

AUGUST 21 SOLAR ECLIPSE

August 3, 2017

Background

- On Monday, August 21, 2017, a total solar eclipse will pass over parts of the continental U.S. and Canada.
- It is the first total eclipse in the United States in twenty-six years.
- Ontario is not on the path of the total eclipse, however southern Ontarians will experience approximately 70-75% of solar blockage at its peak.
- The event is expected to begin at 12:10 EST and conclude by 14:50 EST, with the peak of the eclipse occurring at approximately 13:30 EST.

Path of Eclipse



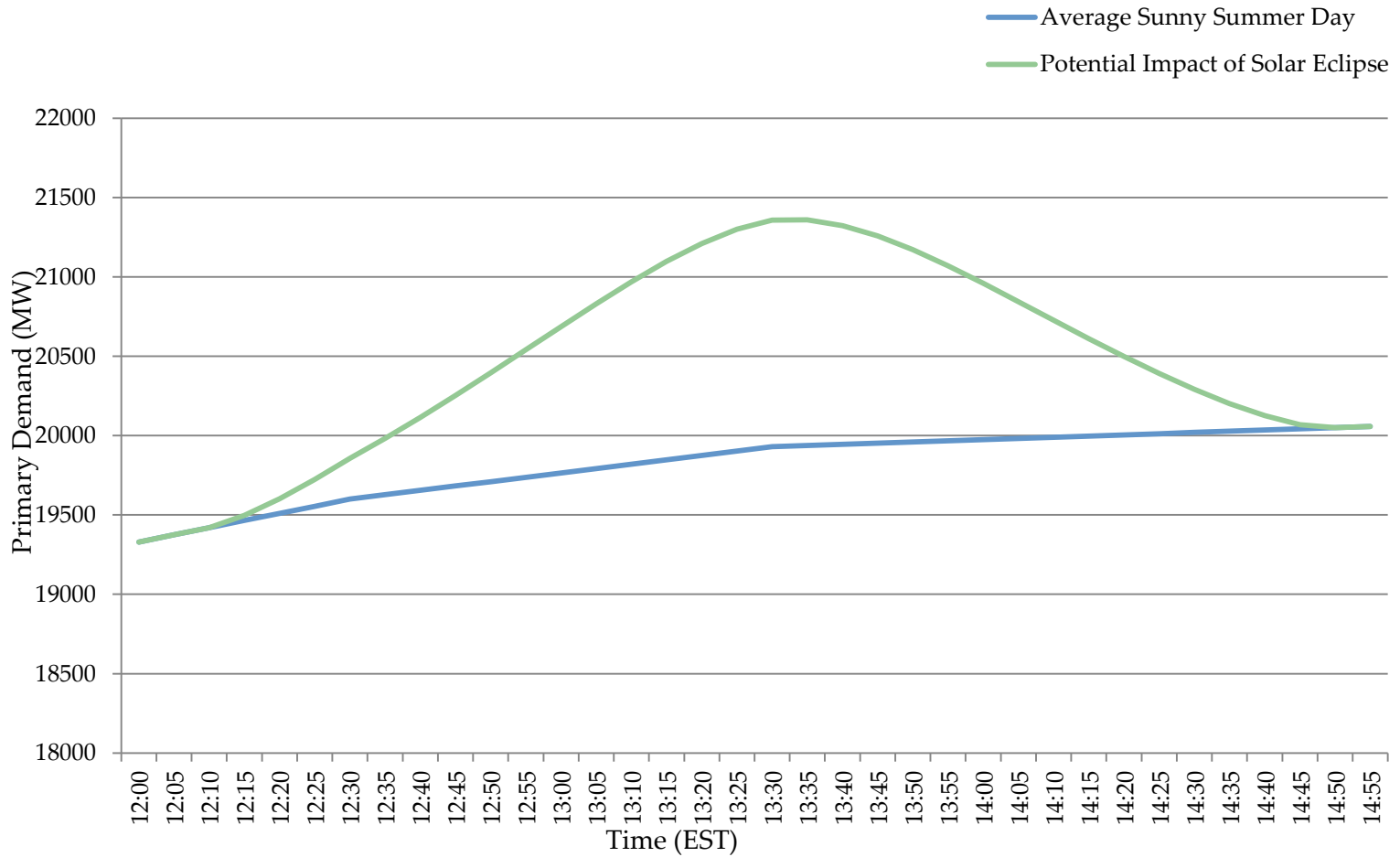
Operational Impact

- Ontario has approximately 2300 MW of solar generation, which is roughly the same amount of power needed to meet peak summer electricity demand for Ottawa and Brampton combined.
- Roughly 2000 MW of this solar generation is connected directly to the distribution system, displacing grid demand.
- If it is a sunny day on August 21, solar generation will be providing about 10% of Ontario's electricity supply.
- A solar eclipse blocking 70% of the sun's rays from Ontario will result in a reduction of the same percentage in output from our solar generation.

Operational Impact

- The solar eclipse will potentially impact IESO operations because the decline in embedded solar production will translate to a corresponding increase in grid demand that will occur over approximately 80 minutes.
- This gradual increase in electricity demand will be immediately followed by a similar decrease over the same duration.
- This temporary increase in grid demand combined with the reduction in grid-connected solar production will have to be met by other resources.

Operational Impact



Preparations

- This is a unique event due to the fact that this is the first solar eclipse since large amounts of solar generation has been installed across North America.
- However, the IESO has managed similar, weather-related, ramping events in the past and has existing, robust processes in place.
- We have been tracking this event for some time and have the benefit of knowing exactly when the eclipse will be happening.
- We have worked closely with our weather and variable generation forecast providers to ensure we will have an accurate representation of what to expect.
- We have communicated the event widely to our Ontario electricity sector partners

Potential Actions

The IESO will be taking a conservative approach in order to ensure the reliability of the grid is maintained. The IESO Operating Plan for August 21 will be developed as more accurate weather forecasts become available. The following actions may be implemented:

- We may bring additional generation resources online to ensure we can properly keep up with the demand as it ramps in and out based on the solar output
- We will be actively monitoring our ahead-of-time and real-time Ontario Demand forecasts to ensure they reflect the solar generation ramping impact we are anticipating. These forecasts allow our tools to economically schedule generation to meet the Ontario demand.
- We will make sure we have capacity on our transmission system to increase power transfers should a need arise, including ability to support our neighbours to the south as they will be impacted more than us.

Questions?