

Exploration of hydrogen bond networks and potential energy surfaces of methanol clusters with a two-stage clustering algorithm

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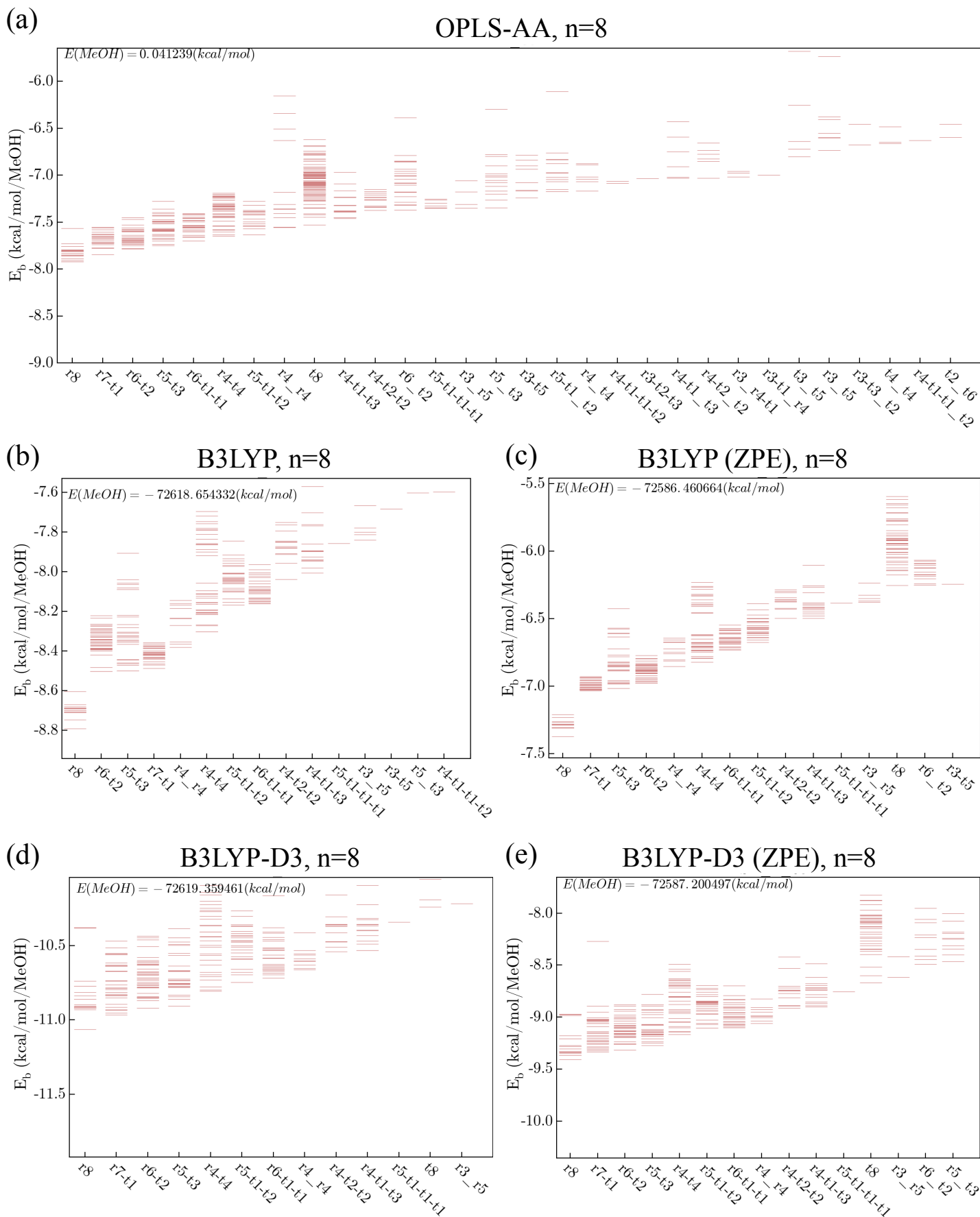


Figure 1s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_8$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

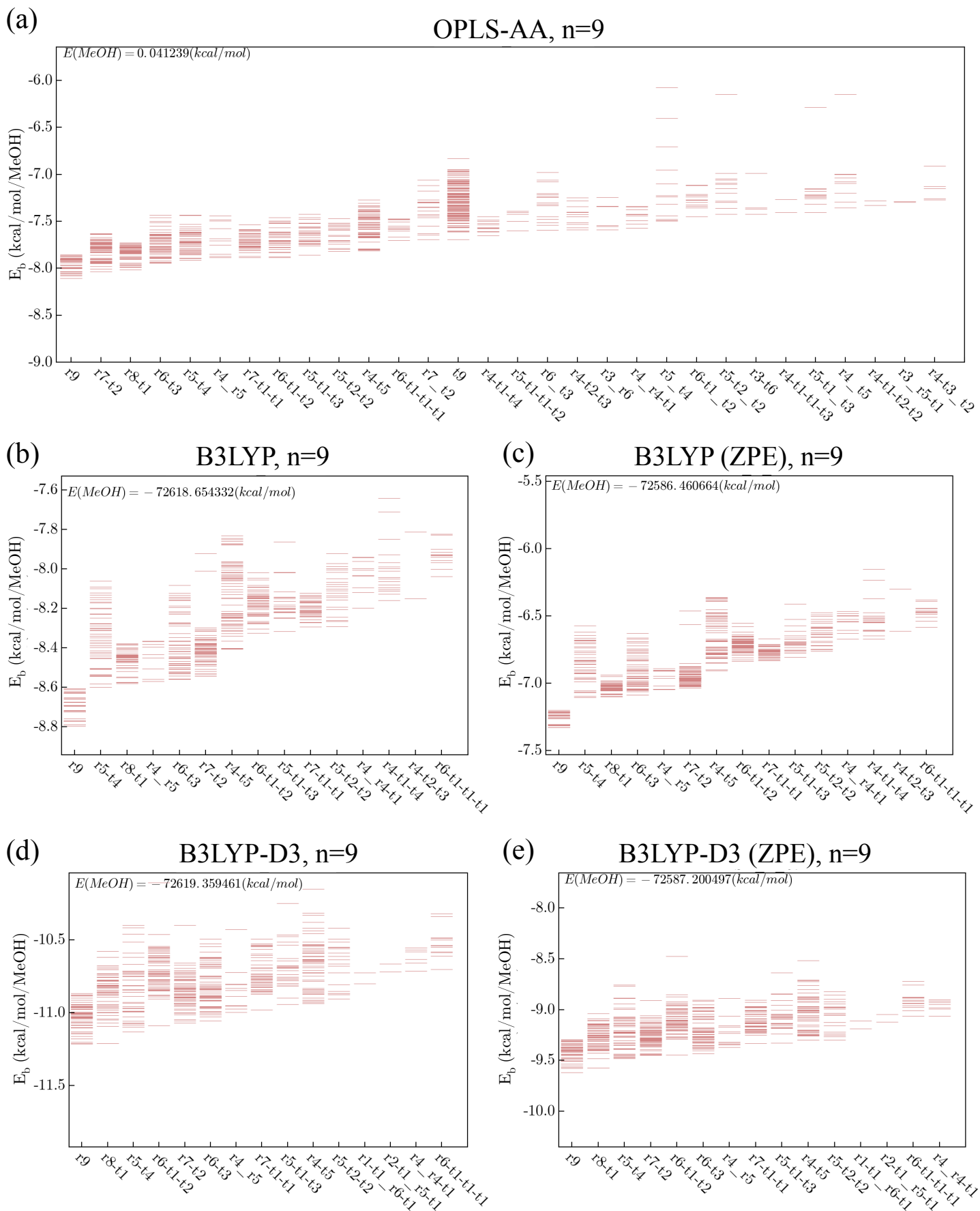


Figure 2s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_9$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

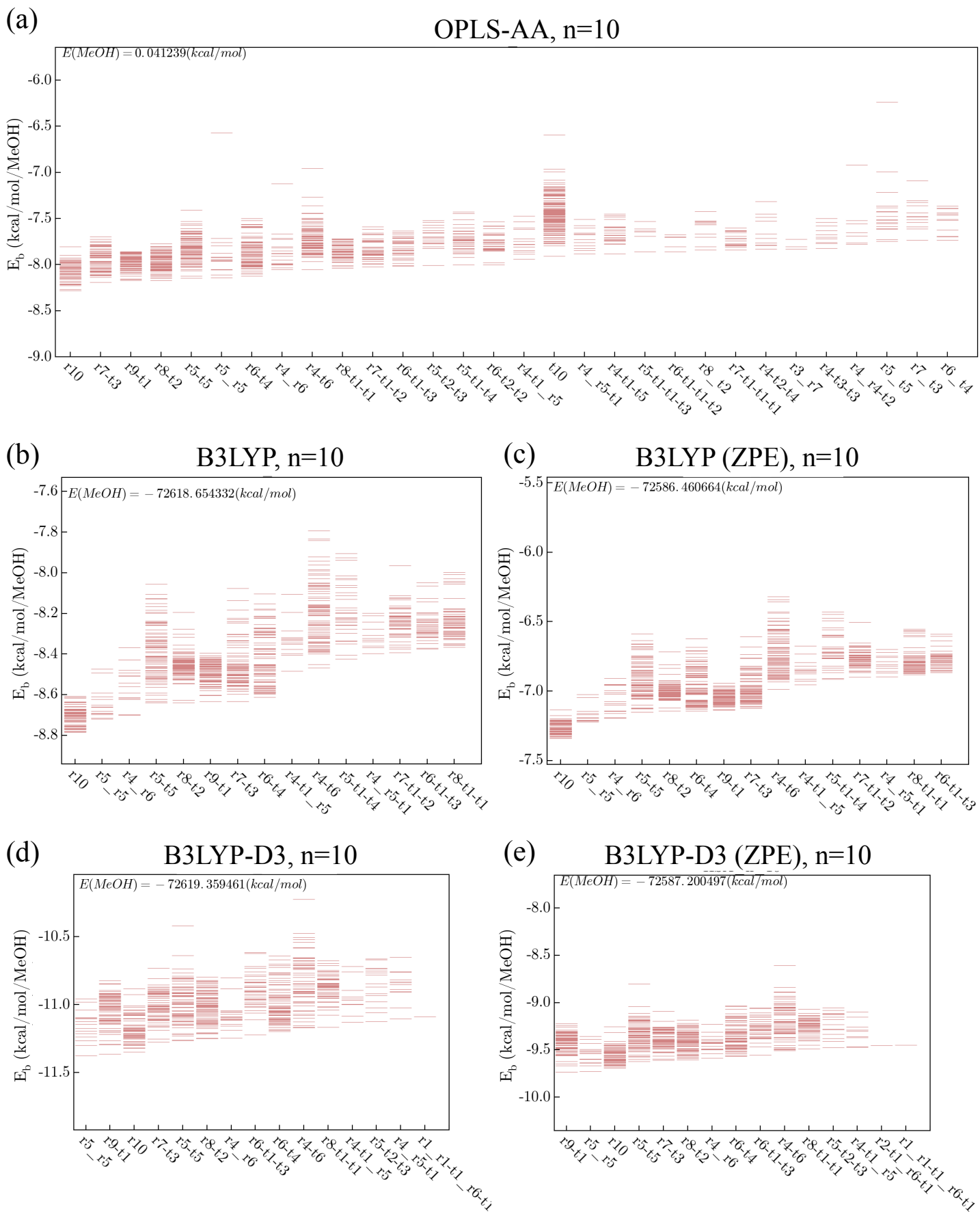


Figure 3s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{10}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

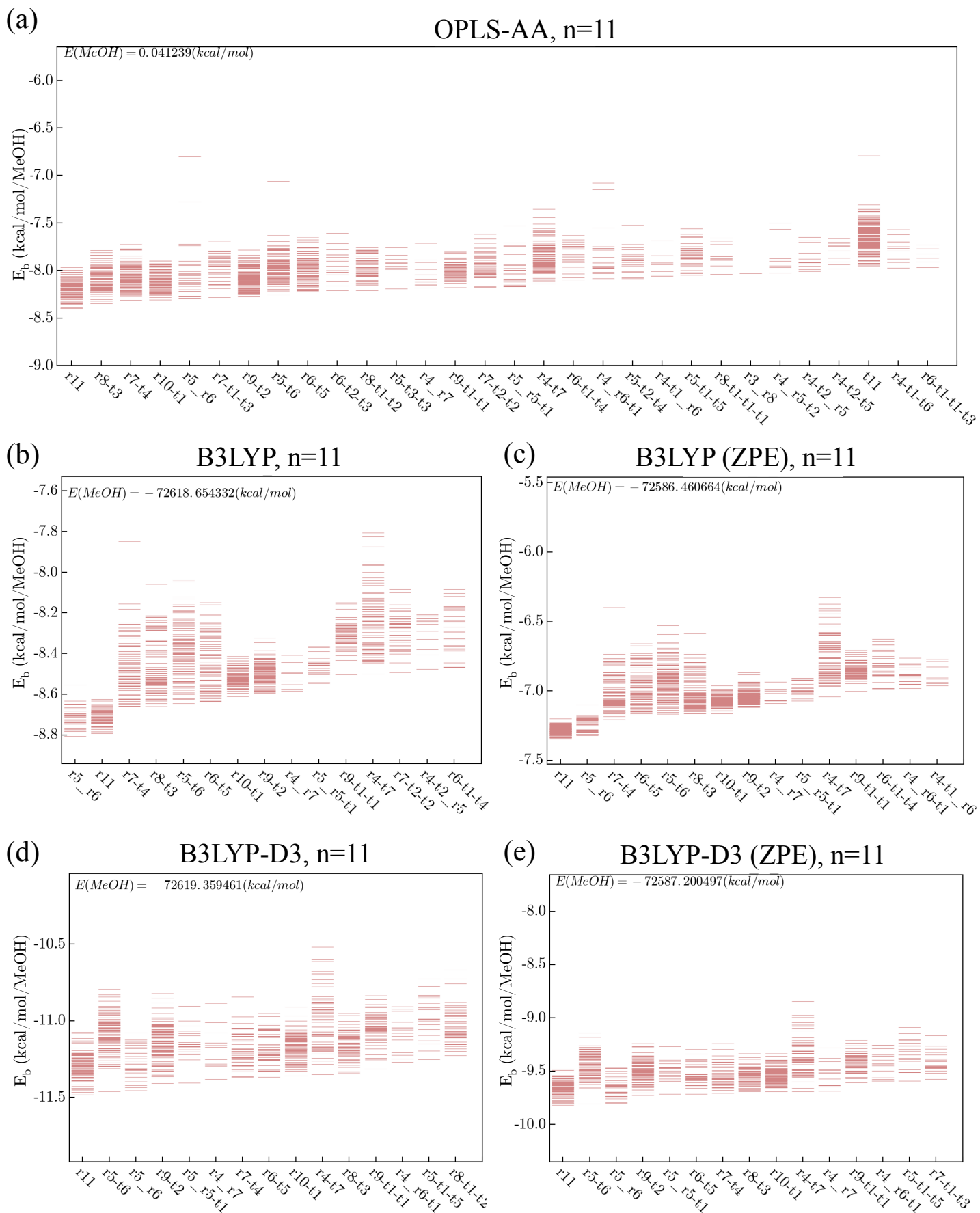


Figure 4s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{11}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

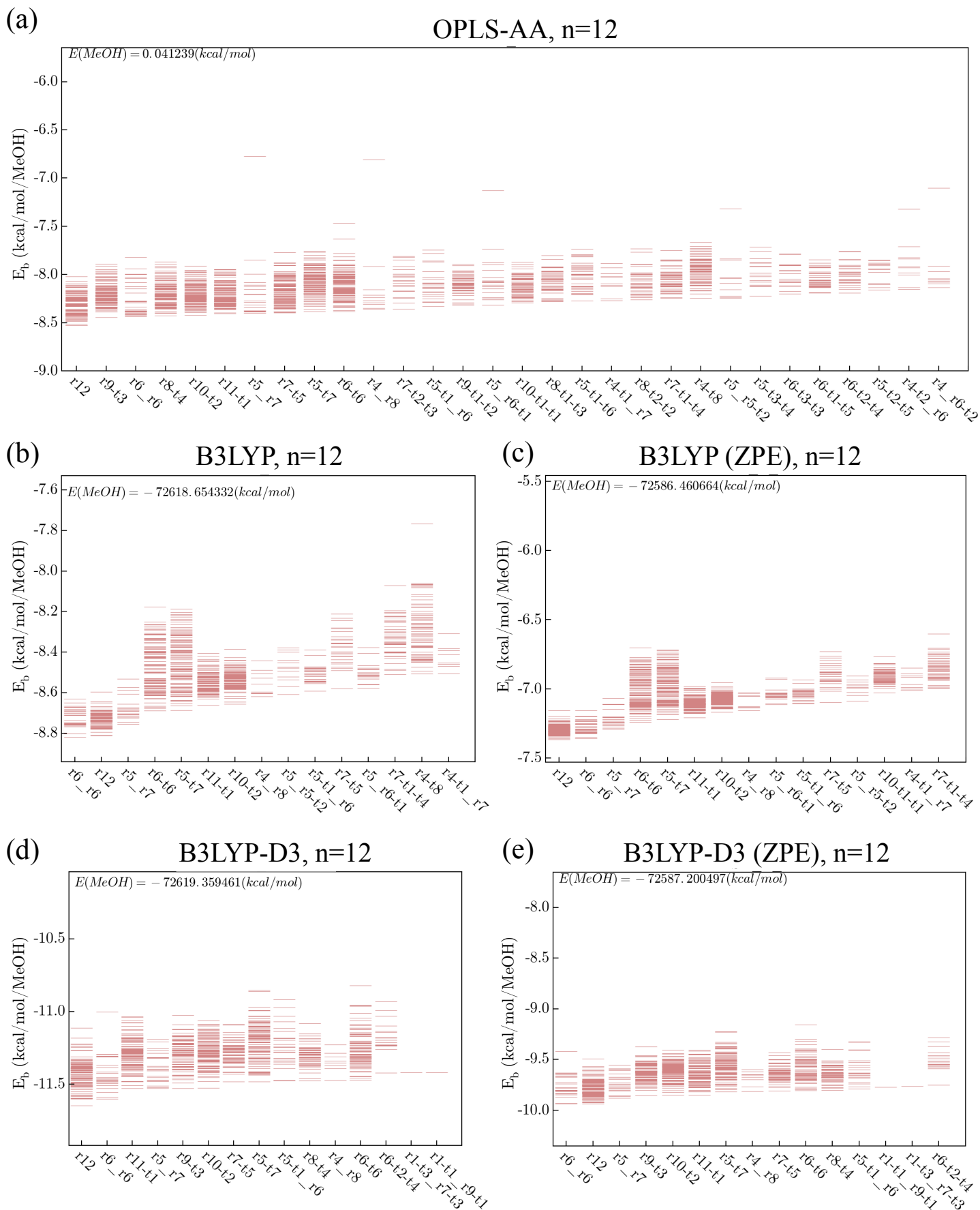


Figure 5s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{12}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

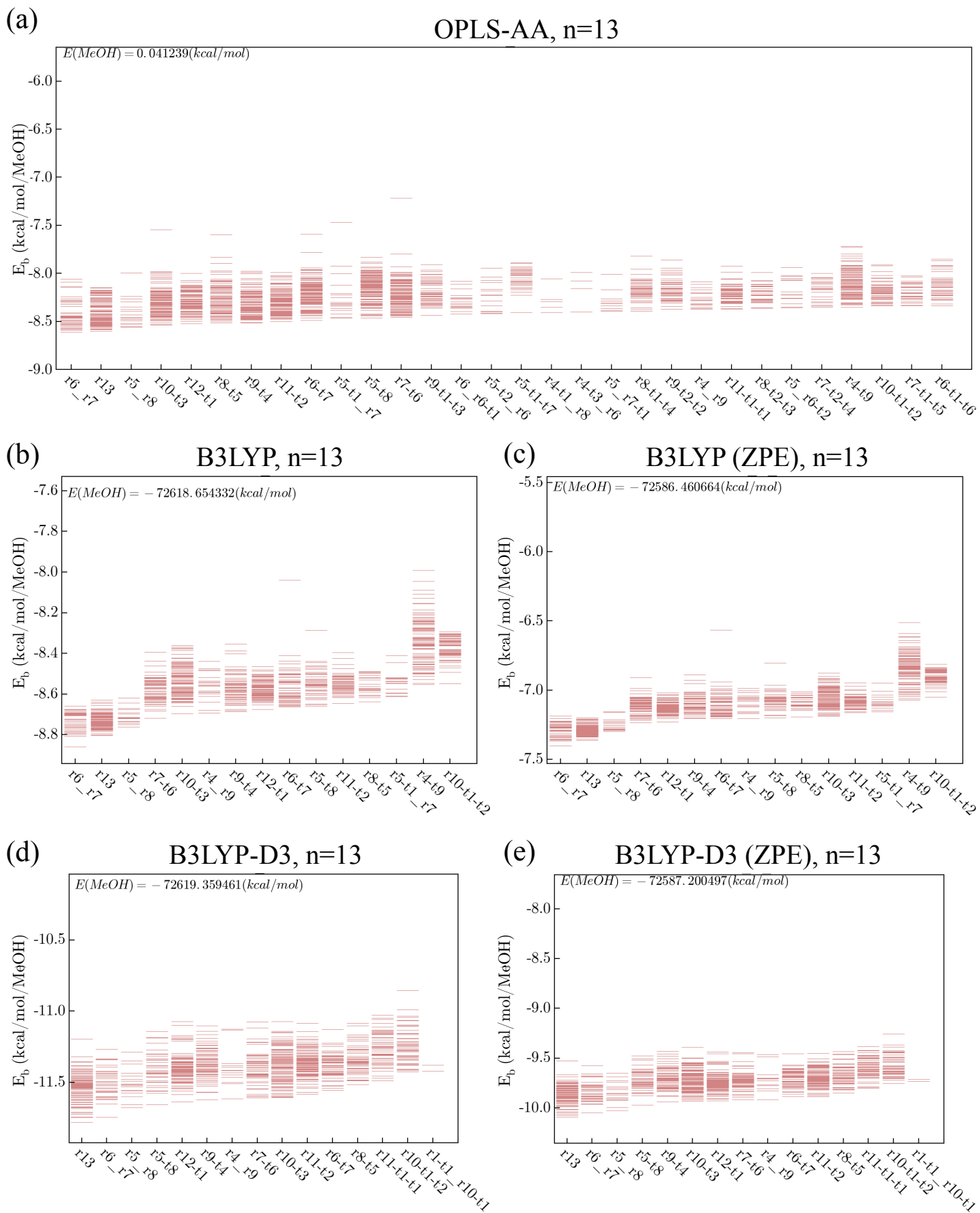


Figure 6s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{13}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

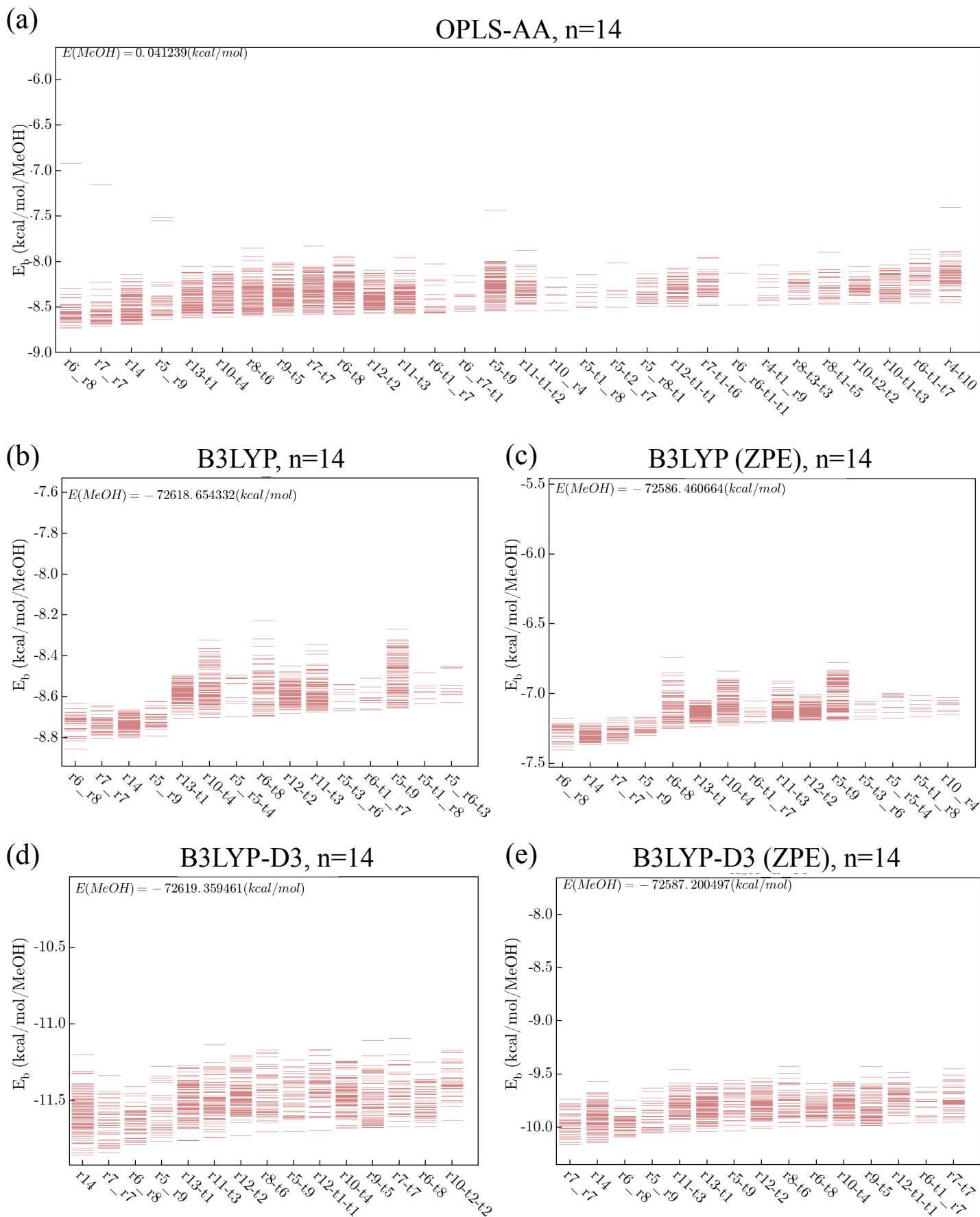


Figure 7s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{14}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

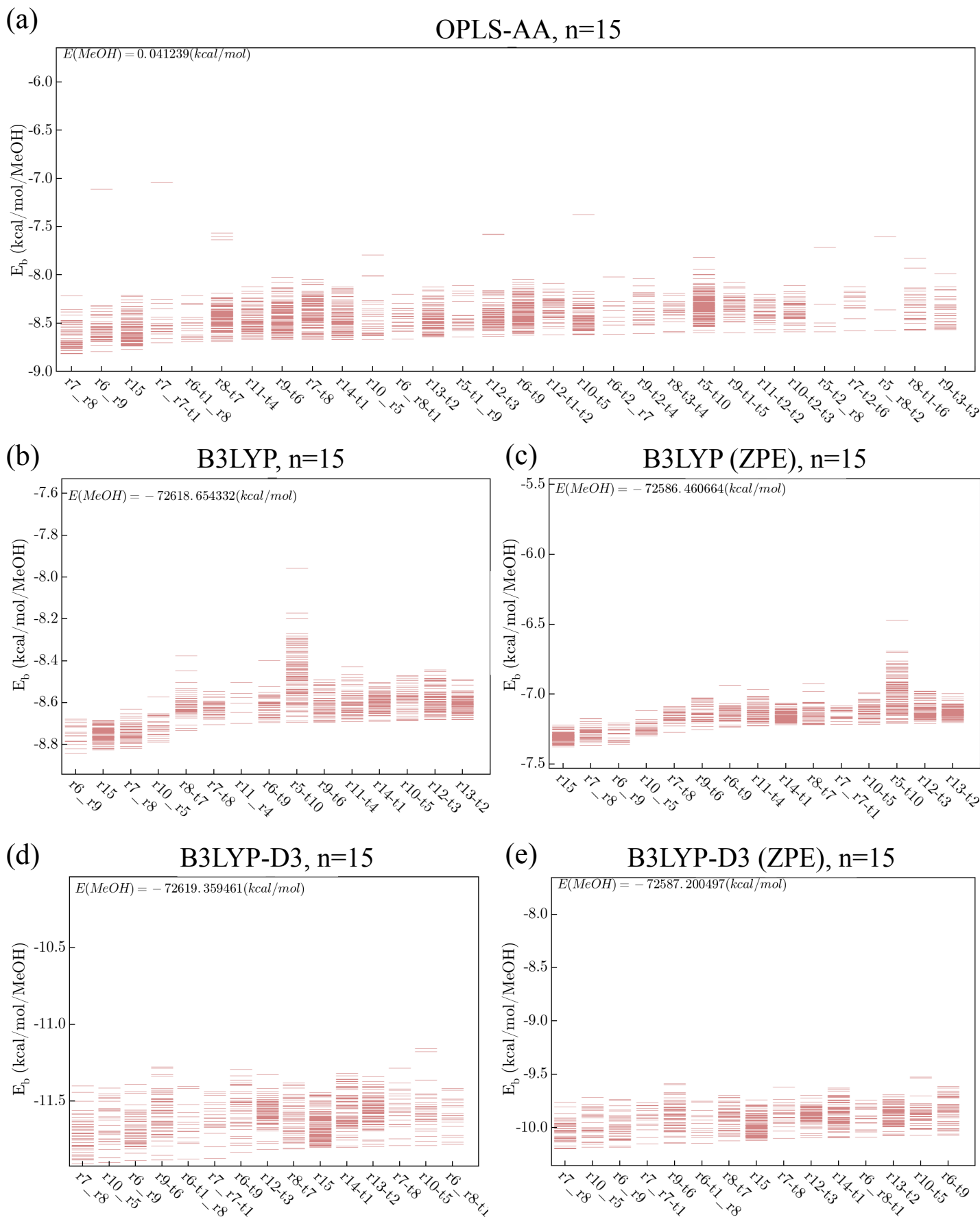


Figure 8s: Binding energy (kcal/mol/MeOH) of $(\text{MeOH})_{15}$ versus topology labels under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point energy correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point energy correction.

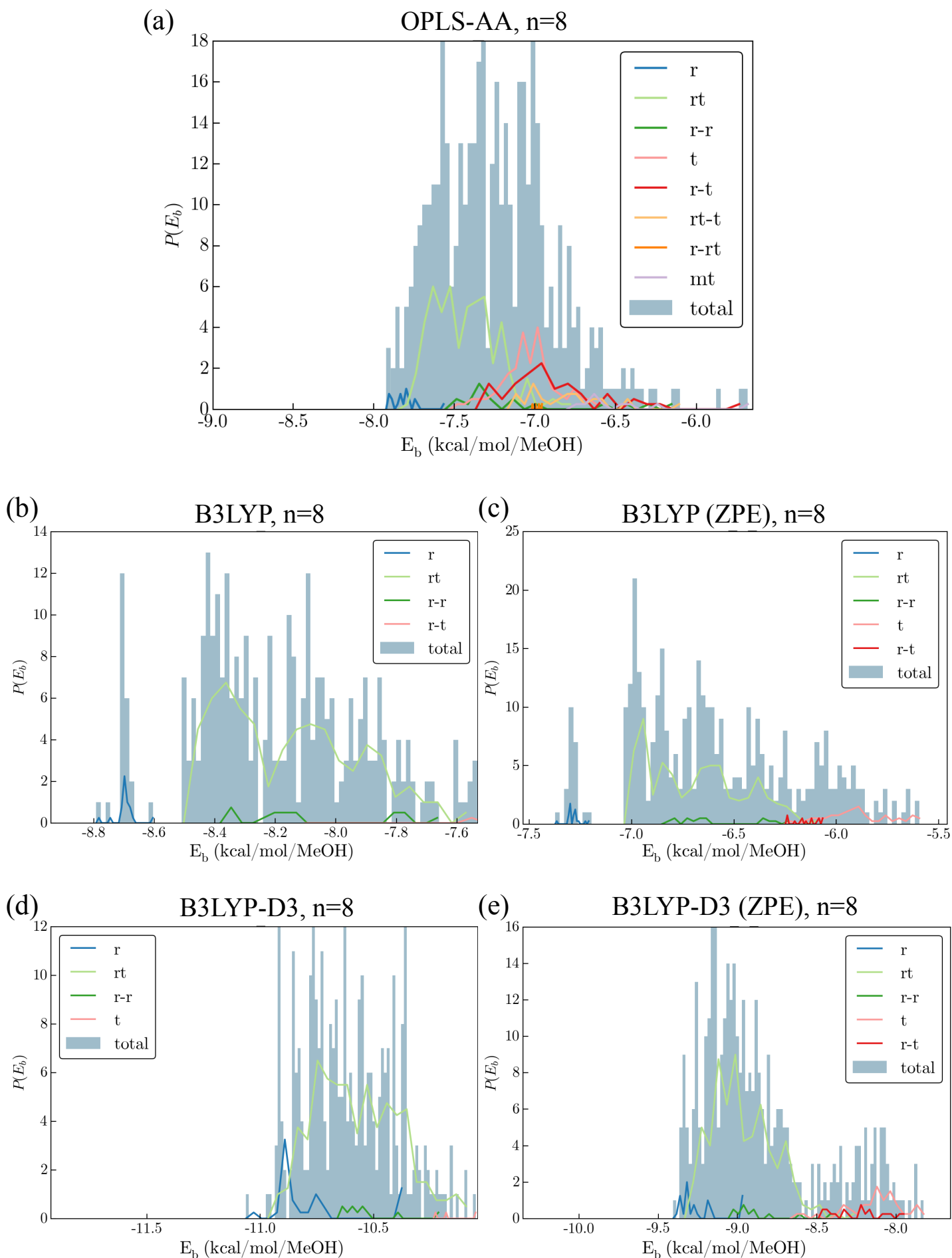


Figure 9s: Energy histograms of $(\text{MeOH})_8$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

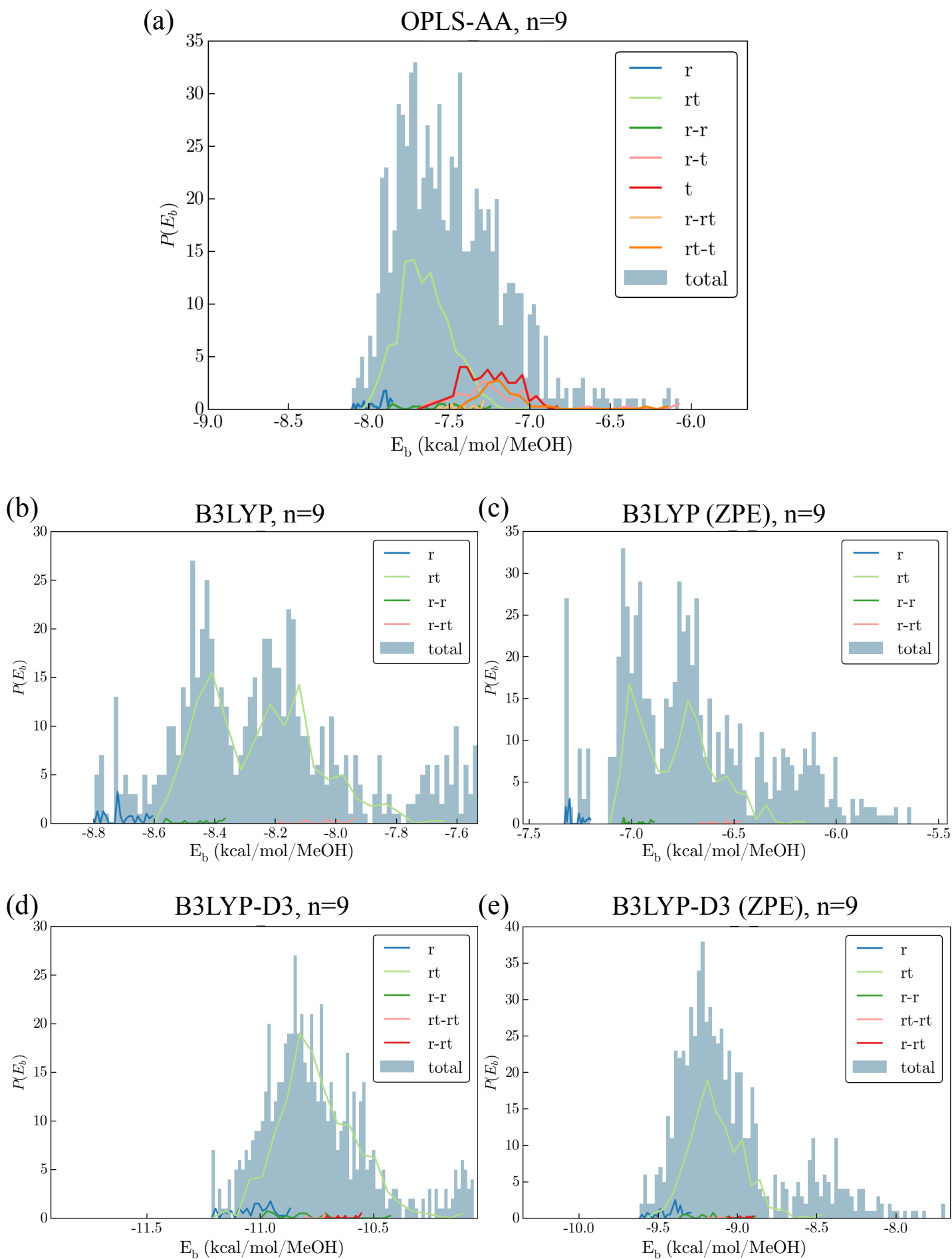


Figure 10s: Energy histograms of $(\text{MeOH})_9$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

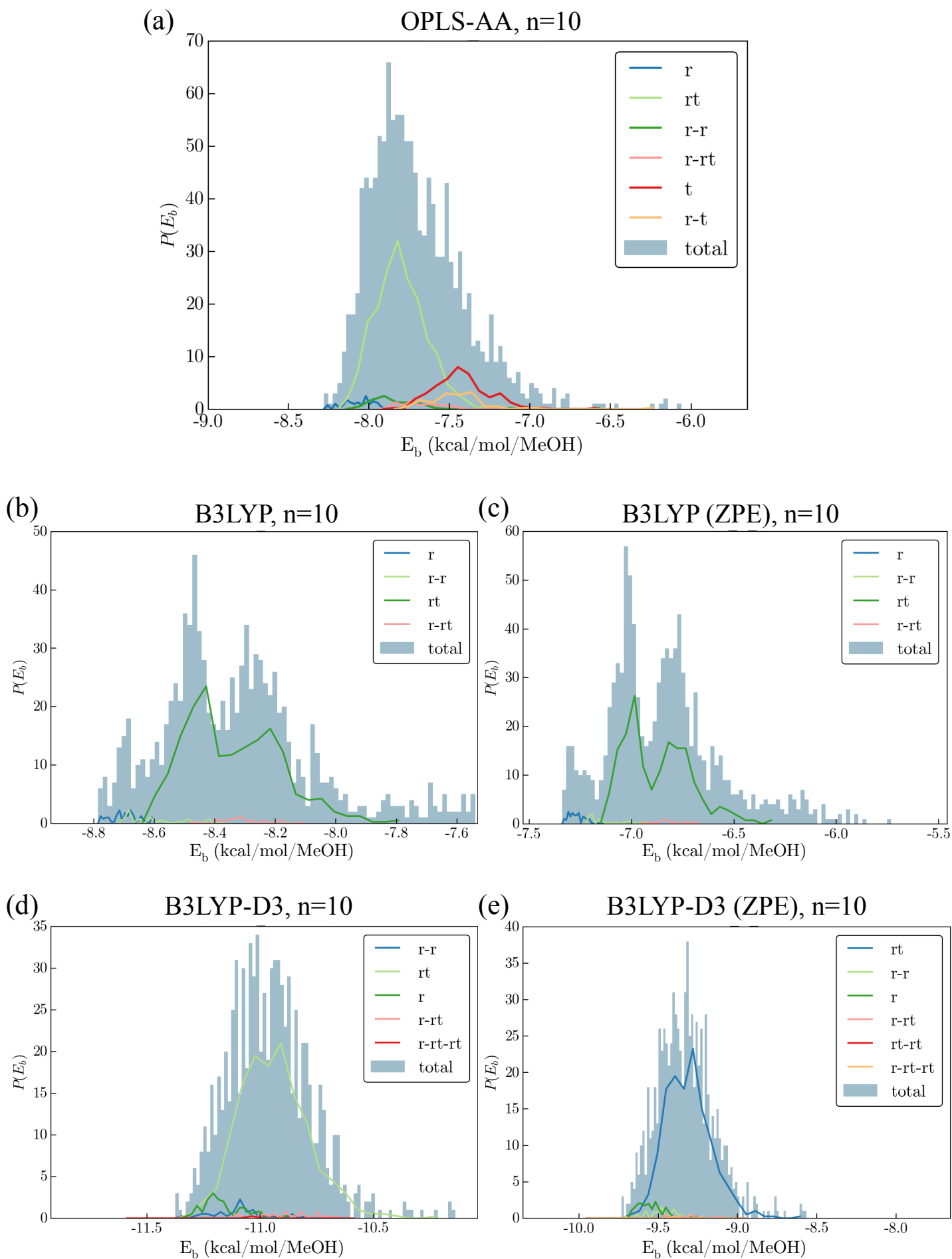


Figure 11s: Energy histograms of $(\text{MeOH})_{10}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

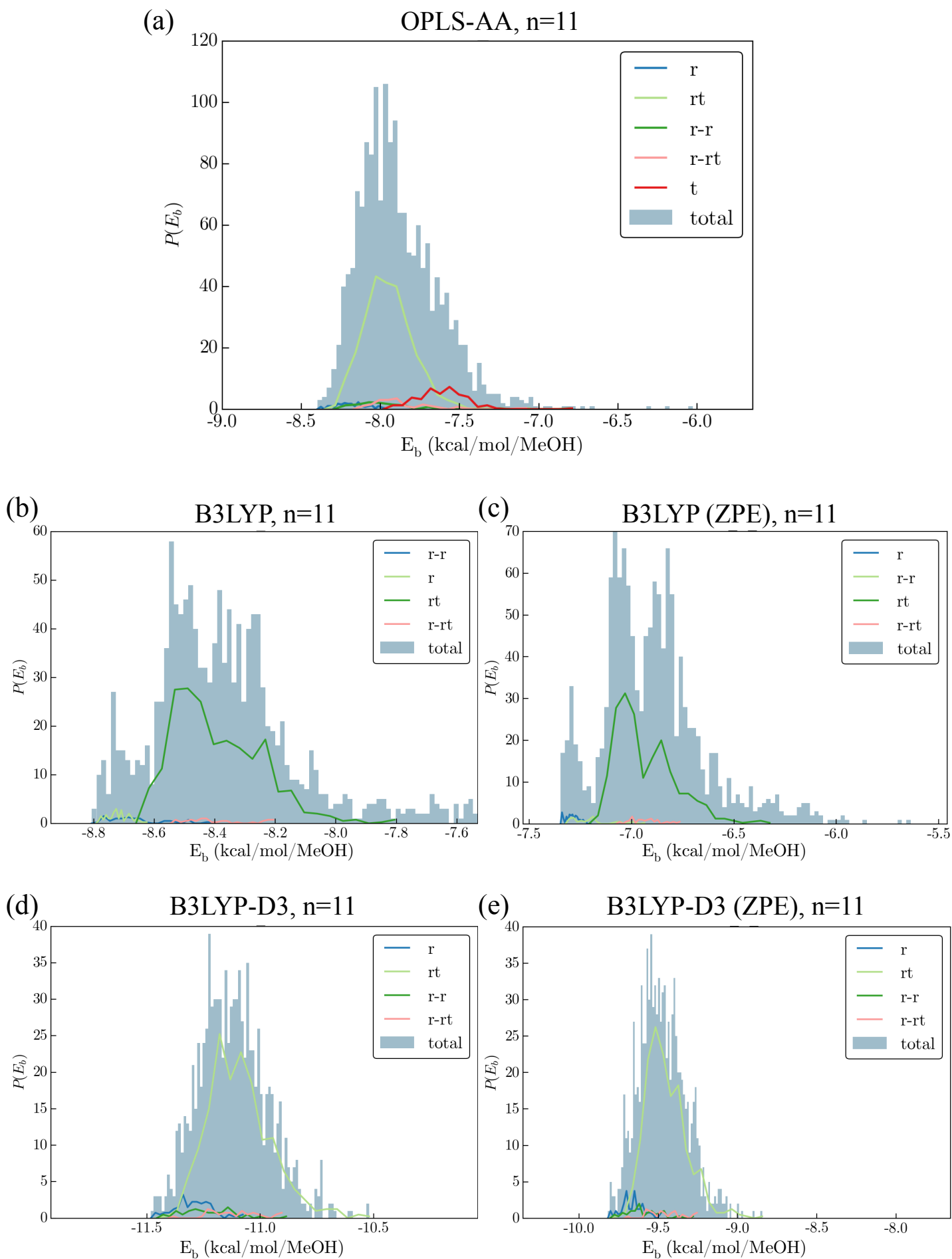


Figure 12s: Energy histograms of $(\text{MeOH})_{11}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

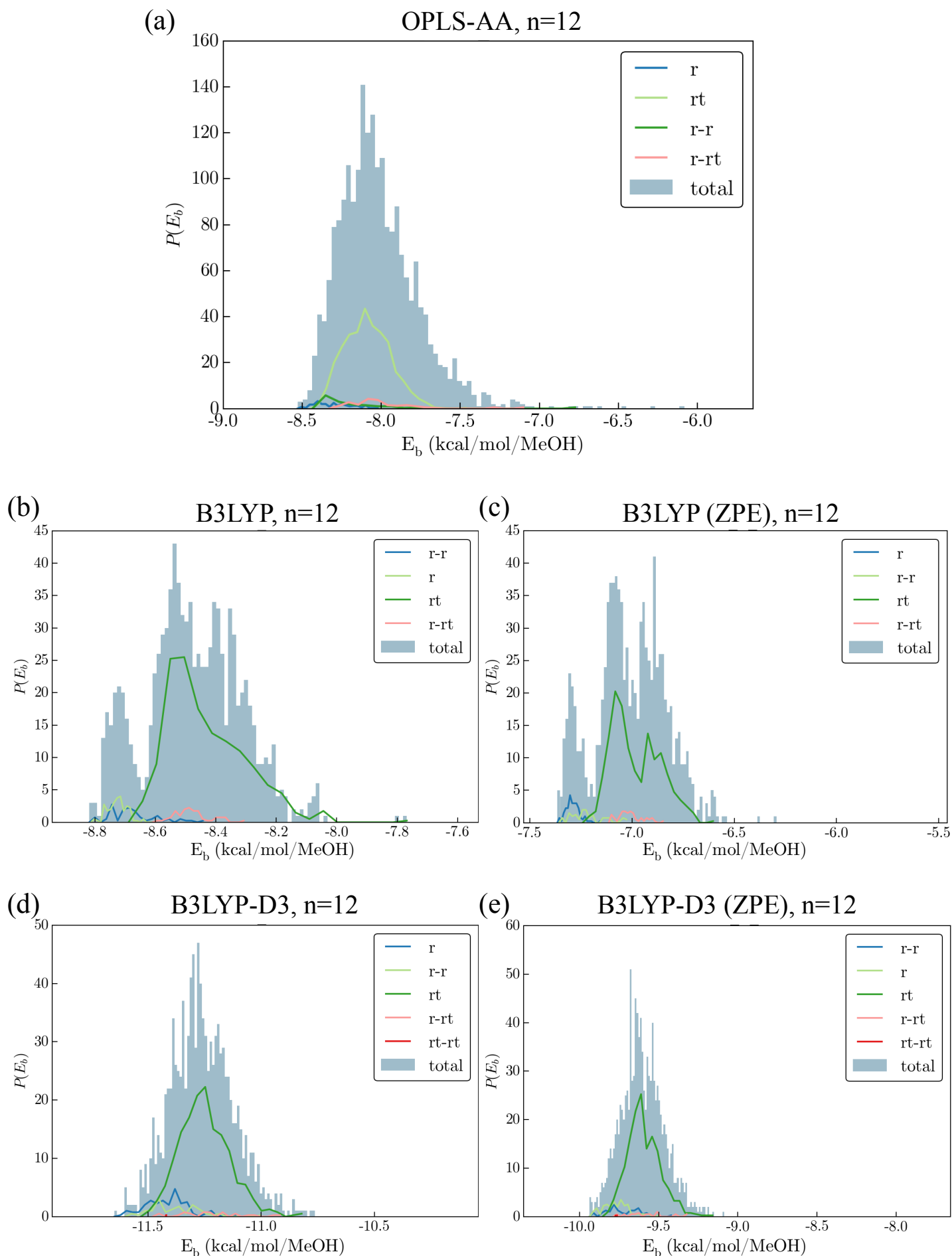


Figure 13s: Energy histograms of $(\text{MeOH})_{12}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

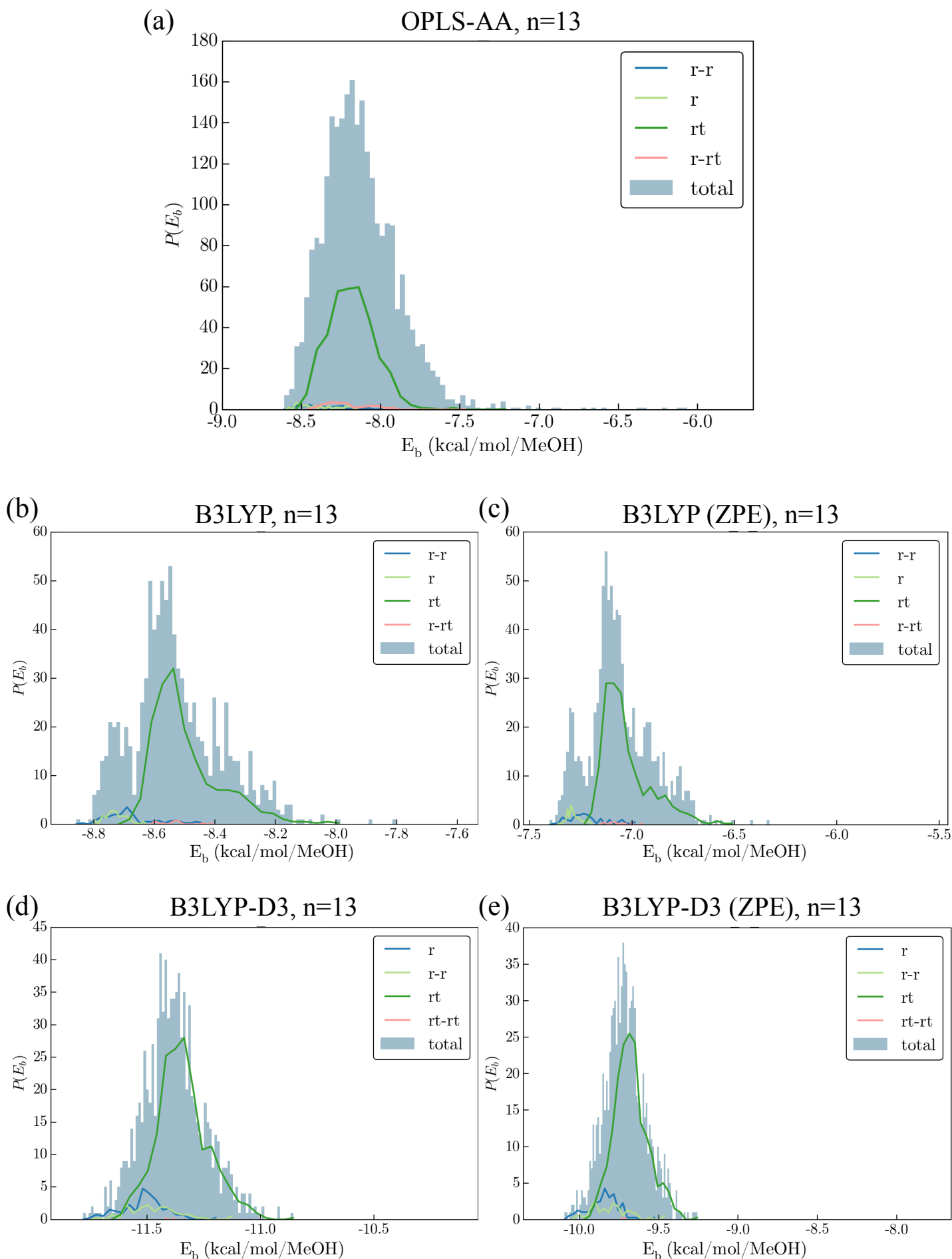


Figure 14s: Energy histograms of $(\text{MeOH})_{13}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

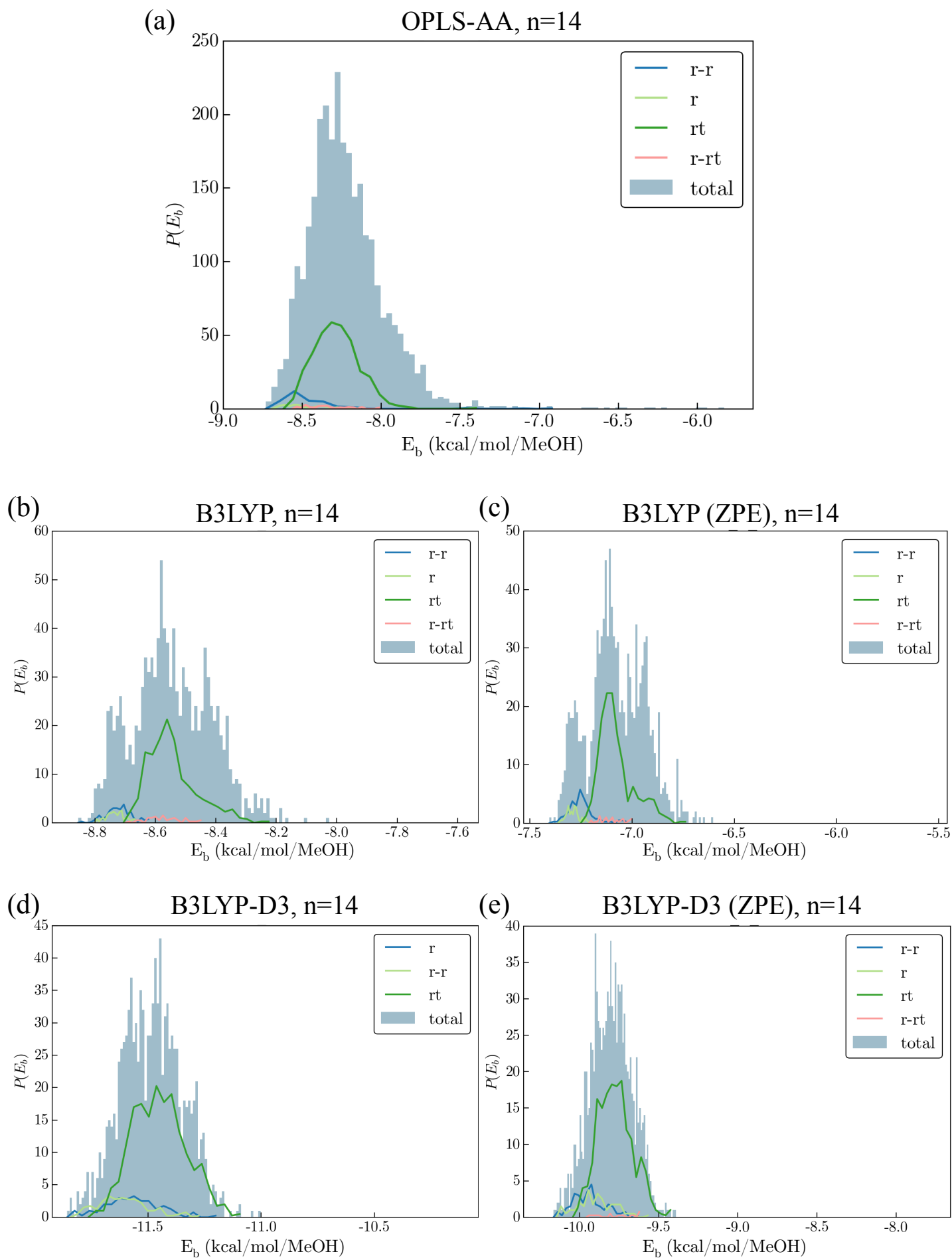


Figure 15s: Energy histograms of $(\text{MeOH})_{14}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

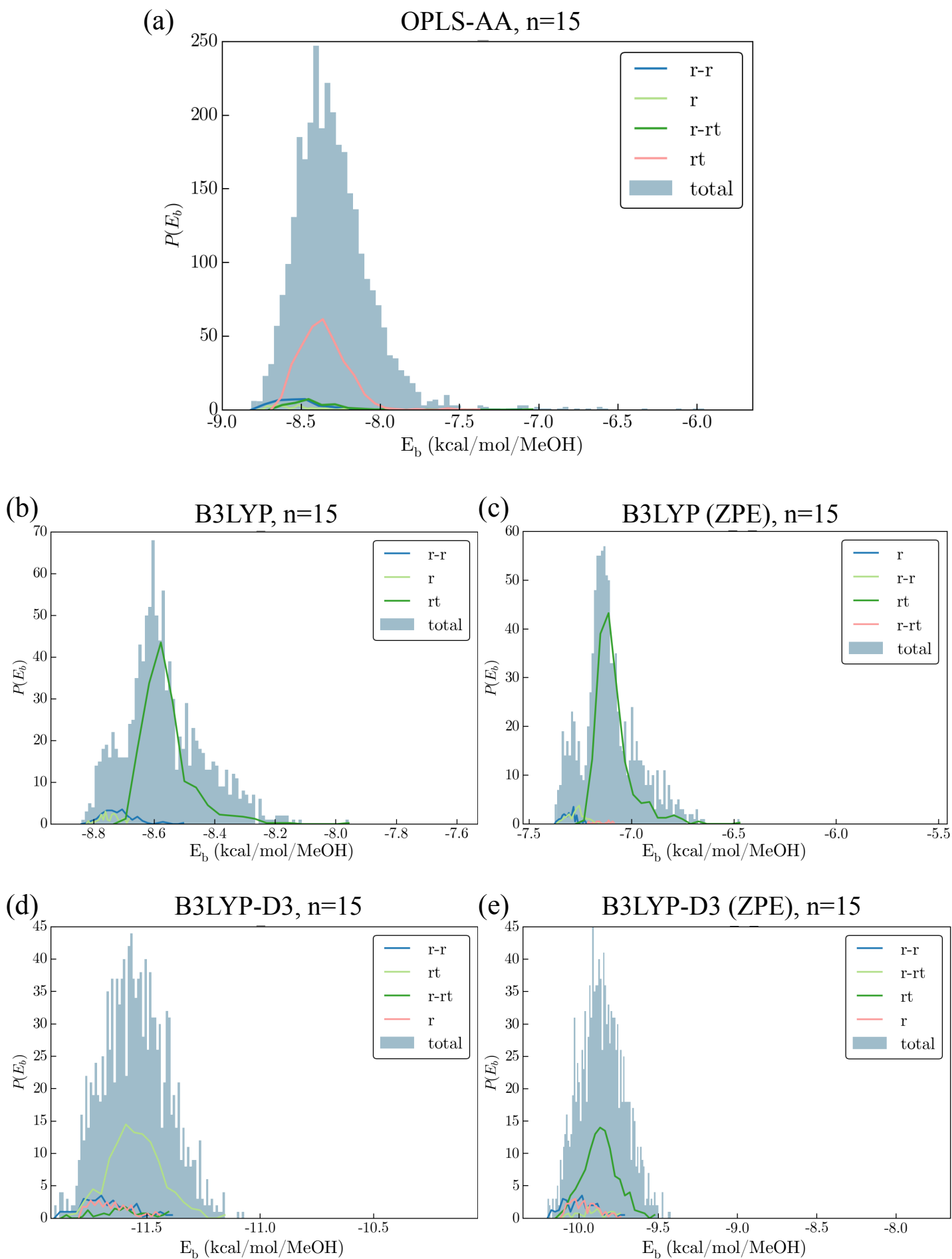
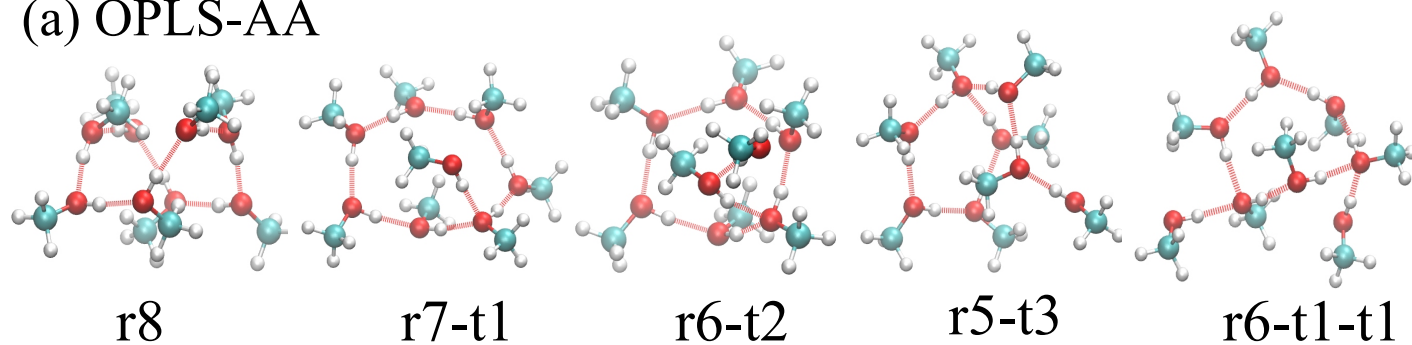
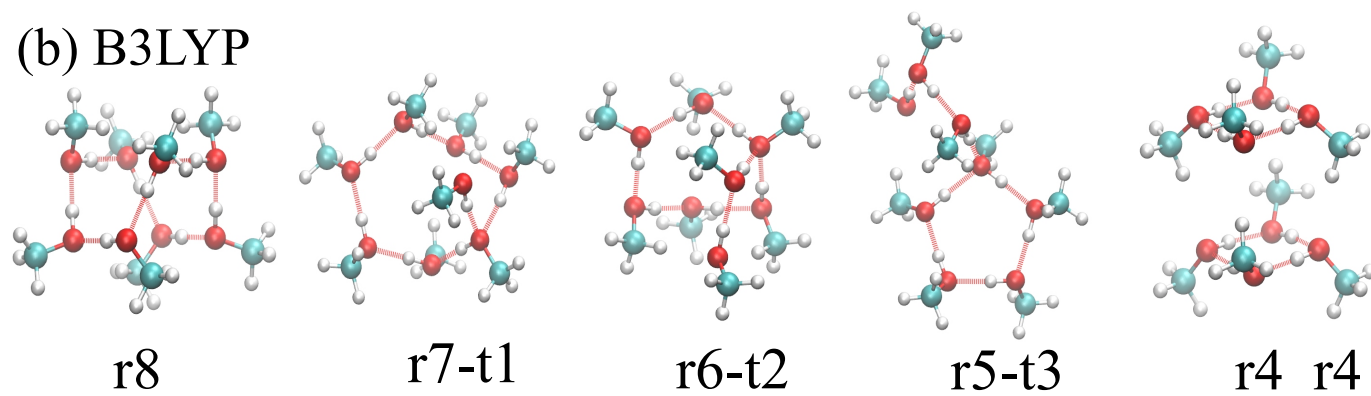


Figure 16s: Energy histograms of $(\text{MeOH})_{15}$ isomers under (a) OPLS-AA, (b) B3LYP, (c) B3LYP with zero-point correction, (d) B3LYP-D3, and (e) B3LYP-D3 with zero-point correction.

(a) OPLS-AA



(b) B3LYP



(c) B3LYP-D3

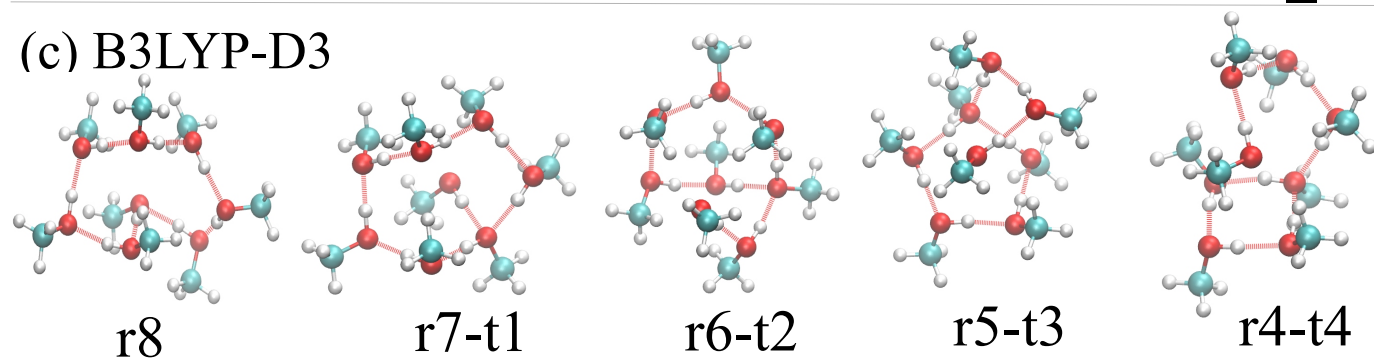


Figure 17s: Structure of the most stable isomers of (MeOH)₈ in the leading five topologies of (a) OPLS-AA, (b) B3LYP, and (c) B3LYP-D3 models.

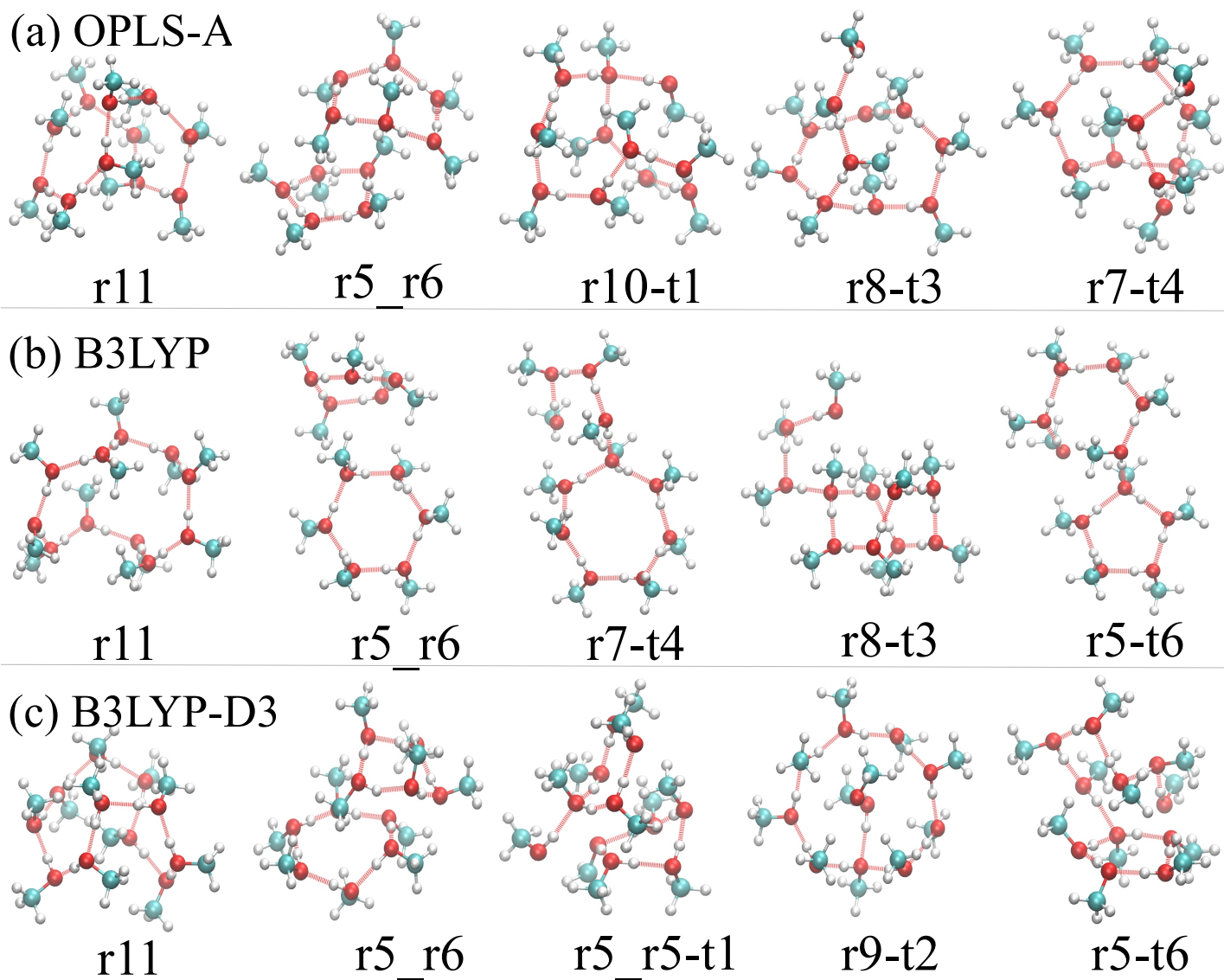


Figure 18s: Structure of the most stable isomers of $(\text{MeOH})_{11}$ in the leading five topologies of (a) OPLS-AA, (b) B3LYP, and (c) B3LYP-D3 models.