Electronic supplementary information (ESI):

Steric effect on Li\textsuperscript{+} coordination and transport properties in polyoxetane-based polymer electrolytes bearing nitrile groups

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Figure S1. Estimated molar conductivity ($\Lambda_{\text{est}}$) of the PEs as a function of LiTFSA content ($1/\alpha = [\text{Li salt}]/[\text{monomer unit}]$) at 30 °C and 70 °C. The $\Lambda_{\text{est}}$ values were calculated by dividing the conductivity at each temperature by $c_{\text{Li}}$ at room temperature.

Figure S2. Temperature dependencies of the ionic conductivity for (a) PCHO$_2$LiTFSA and (b) PCEO$_2$LiTFSA. The solid lines represent the Vogel-Tammann-Fulcher fit results.
**Figure S3.** Data for various electrochemical measurements used to calculate the transference number of PCEO$_5$LiTFSA at 50 °C. (a) Current with respect to time and (b) Nyquist plots of the initial ($R_0$) and steady state ($R_{ss}$).

**Figure S4.** Data for various electrochemical measurements used to calculate the transference number of PCHO$_5$LiTFSA at 50 °C. (a) Current with respect to time and (b) Nyquist plots of the initial ($R_0$) and steady state ($R_{ss}$).
Figure S5. Charge/discharge curves of a Li/PCEO₂LiTFSA/LiFePO₄ cell at a 0.05 C rate and 70 °C. The measurements were carried out in a range of 2.5–4.0 V (1 C = 117 μA, 149 μA cm⁻²).