CONVERSATION · TUE, OCT 13 · 10:30-11:00 AM

A Conversation with Torus CEO Nate Walkingshaw and Molly Wood

Nate Walkingshaw, CEO, Torus, Inc.; Molly Wood, Journalist, Molly Wood Media, and host of the Everybody in the Pool podcast

Torus CEO Nate Walkingshaw explained how flywheels and long-duration storage can firm renewables, relieve grid congestion and cut costs, financed over 20 years instead of upfront. For towns facing high power costs and data center load growth, Ticaboo, Utah shows what a microgrid can do.

KEY TAKEAWAYS

1. **Congestion drives cost and emissions.** When everyone uses the grid at once, utilities buy the nearest, priciest power, which is bad for rates and CO2. Storage at congested nodes shifts wind and solar into those hours.
2. **Flywheels firm intermittent renewables.** Torus flywheels last 25 years, are 95% recyclable and ignore temperature swings. They supply inertia that inverter-based batteries lack, easing microgrid builds and extending battery life.
3. **No upfront cost to the customer.** Torus finances equipment (about $1M per MW) and recovers it over a 20-year tariff or PPA, much like a transmission asset, plus $100 to $125 per kW a year from utilities.
4. **Ticaboo, Utah cut power costs fast.** On diesel since the 1970s at 83 cents/kWh, it now pays about 33 cents with solar, flywheels and storage, under a PPA targeting 24 cents. Some homes had paid $400 to $700 utility bills.
5. **Utility partnerships open the door.** Torus and Rocky Mountain Power announced 70 MW of demand response, expanding to 500 MW. A utility CEO's push took Torus from kilowatts to megawatt scale and taught it about congestion.

WHAT LOCAL OFFICIALS CAN DO

- ☐ **Ask your utility about demand response incentives.** Rocky Mountain Power's Wattsmart and Portland General Electric pay part of behind-the-meter storage; the utility can tap it briefly.
- ☐ **Size projects to stay under 20 MW.** Torus works from 250 kW and prefers 1 MW blocks; above 20 MW, projects leave small generator interconnection and face FERC bulk transmission rules.
- ☐ **Site storage at congested nodes.** Look at substations with lots of solar or wind, or where big motor loads run at once, like manufacturing districts. Right after new wind or solar works too.
- ☐ **Scope microgrids for critical facilities.** Start with an energy study of total use and growth goals; then combine storage with solar, wind, hydro, existing generators or cogeneration.
- ☐ **Store excess daytime solar.** Where substations max out on solar, store the negatively priced surplus and discharge it at night instead of running generation.
- ☐ **At ski areas, target snowmaking demand charges.** Peak shaving for snowmaking cuts demand charges or time-of-use costs; Woodward in Park City was at about 9% savings.
- ☐ **Compare storage to diesel backup.** Diesel generators are a capital cost that never pays back; storage also earns its keep through peak shaving, emergency backup and time-of-use savings.

BY THE NUMBERS

83¢/kWh
Ticaboo's diesel power cost before the microgrid

33¢/kWh
Ticaboo today, about 60% savings, toward a 24¢ target

~81%
Ticaboo CO2 reduction, about 320,000 kg (directional)

70 MW
Rocky Mountain Power demand response, to 500 MW

18%
Avg. savings across Torus sites (minimum about 5%)

25 yrs
Flywheel service life; 95% recyclable

WATCH OUT FOR

- ! With cheap power (one rural co-op was at 6.2 cents/kWh), the payback case shifts to peak shaving, backup and demand charges rather than energy cost; snowmaking is an example.
- ! Torus says chemical batteries need repowering about every 7 years, roughly 20 to 25% reinvestment to last 20 years. Ask vendors to show lifetime costs.

RESOURCES

Torus
torus.co

Rocky Mountain Power Wattsmart
Rocky Mountain Power demand response incentive that pays part of behind-the-meter storage

Ticaboo Utility Improvement District
Utah town that moved from diesel generators to solar, flywheels and storage

Everybody in the Pool
everybodyinthepool.com

Watch this and every SV26 session recording
mt2030.org/sv26sessions · Use the attendee password.

Summarized from the session recording and presenter slides. Figures are as presented; confirm with presenters before citing.

CONTACTS

Nate Walkingshaw
CEO, Torus, Inc.

Molly Wood
Journalist, Molly Wood Media; host, Everybody in the Pool