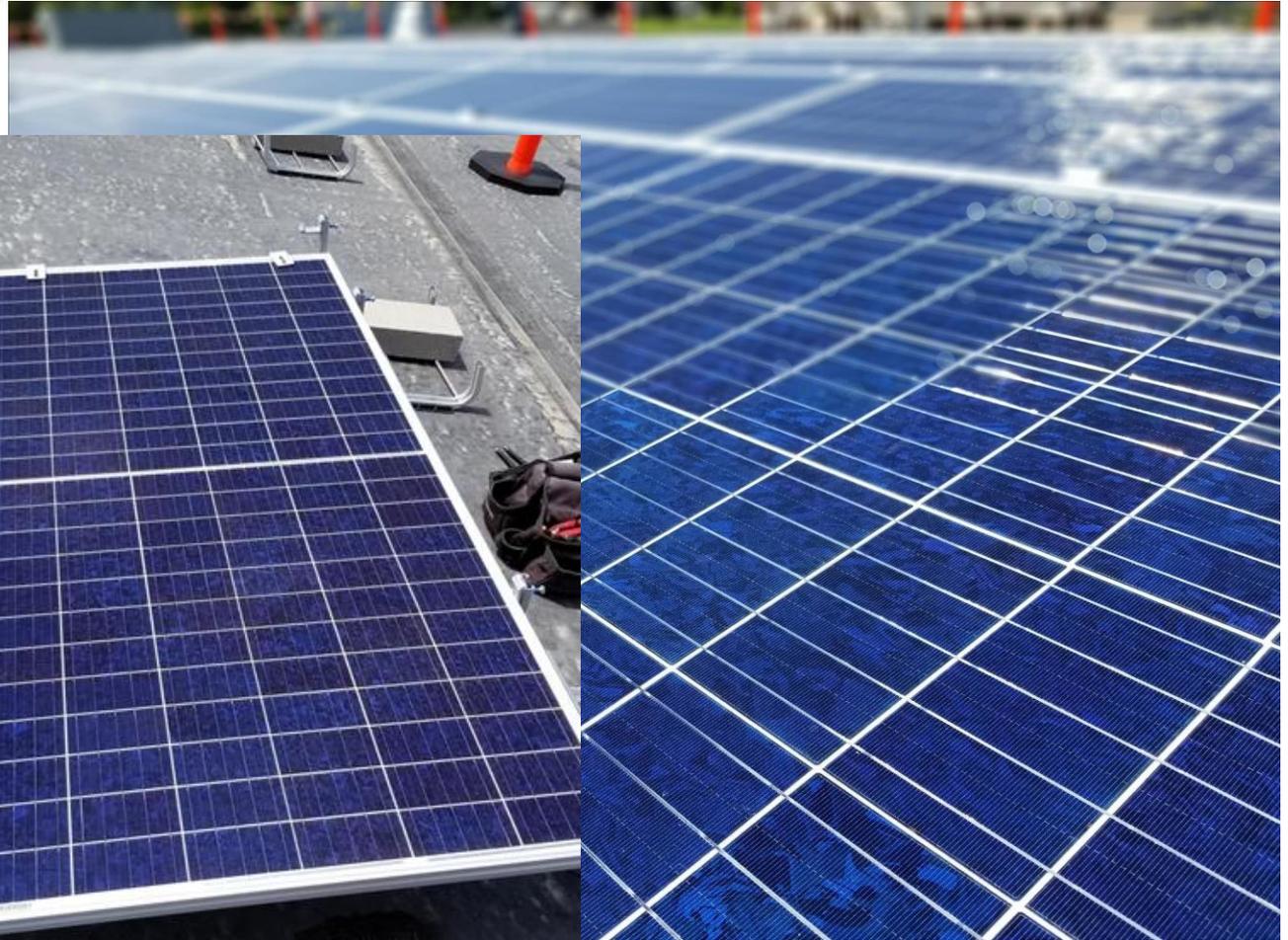
<p>ENERGY SAVINGS</p> <p>32%</p>	<p>COST AVOIDANCE</p> <p>\$2,083,841</p>
<p>TREES PLANTED</p> <p>5,848 acres</p>	<p>WATER SAVINGS</p> <p>46,165 kgal</p>
<p>ENERGY STAR</p> <p>15</p>	<p>ENERGY USE INDEX</p> <p>133</p> <p>ENERGY COST INDEX</p> <p>\$0.97</p>



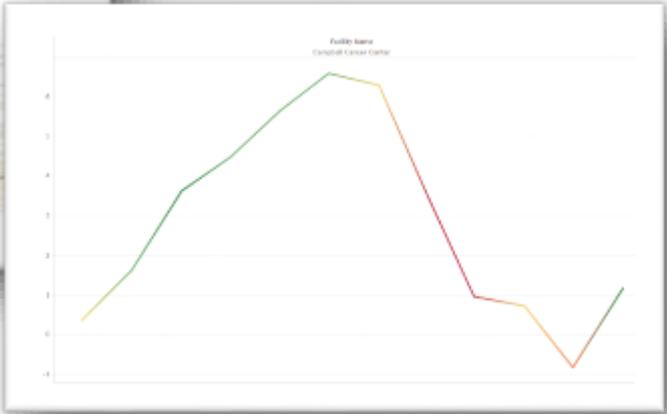
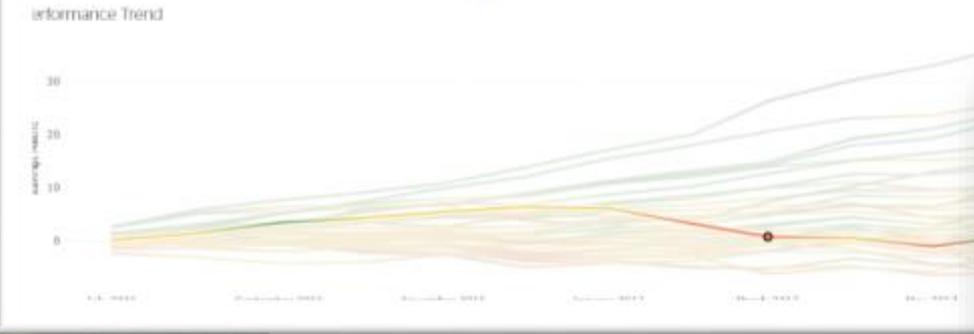
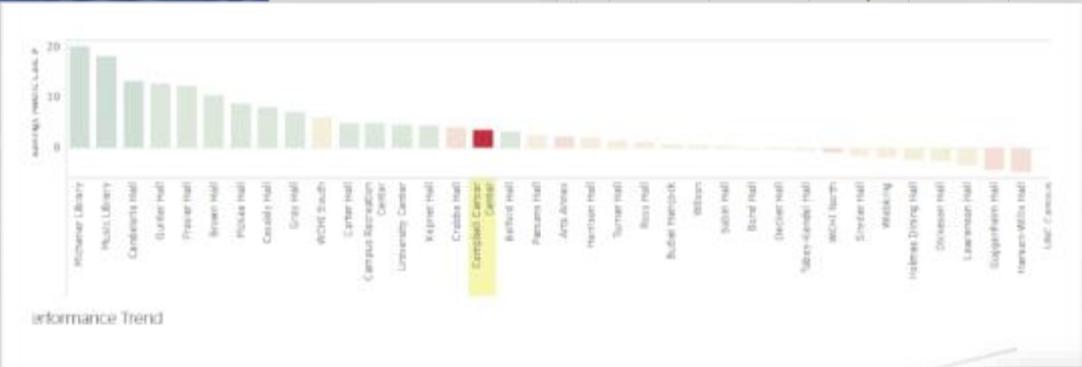
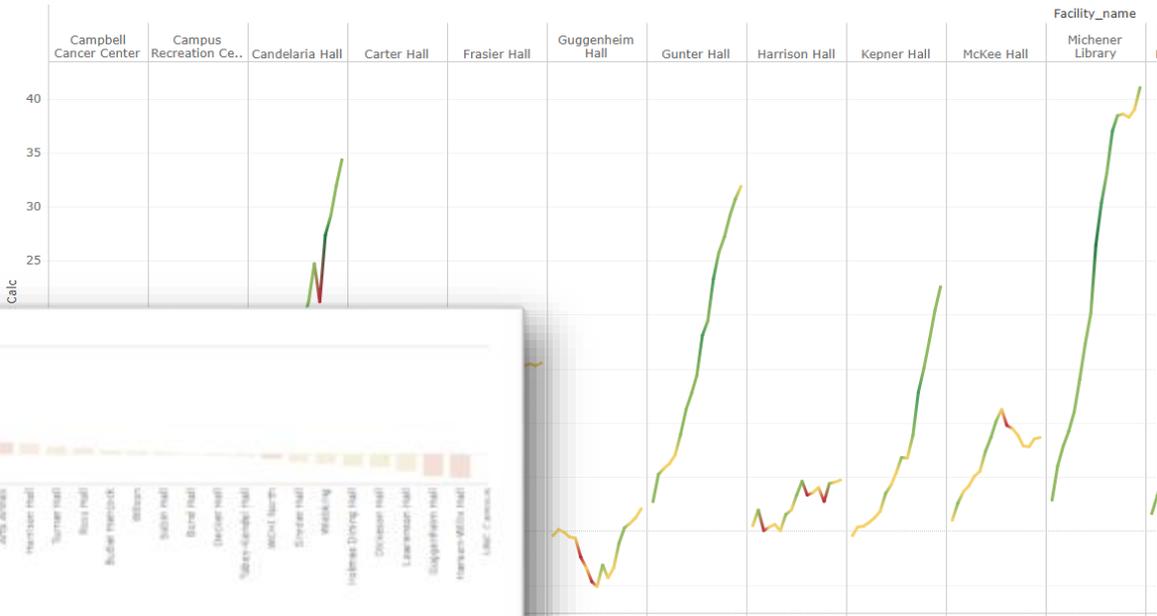
Click here to view all results

University of Northern Colorado **\$2,083,841**

What's Next? Solar Install & Lighting



What's Next? Ongoing Analytics



Lessons Learned

- Dedicate resources
 - Everything takes time
- Be thorough during your TEA
- Be patient if you choose ongoing support with building users
- Involve as many stakeholders as possible
- Think long-term
 - How will you maintain savings?





Questions?

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