

ARE MEDICAL RADIOISOTOPE SHORTAGES A THING OF THE PAST?

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- Decision to establish the HLG-MR – at the request of OECD Nuclear Energy Agency member countries, following the 2009-2010 supply shortage.
 - At present, about 40 experts representing the governments of 17 countries, the European Commission, the International Atomic Energy Agency, and the Euratom Supply Agency
- HLG-MR Terms of Reference
 - Review the total ^{99}Mo supply chain from uranium procurement for targets to patient delivery and identify weak points and issues
 - Recommend options to address the vulnerabilities to help ensure stable and secure supply of radioisotopes
 - Work with supply chain participants to implement policy recommendations
- Currently in its third mandate (2013-2015)

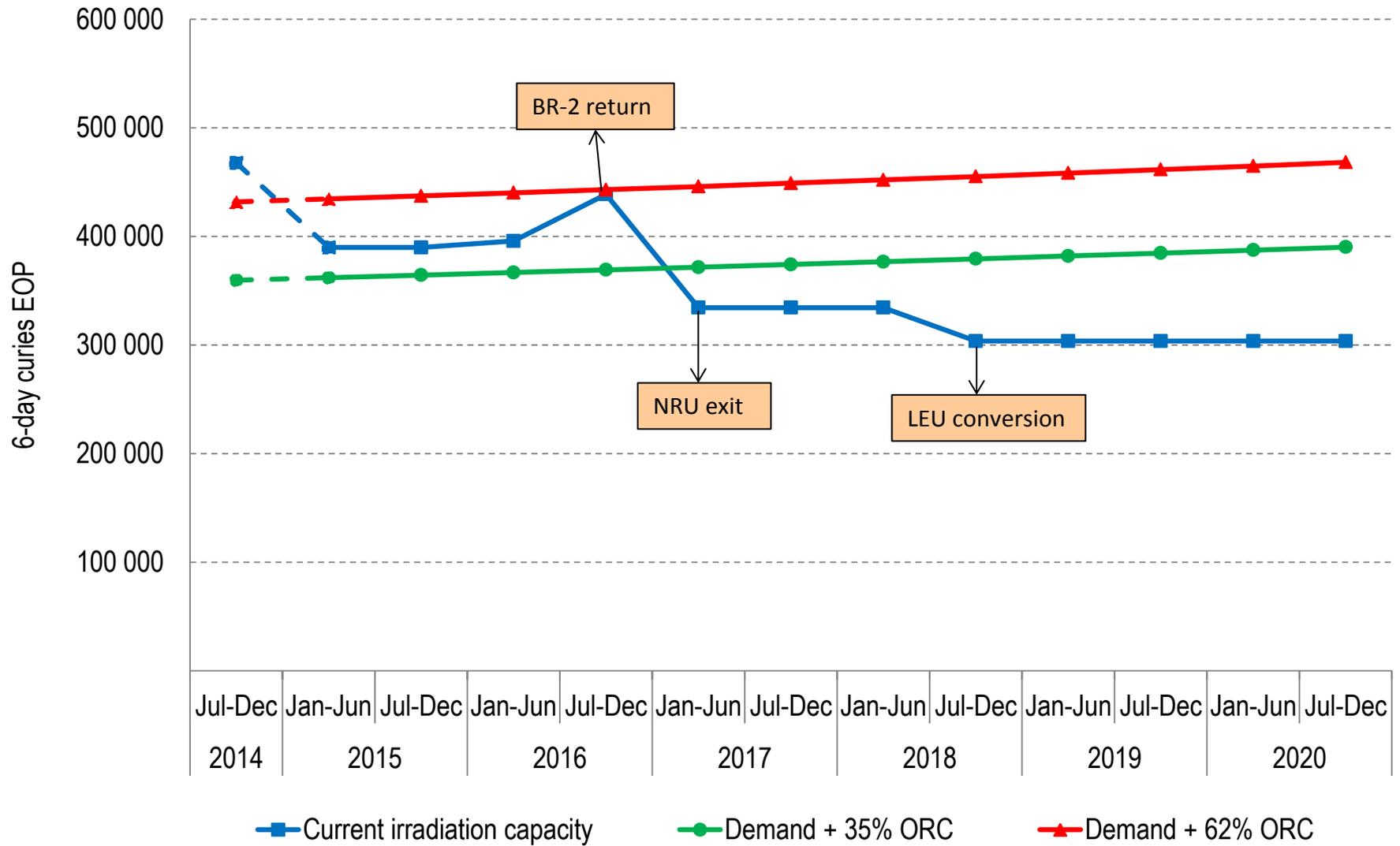
- This presentation includes:
 - a summary of the results from a $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ capacity/demand forecast (2015-2020); and,
 - a description of the second self-assessment by global supply chain participants to evaluate their progress with implementation of the HLG-MR policy principles.

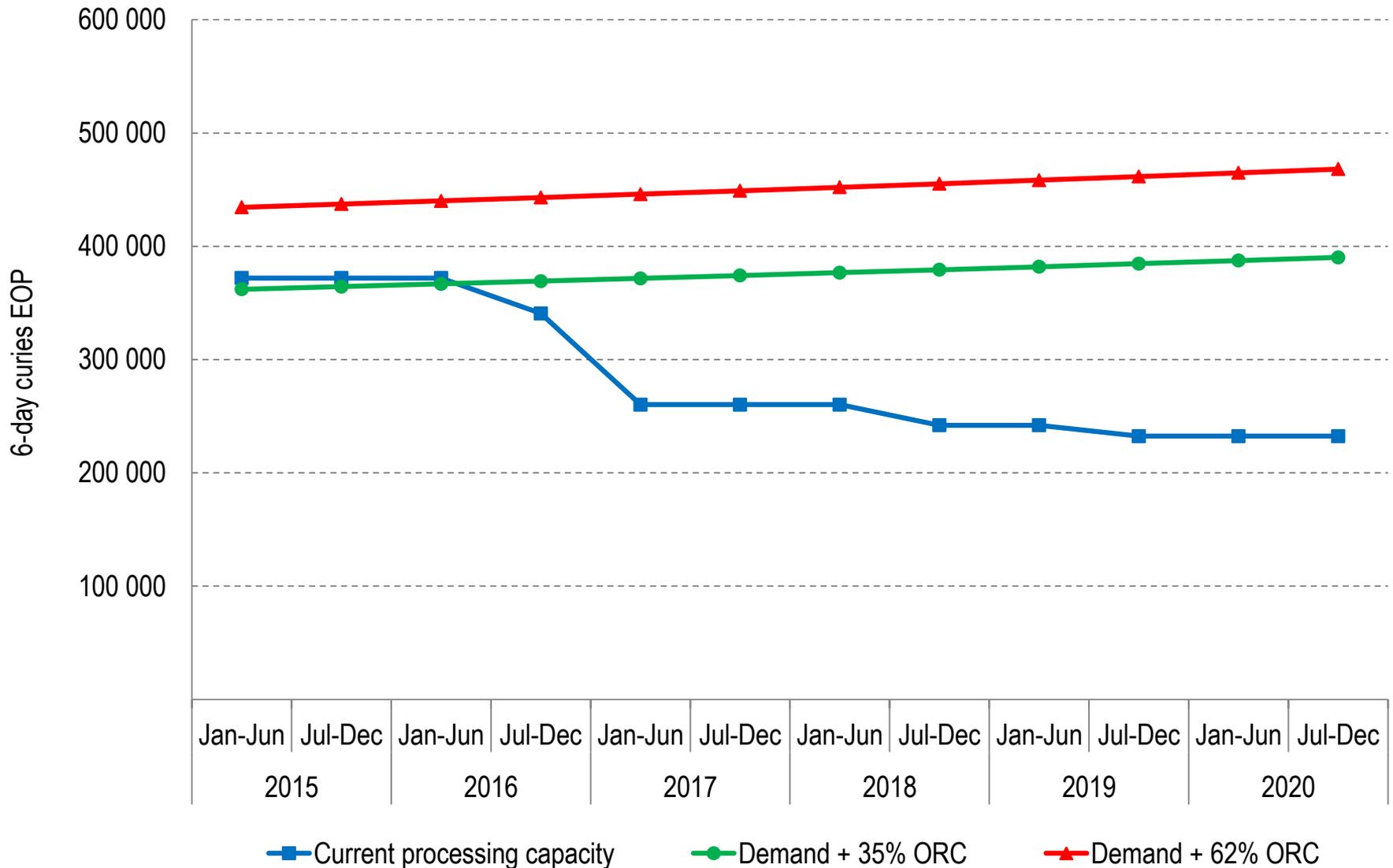
Demand

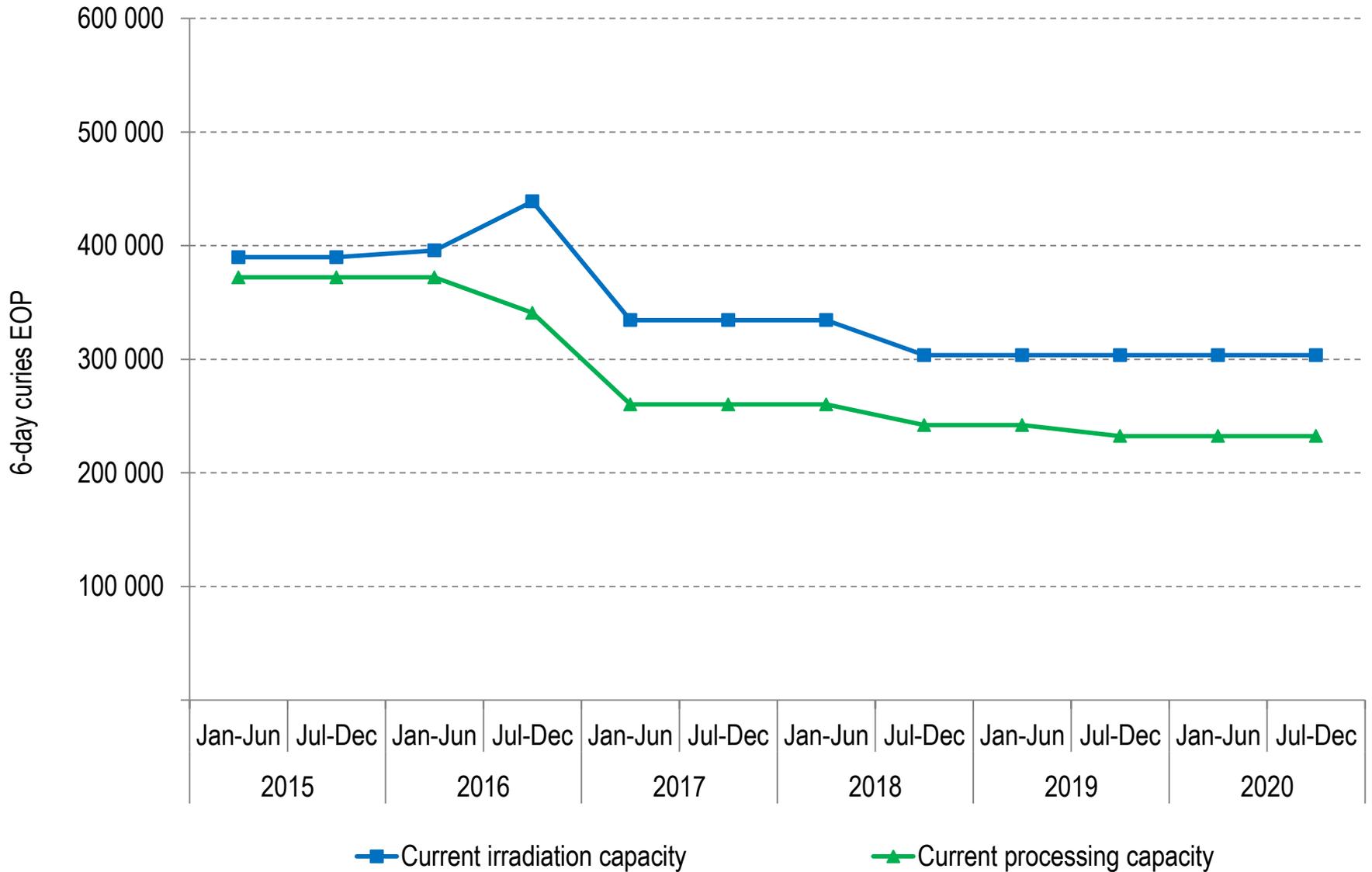
- 10 000 six-day Ci/week (in 2012, estimated to increase by 0.5%/year since) and projected to increase only slightly in mature markets and moderately in emerging markets.

Production Capacity

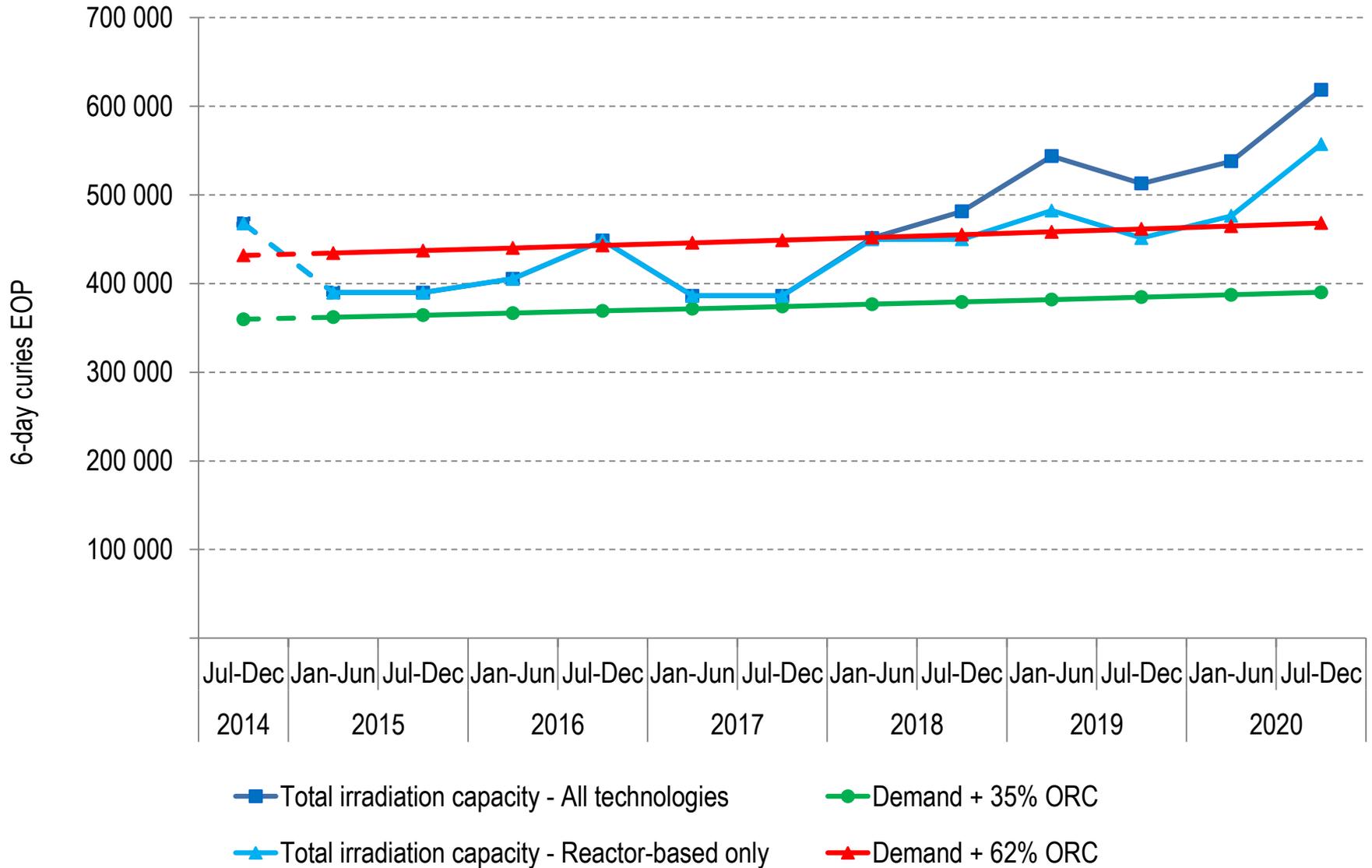
- Expected significant reduction in irradiation capacity from the exit of NRU (2016) and OSIRIS (around the same time) and commitment to LEU conversion (by 2016-17)
- Uncertainty of new irradiation/processing capacity coming online within their announced timelines and being able to penetrate the market
- What is the status of American projects? How likely are they to be commissioned within the announced timelines?

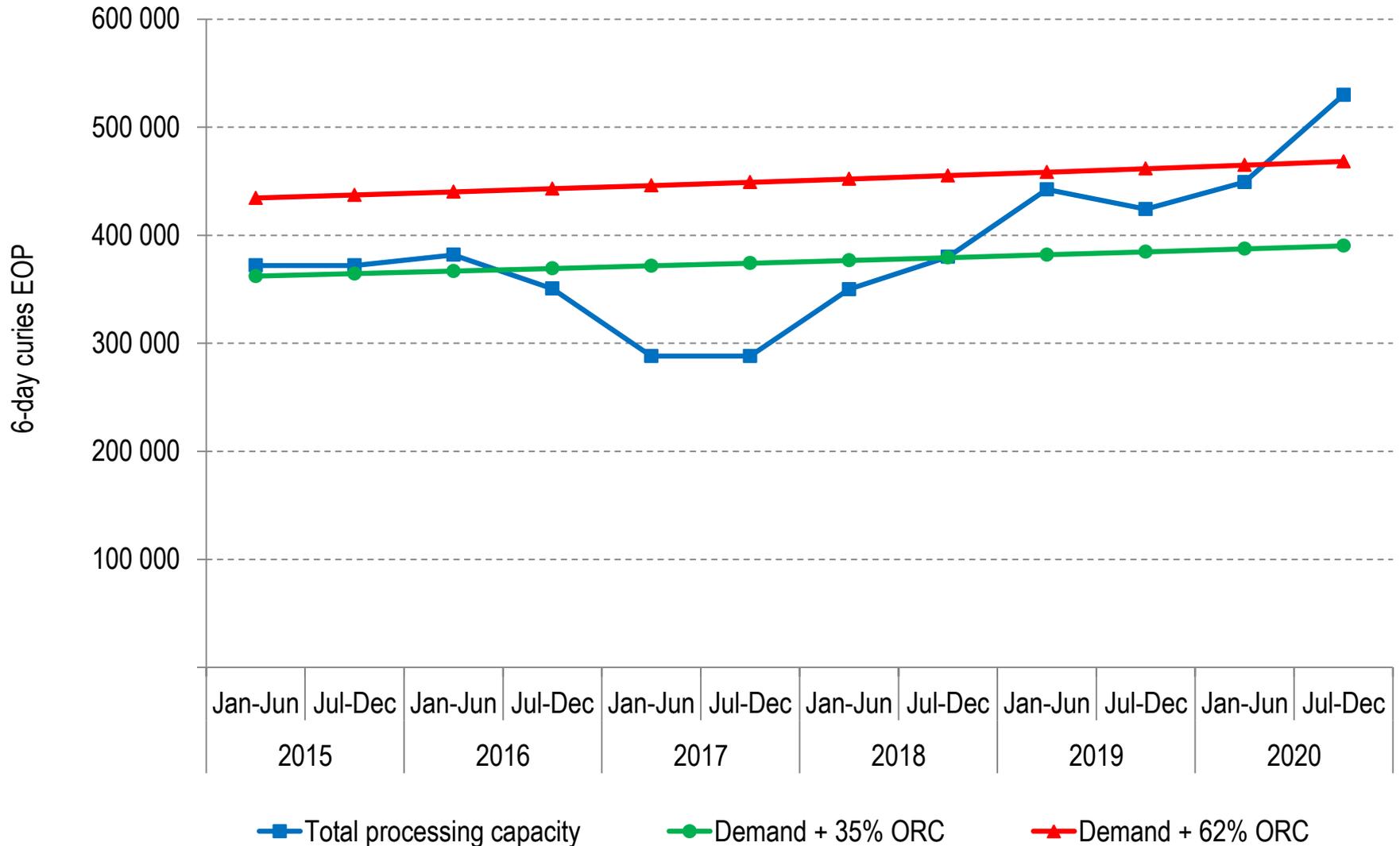


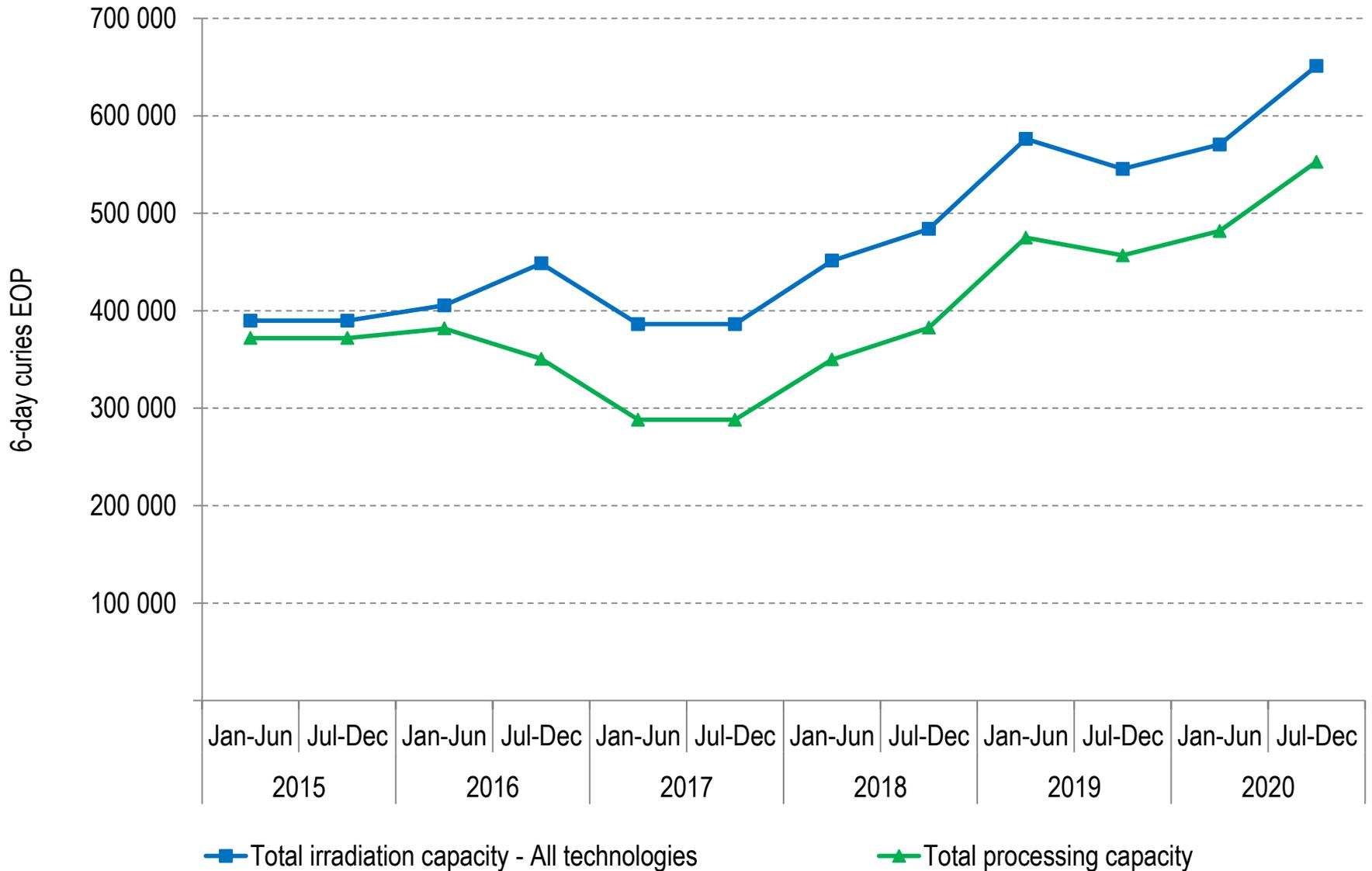




- Included in total irradiation and processing capacity:
 - All current producers
 - Selected new producers, with a 1-year delay in commissioning their projects
- Full LEU conversion is delayed by 1 year
- Non-reactor-based projects have a 50% probability of operating at full capacity







- Conclusions

- Increased risk of supply shortages in 2015-2017 largely from insufficient processing capacity
- Uncertainty whether alternative production technologies will produce within their announced timelines and be price-competitive
- Continuing unsustainable economic situation – disincentive for commercial infrastructure investment
- Some planned, new production capacity to be commissioned in 2018-2020 may not be on full-cost recovery, which will negatively impact commercial projects and potentially create significant over-capacity in the market
- Need to implement the HLG-MR policy approach, particularly full-cost recovery and outage reserve capacity

- Periodic reviews of the $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ supply chain: Self-assessment – second review currently underway
 - Analyse and report on the functioning of the $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ supply chain
 - Provide a “monitoring mechanism” for the HLG-MR on the progress of the supply chain in implementing the HLG-MR policy approach
 - Highlight supply chain participants who have implemented or are making good progress, and those who have not
 - Increase awareness of actions taken by the supply chain
 - Provide basic information on the status of the supply chain
- Questionnaires sent to: governments, reactor operators, processors, generator manufacturers, and end-user/industry associations

- Continued government subsidisation of ^{99}Mo production at reactors and some processors
- Long-term contracts at below-market prices
- Short-term exploitation of subsidised production and the practice of international reverse auctions, where suppliers compete on price
- No or inadequate payment for outage reserve capacity
- In the absence of adequate provisions for outage reserve capacity, apparent over-capacity when all existing reactors and processors are available
- Simultaneous transition to full-cost recovery and LEU conversion creating technical and economic challenges for some processors
- Insufficient reimbursement for the medical isotope at the end-user level

- Prepare a report on the results from the second self-assessment of the global $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ supply chain and publish it later in 2014
- Engage more closely with governments on:
 - the need to reduce and eliminate subsidies for ^{99}Mo production; and
 - providing appropriate reimbursement for the isotope in nuclear medicine procedures
- Engage more closely with $^{99\text{m}}\text{Tc}$ generator manufacturers and the medical community on the need to implement the HLG-MR policy approach for long-term security of supply

- The Supply of Medical Radioisotopes Series
 - *Medical Isotope Supply in the Future: Production Capacity and Demand Forecast for the $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ Market, 2015-2020*
 - *Implementation of the HLG-MR Policy Approach: Results from a Self-assessment by the Global $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ Supply Chain*
 - *Market Impacts from Converting to Low-Enriched Uranium Targets for Medical Isotope Production*
- Guidance documents
 - *Provision of Outage Reserve Capacity for Molybdenum-99 Irradiation Services*
 - *Full-cost Recovery for Molybdenum-99 Irradiation Services*
 - *Full-cost Recovery Identification Workbook*
- All documents are reports are available at: <http://oecd-nea.org/med-radio/docs/>

Thank You!

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