Figure 6 Initial NREL Insight Center interface

CONCLUSION AND FUTURE WORK

Bottom-up building energy modeling at the district and city scale is sure to remain a hot topic in the near future. The OpenStudio City Modeling Framework provides a flexible framework that others can use to build custom city scale modeling applications. Future work includes integrating CityDB with the SEED Platform. If disclosed energy usage is publicly available for buildings, the OpenStudio City Modeling Framework can use this information to first remove any universal bias in the modeling assumptions and then to calibrate individual buildings against past data.

The first application to be built on the OpenStudio City Modeling Framework is URBANopt (Polly et al. 2016). URBANopt is being developed to provide a complete user interface to the building and district system capabilities discussed in this work. In addition to being able to import data for existing buildings, URBANopt will allow users to define floorprints and building properties for new construction. URBANopt will also allow users to define district systems on the map to calculate the length of piping, which is an important component of the cost for district water systems. Finally, URBANopt will be able to display results for scenarios after the simulations are complete. The user can select a scenario, e.g., "High Performance Schools" or "2030 Goals," to export from the CityDB as GeoJSON. Static values can be overlaid onto building geometry for annual metrics such as energy use intensity or carbon emissions. Time-series data can be explored with an interactive time dial.

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