EB-2015-0029
EB-2015-0049

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15 (Schedule B);

AND IN THE MATTER OF an Application by Union Gas Ltd. pursuant to Section 36(1) of the *Ontario Energy Board Act, 1998,* S.O. 1998, for an order or orders approving its Demand Side Management Plan for 2015-2020;

AND IN THE MATTER OF an Application by Enbridge Gas Distribution Inc. pursuant to Section 36(1) of the *Ontario Energy Board Act, 1998,* S.O. 1998, for an order or orders approving its Demand Side Management Plan for 2015-2020.

ASSOCIATION OF POWER PRODUCERS OF ONTARIO (APPrO) COMPENDIUM OF MATERIALS FOR SYNAPSE CROSS-EXAMINATION

3 September 2015

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Planning Update: Preliminary Long-Term Outlook for Ontario Supply and Demand and Context for Planning

Prepared for discussion with IESO SAC

Power System Planning

August 13, 2015

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Overview and summary

- The following slides:
  - Remind what LTEP 2013 showed as required MWs
  - Provide further specification of what kind of MWs are needed
  - Illustrate how changes in resource outlook can affect the requirement

- The slides establish that:
  - Ontario will need additional supply in the coming years
  - The need for additional supply grows when Pickering retires
  - The need ranges in the ballpark of 2000 MW to 3000 MW
  - The need is for capacity to meet summer peaks and provide dispatchability/flexibility all year round
  - The rate and pace of change in the coming decade will be significant

- A more complete assessment of requirements is underway. The following slides offer illustrative direction in the meantime.

Ontario has seen net growth in electricity supply in recent years

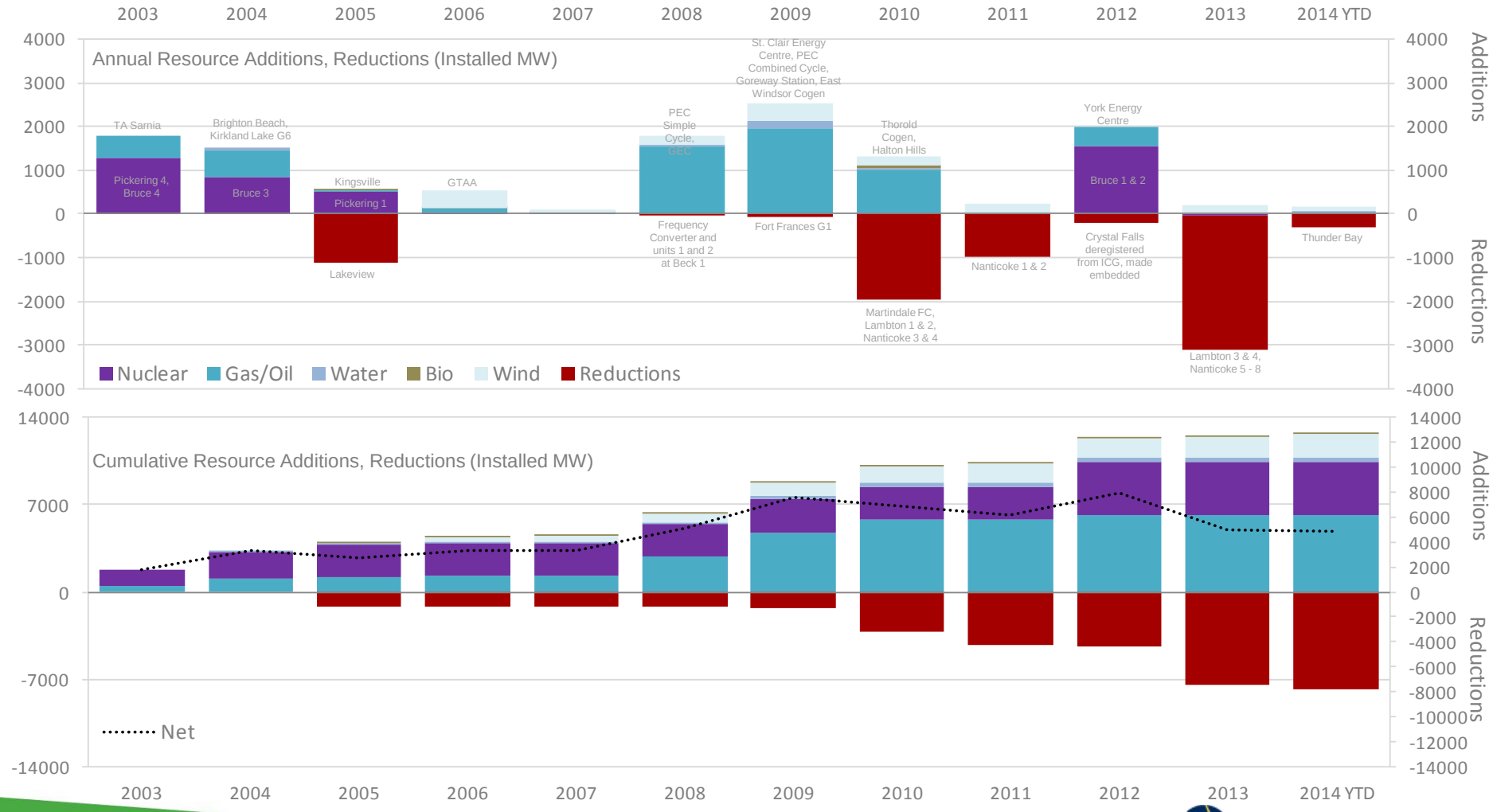
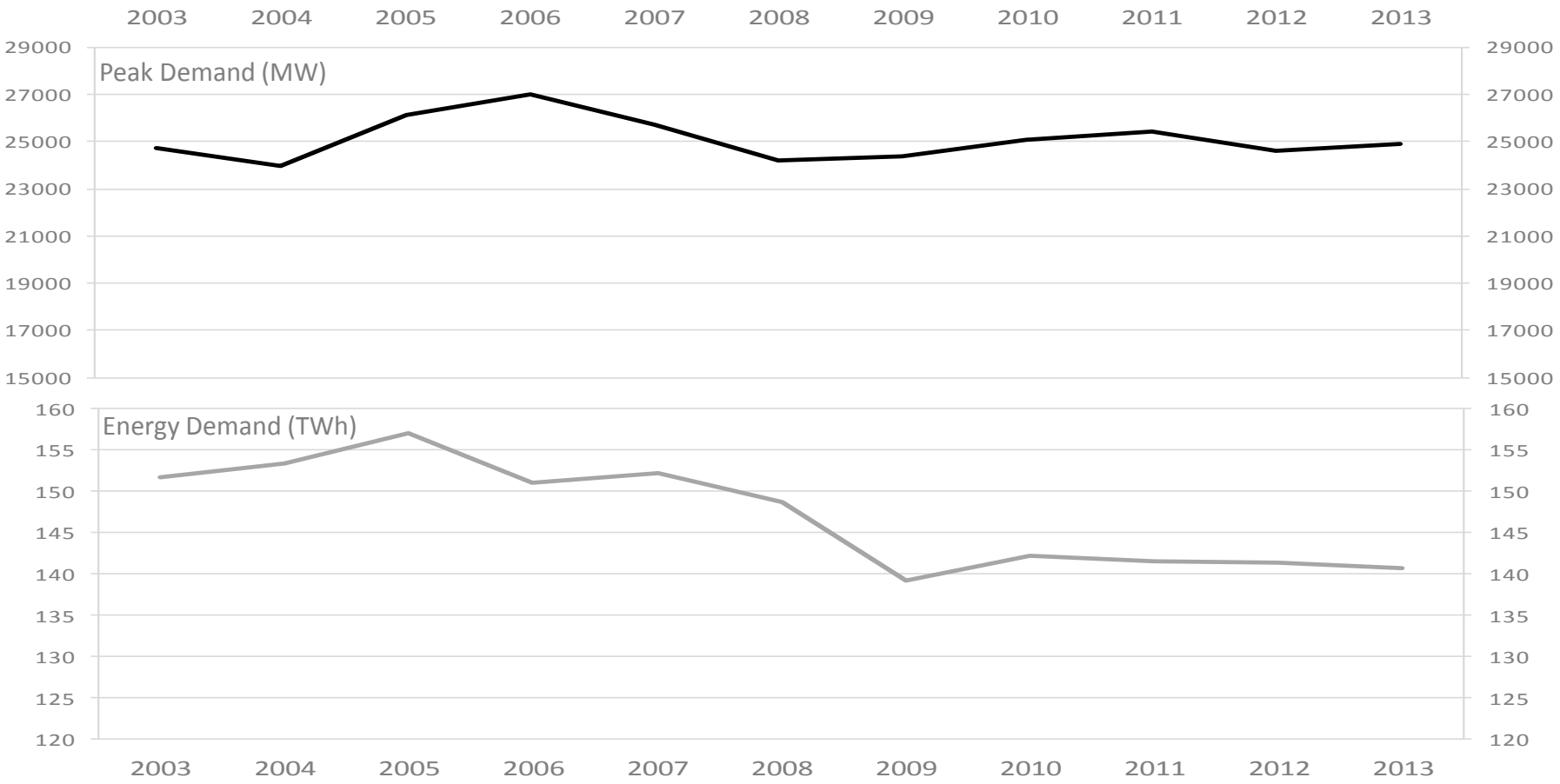
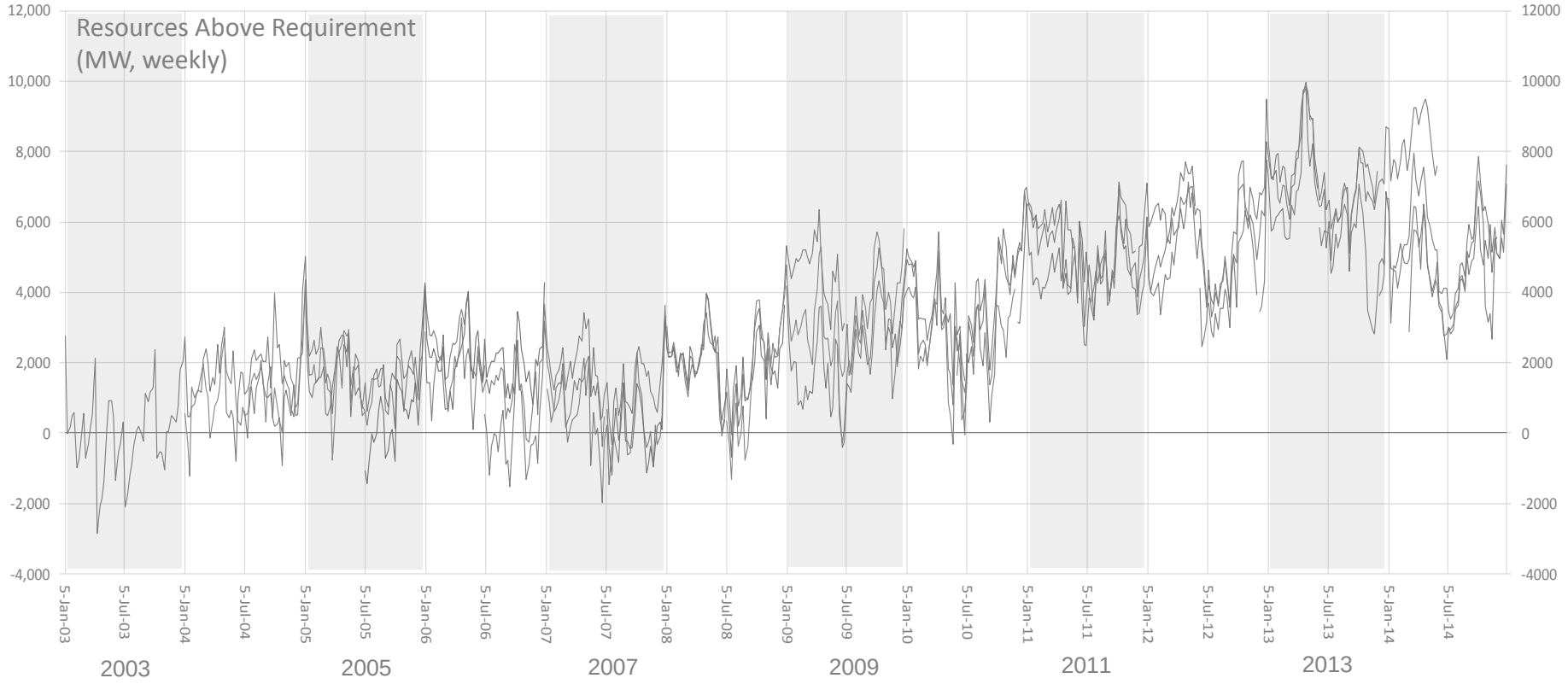


Figure illustrates IESO controlled grid-connected resources only

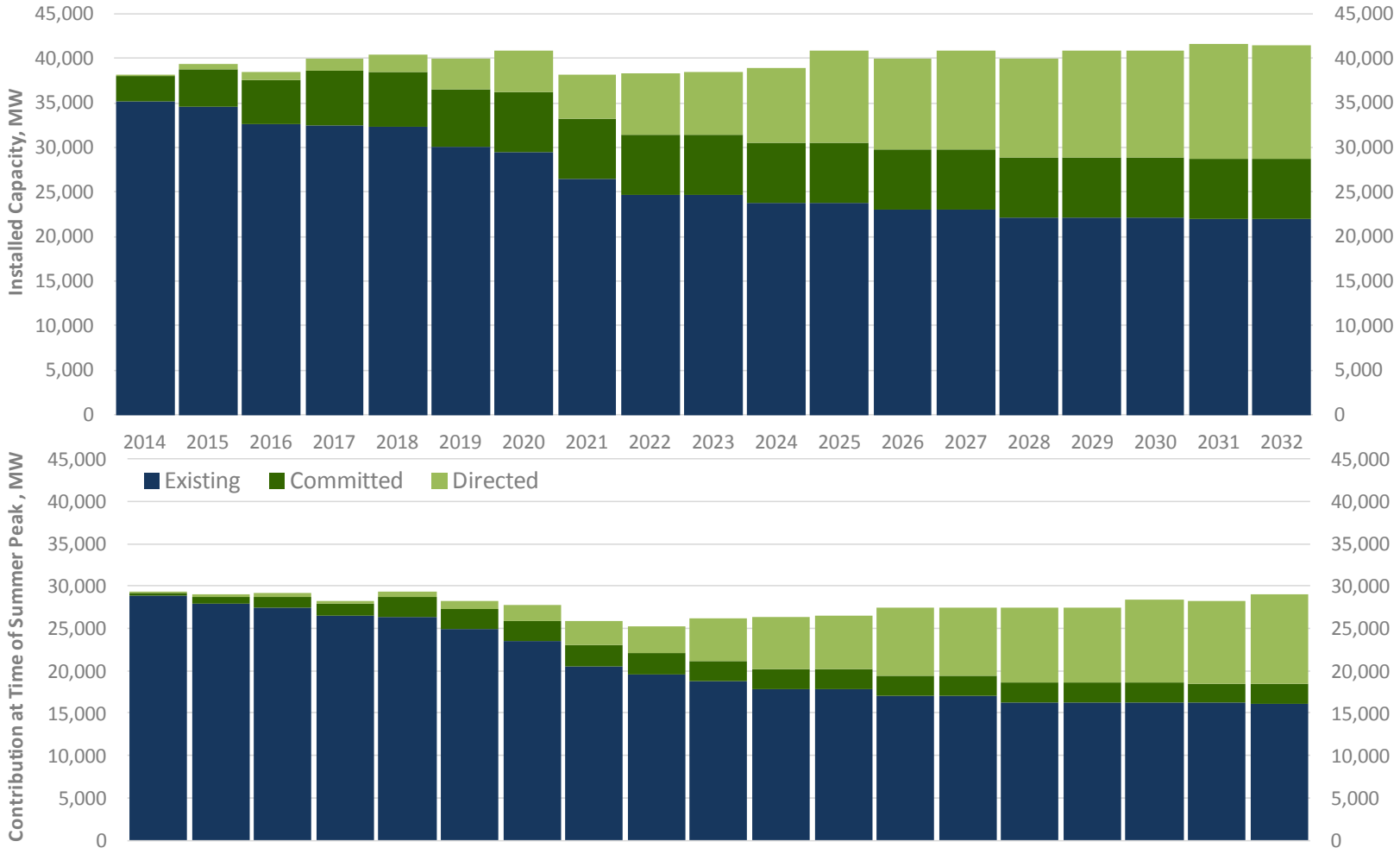
Ontario electricity demand has not grown within the same period



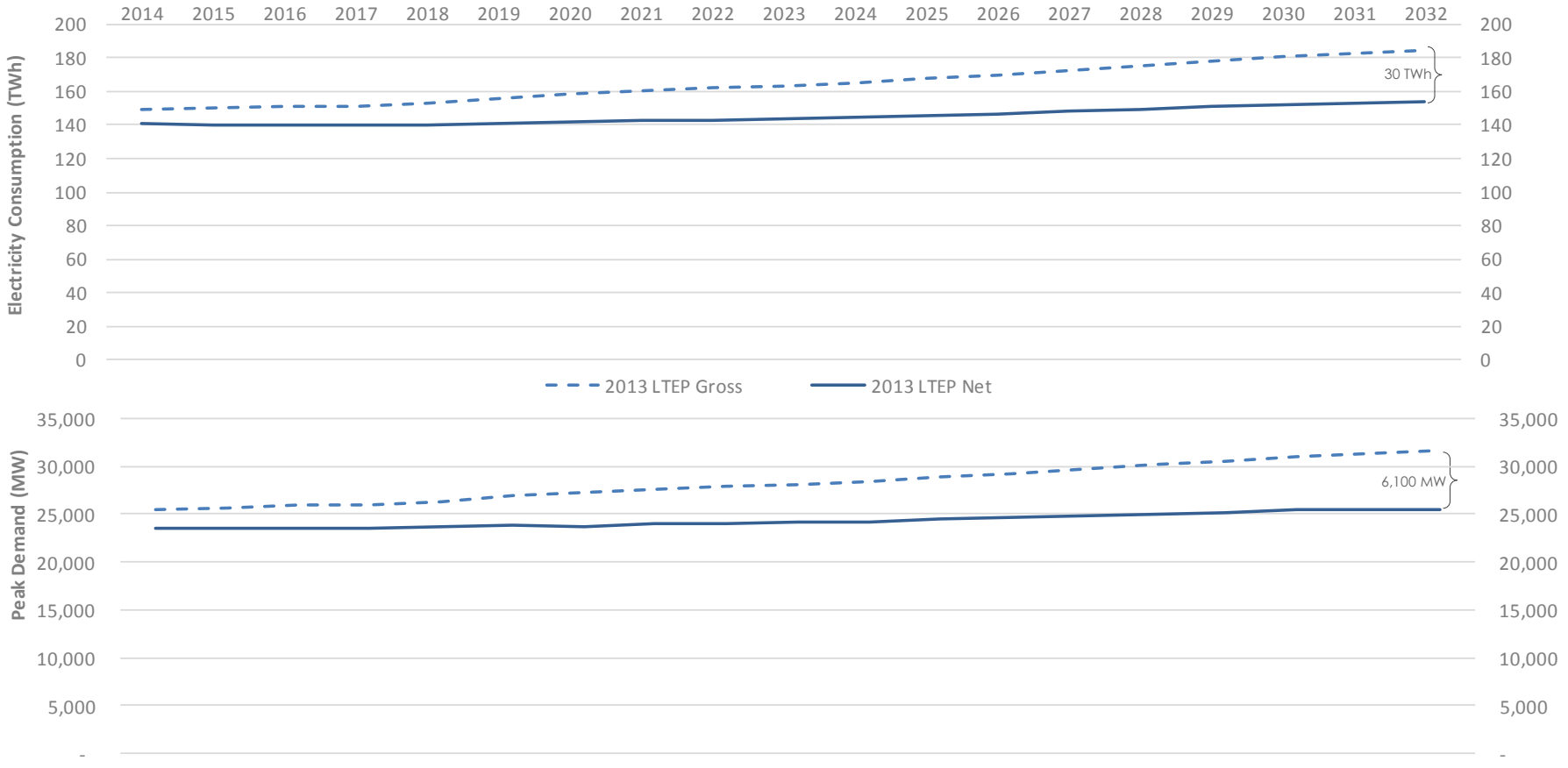
Strong generation capacity margins have been the result



More supply is on the way: some is contractually committed but not yet in service, some has been directed by government but has not yet been secured



Long-term net demand growth will remain moderate, the role of conservation will be significant



Peak demand savings are from codes & standards, energy efficiency programs and time of use. Demand response is not shown.

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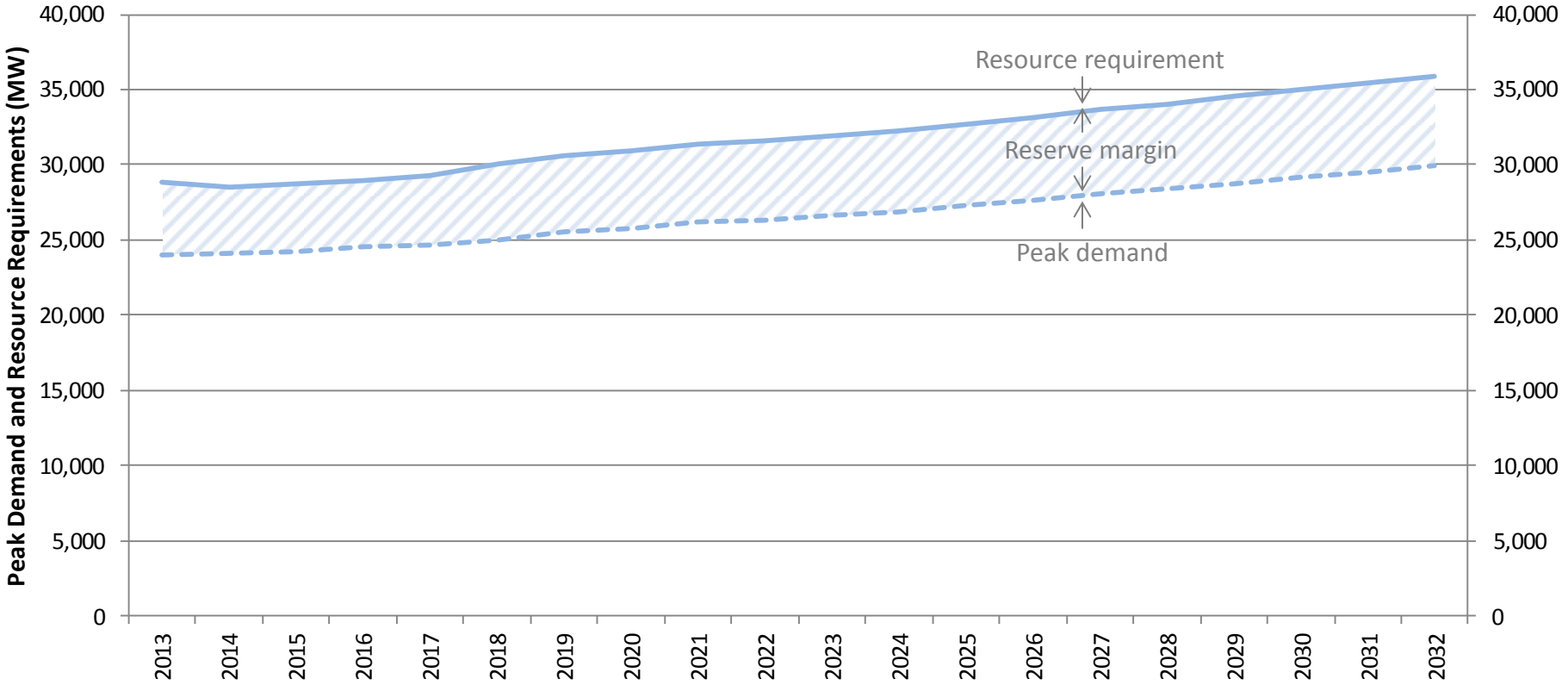
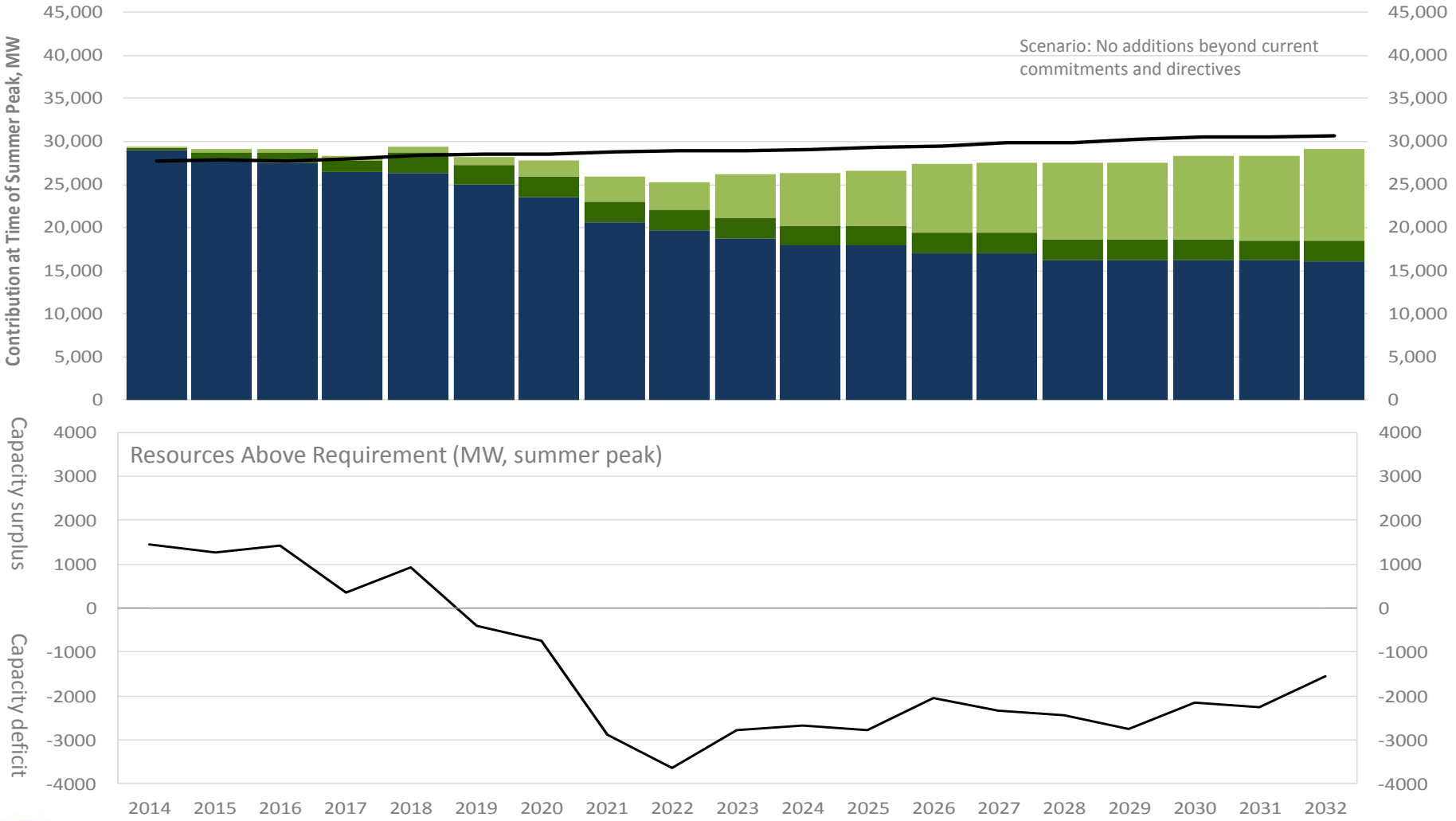
Having enough supply means being able to meet peak demands and maintain sufficient levels of generation planning reserve

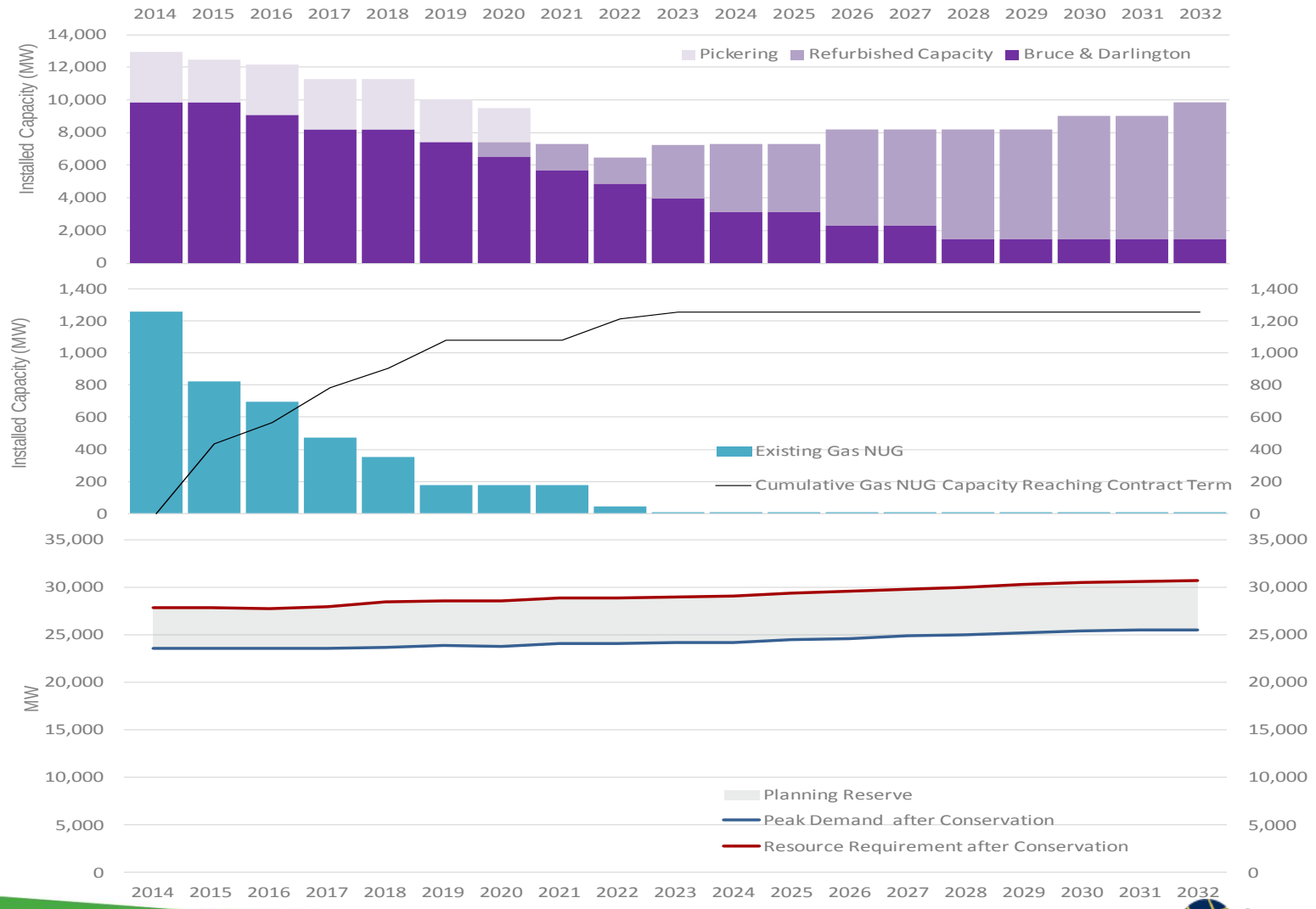


The "resource requirement" is the amount of supply needed to serve demand and meet the requisite level of planning reserve. Planning reserve facilitates generator maintenance outages and accounts for unplanned outages and weather-related load forecast uncertainty.

Existing, committed and directed resources will provide adequate supply for the next few years, after which time additional resources will be required



Future needs for additional resources will be driven mostly by nuclear retirements and refurbishments



Pickering retirement and refurbishments at Darlington & Bruce

Gas NUGS reaching end of existing contract term

Moderate growth in resource requirement due to demand growth

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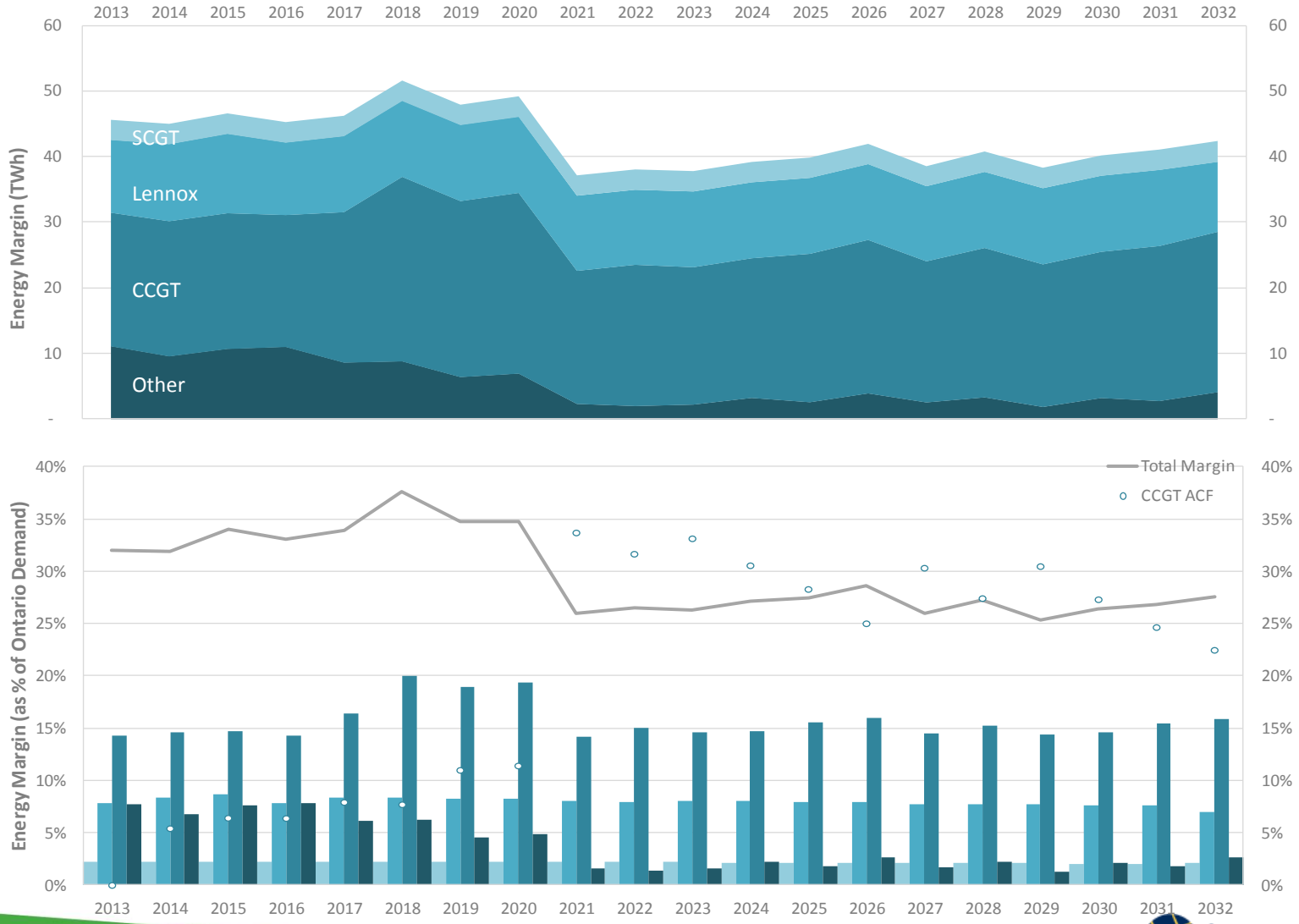
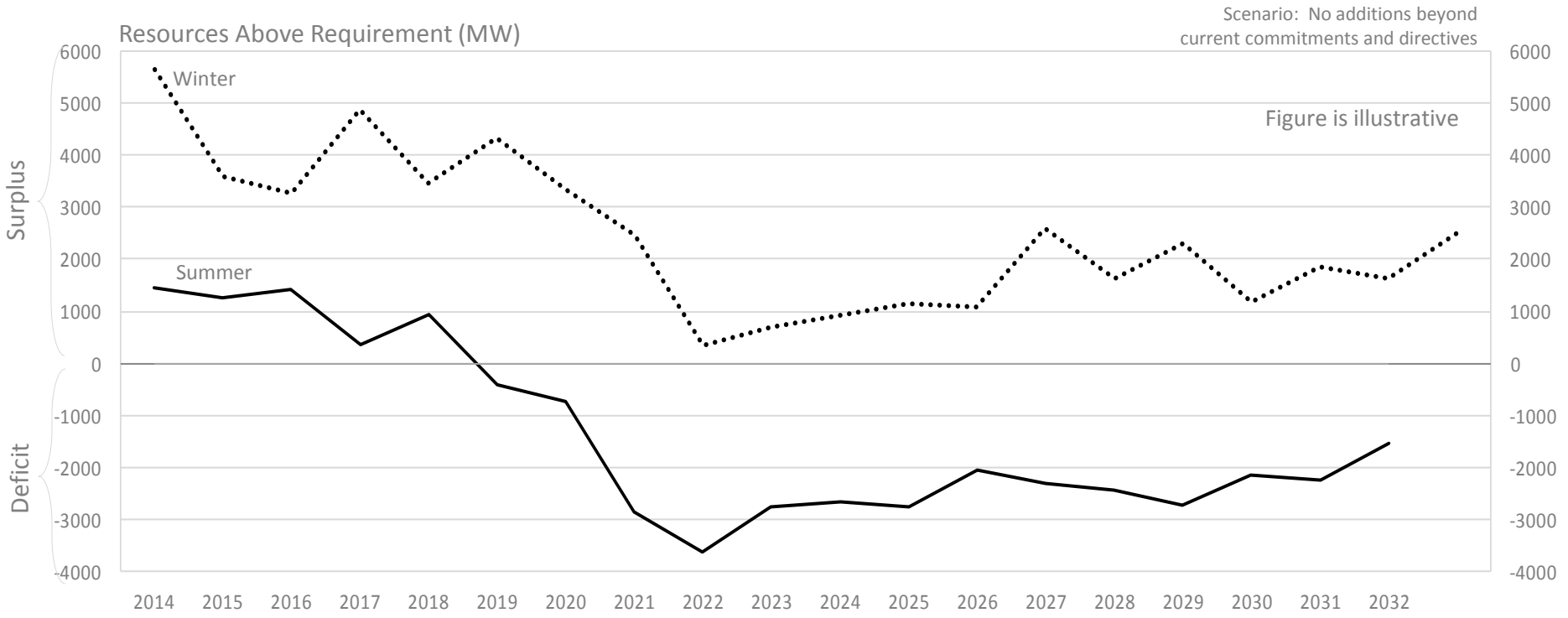
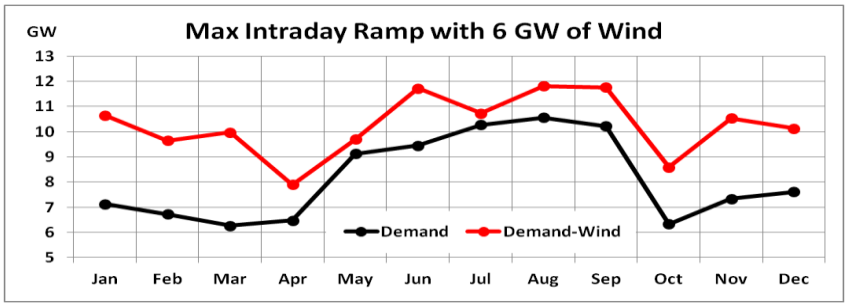
Existing, committed and directed resources can produce the required energy: the need is for additional peak capacity

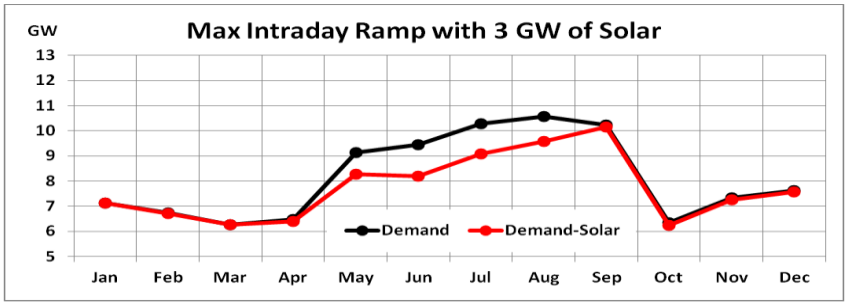


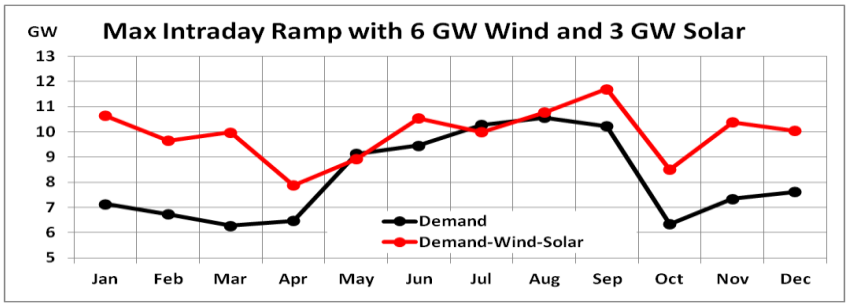
The need for additional peak capacity is driven more by summer demands than winter demands



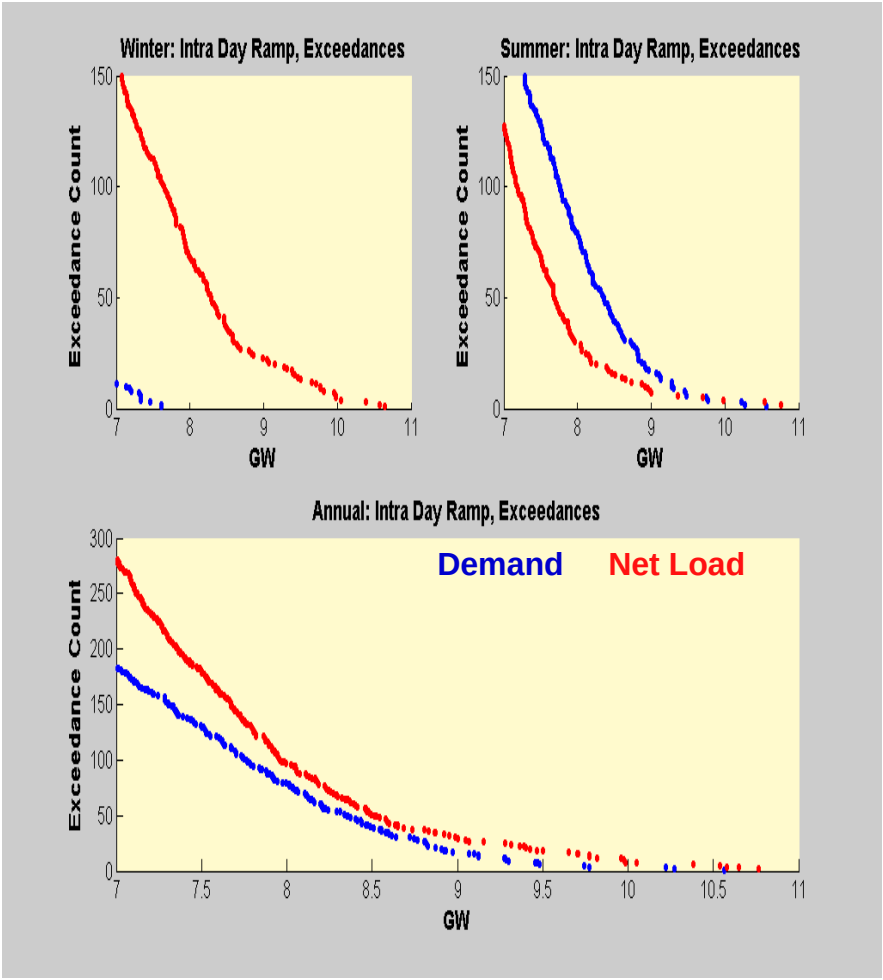
The additional capacity will need to be capable of providing flexibility all year around, in light of the anticipated effects of rising amounts of variable generation





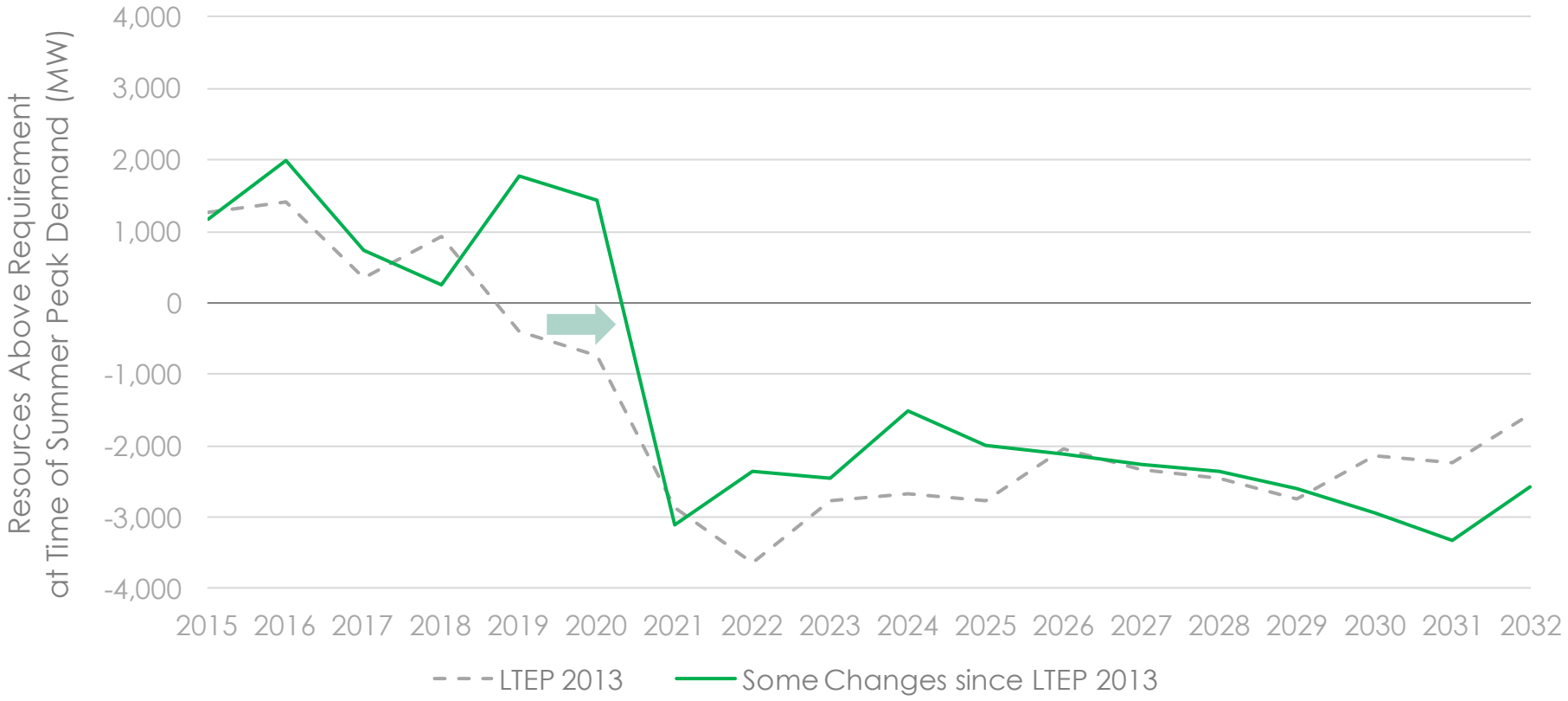


Source: OPG



Source: OPG

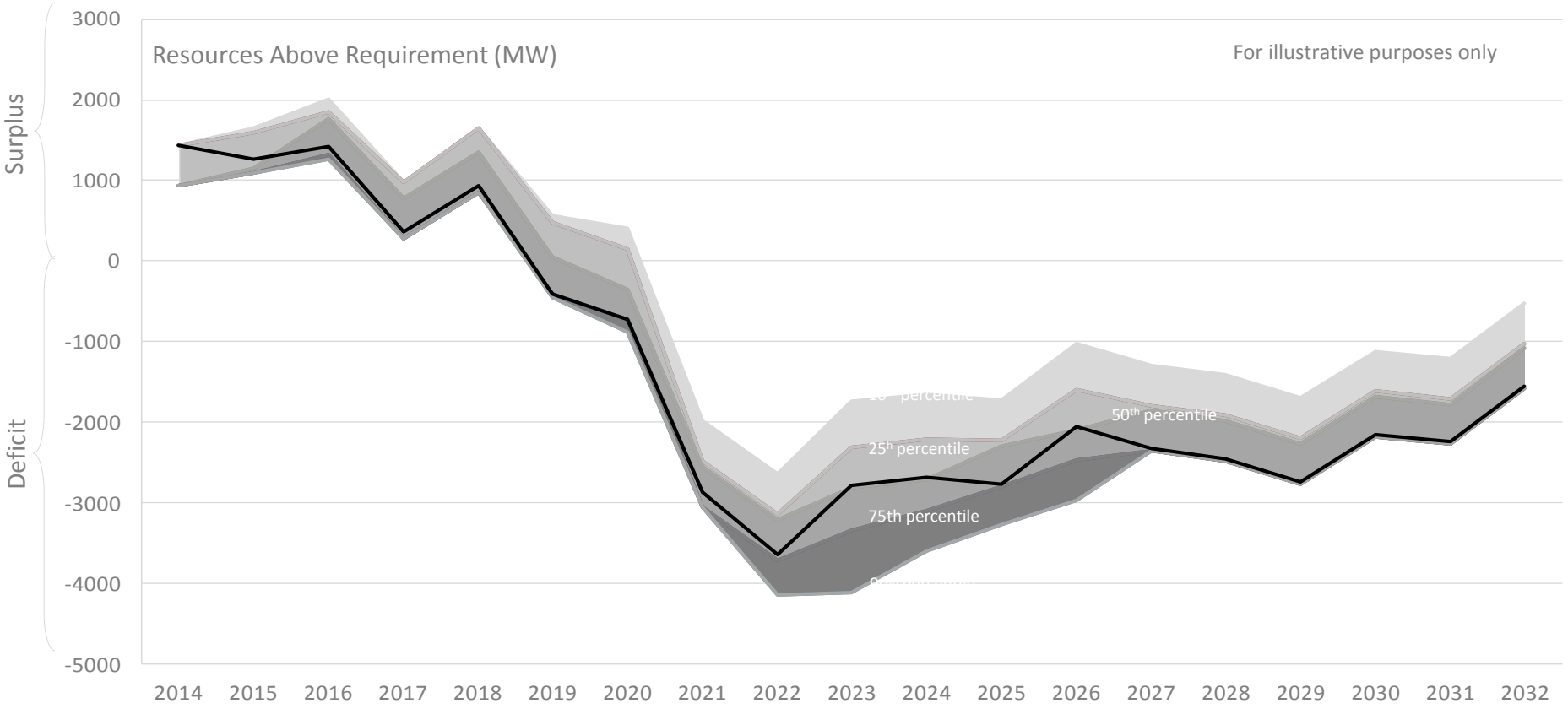
A few developments since the publication of the 2013 LTEP have somewhat deferred the timing of the projected need for additional supply. The deferral is largely driven by evolution in nuclear schedules, “recontracting” of some non-utility generation and a swap arrangement with Quebec.



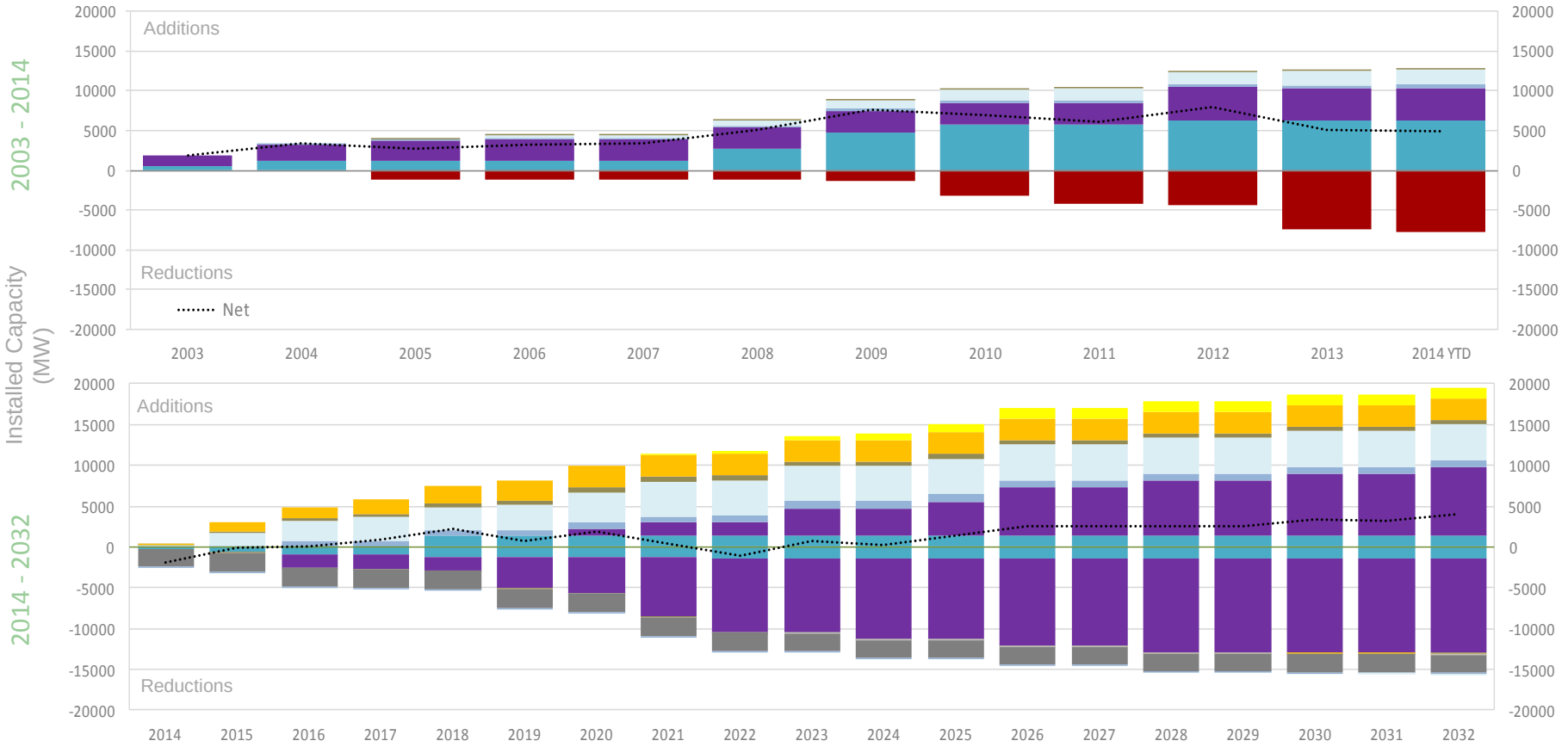
The timing and amount of the need is a moving target. The items below are some examples of factors that will influence future needs.

- Outcomes of negotiations for the refurbishment of Bruce units
- Outcomes of negotiations for the recontracting of gas-fired Non-utility generators
- Policy decisions on as-yet uncommitted renewable supply sources
- Pace of growth in resource requirements, shaped by demand growth and degree of conservation target achievement
- Timing and duration of actual vs. planned refurbishment outages at Darlington and Bruce
- Etc.

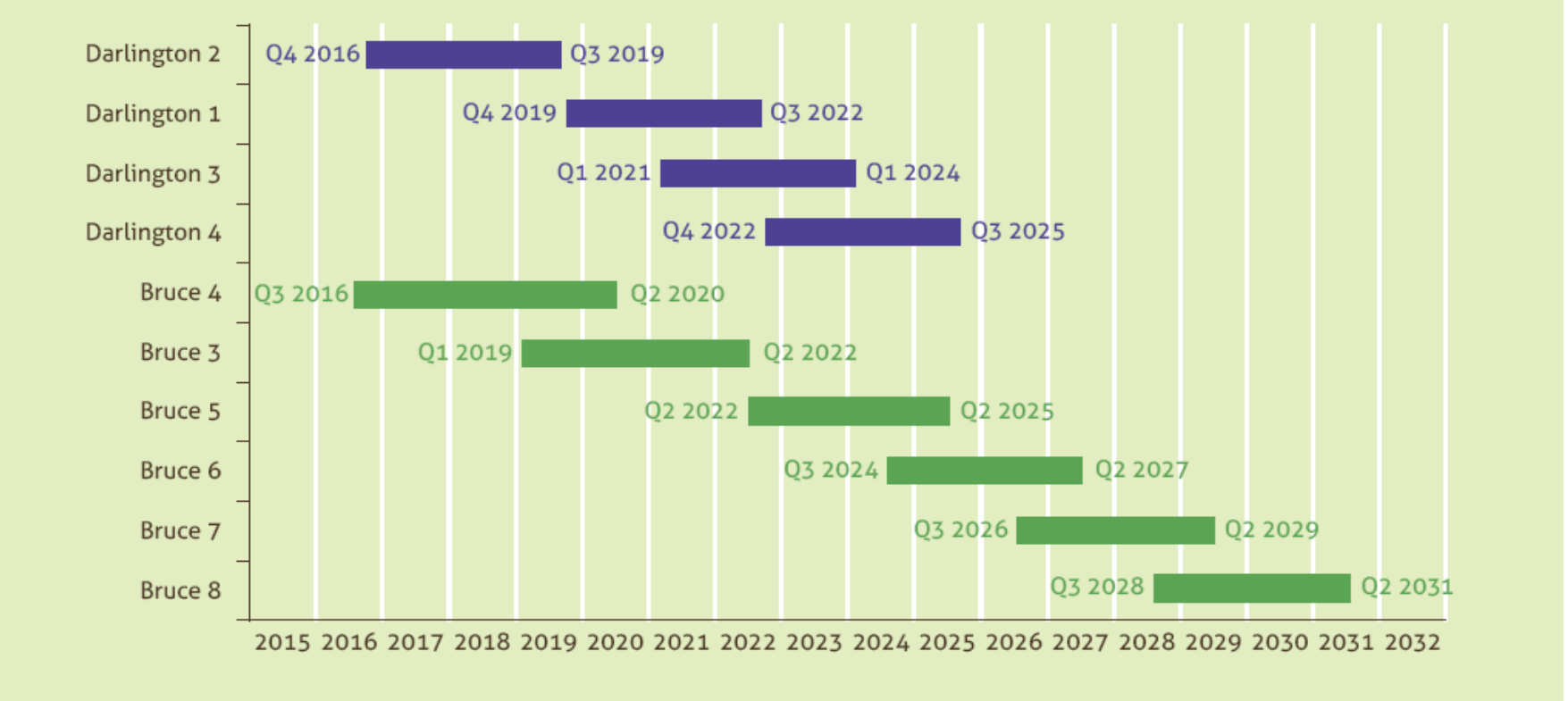
These few factors, along with illustrative estimates of uncertainty, present a wide range of potential outcomes



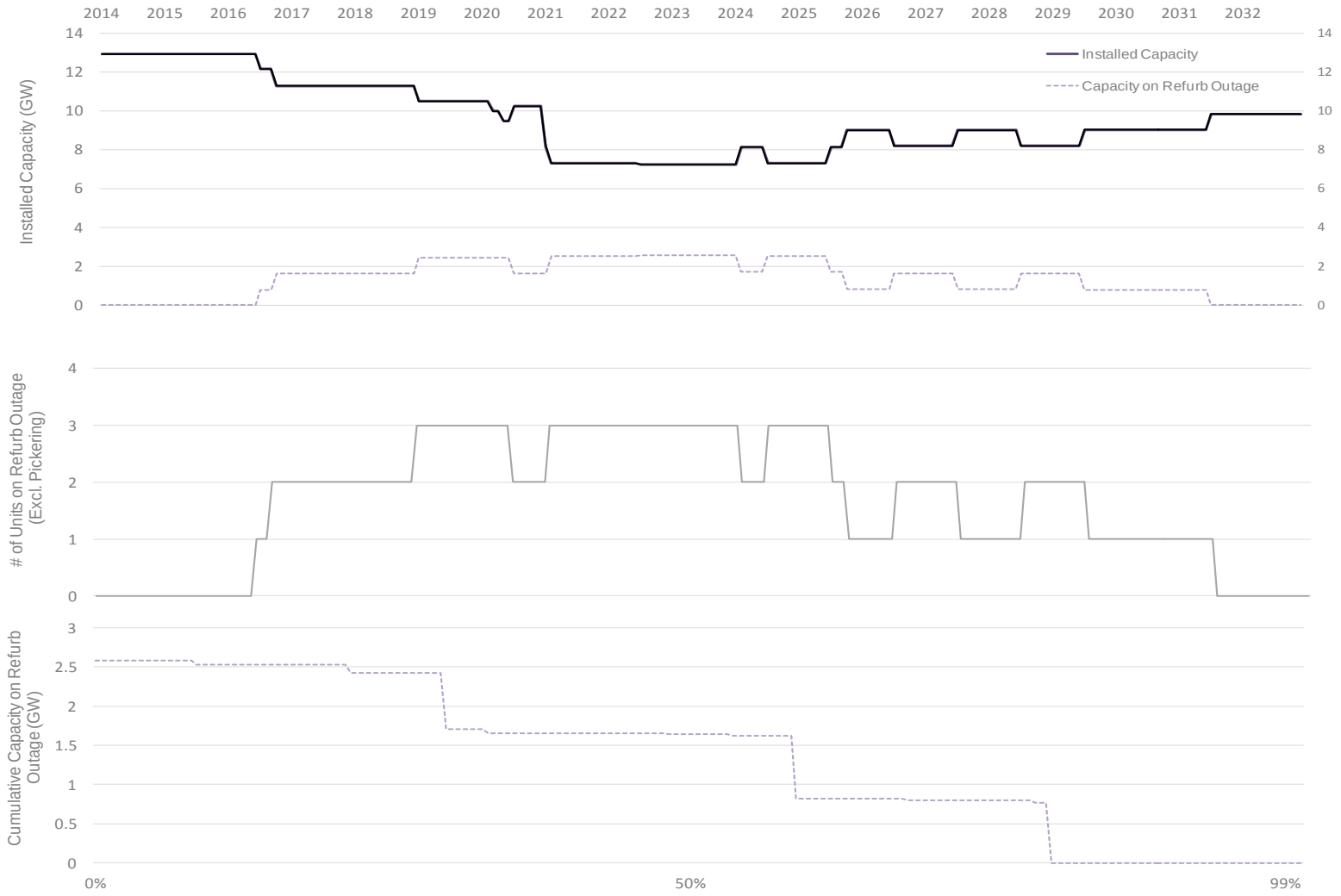
Broadly, the amount of resource turnover over the next decade presents risk of a "many moving pieces" variety. For perspective, the extent of turnover in the next ten years will be greater than it was during the recent off-coal transition.



Nuclear refurbishments will drive the upcoming resource turnover. The figure below illustrates the density of planned refurbishment outages



Between 1.5 GW and 2.5 GW of nuclear capacity will be on refurbishment outage for most of the period between now and 2032



Work is getting underway on an updated integrated long-term planning assessment

- The assessment will:
  - Review recent trends
  - Provide a long-term outlook for context
  - Discuss select key issues to better illuminate drivers, uncertainties, risks and opportunities
  - Interpret all of the above by way of identifying themes, options and decision points and exploring implications of various potential courses of action
  - Form a basis for soliciting stakeholder input

- Questions for help get us started:
  - What are the key issues and themes of the day, of the future?
  - How to incorporate analysis of uncertainty and risk into long-term planning?
  - How can IESO effectively solicit stakeholder input?
  - Any other advice?