NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

MINUTES OF THE REGULAR JOINT MEETING
OF THE FINANCE COMMITTEE
September 26, 2018

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September 26, 2018

Minutes of the regular joint meeting of the New York Power Authority and Canal Corporation's Finance Committee held at the Clarence D. Rappleyea Building at 123 Main Street, White Plains, New York at approximately 8:40 a.m.

Members of the Finance Committee present were:

Tracy B. McKibben - Chair
John R. Koelmel
Anthony Picente
Michael Balboni

Dr. Anne M. Kress - Excused

Also in attendance were:

Justin Driscoll	Executive Vice President and General Counsel
Joseph Kessler	Executive Vice President and Chief Operations Officer
Robert Lurie	Executive Vice President and Chief Financial Officer
Sarah Salati	Executive Vice President and Chief Commercial Officer
Lee Garza	Senior Vice President - Financial Operations and Acting Controller
Soubhagya Parija	Senior Vice President and Chief Risk Officer
Karen Delince	Vice President and Corporate Secretary
Jenny Liu	Vice President - Energy Resource Management
Daniella Piper	Vice President - Digital Transformation / Chief of Staff
Jacob Kim	Manager - Financial Analysis
Lorna Johnson	Senior Associate Corporate Secretary

Chairperson Tracy McKibben presided over the meeting. Corporate Secretary Delince kept the Minutes.

Introduction

Chairperson Tracy McKibben welcomed committee members and the Authority's senior staff to the meeting. She said the meeting had been duly noticed as required by the Open Meetings Law and called the meeting to order pursuant to Section B(4) of the Finance Committee Charter.

1. Adoption of the September 26, 2018 Proposed Meeting Agenda

Upon motion made by member Michael Balboni and seconded by member Anthony Picente, the agenda for the meeting was adopted.

2. Motion to Conduct an Executive Session

I move that the Finance Committee conduct an executive session to discuss the financial and credit history of a particular corporation pursuant to §105f of the Public Officers Law.

Upon motion made by member Michael Balboni and seconded by member John Koelmel, an Executive Session was held.

3. Motion to Resume Meeting in Open Session

I move to resume the meeting in Open Session. Upon motion made by member John Koelmel and seconded by member Anthony Picente, the meeting resumed in Open Session.

Chairperson McKibben said no votes were taken during the Executive Session.

4. CONSENT AGENDA:

Upon motion made by member John Koelmel and seconded by member Anthony Picente, the agenda for the meeting was adopted.

a. Approval of the Regular Meeting Minutes of the New York Power Authority

The Minutes of the Regular Meeting of the New York Power Authority's Finance Committee held on March 20, 2018 were unanimously approved.

b. Approval of the Regular Meeting Minutes of the Canal Corporation

The Minutes of the Regular Meeting of the Canal Corporation's Finance Committee held on March 20, 2018 were unanimously approved.

DISCUSSION AGENDA:

c. Hydro Generation Forecasting

Ms. Jenny Liu, Vice President of Energy Resource Management, provided a report on NYPA's hydro generation forecasting and modeling (Exhibit "5a-A"). She said that since hydro volumes are a significant input into the Authority's Niagara and St. Lawrence generating facilities and the basis for target setting, NYPA tracks the performance of how well it forecasts.

Since 1990, NYPA's average forecast error has been about a terawatt hour ("TWh") off compared to actuals, which is about six percent. As NYPA staff work to update next year's target, they realize that there is uncertainty surrounding the forecast, going forward.

The Great Lakes Regional Hydropower authorities have historically relied on a suite of hydro models for decision support at the Niagara River Control Center and the Moses-Saunders Power Dam in Cornwall, Ontario. These models have been used by Niagara River Control, as well as NYPA and Ontario Power Generation ("OPG") to make flow forecasts along the Niagara and St. Lawrence Rivers.

Following years of correspondence, as well as a workshop conducted at the National Oceanic and Atmospheric Administration's ("NOAA") Great Lakes Environmental Research Laboratory in Ann Arbor, Michigan, a focus team launched a project aimed at improving and developing enhanced versions of these models. This focus team included representatives from NOAA, the U.S. Army Corps of Engineers ("USACE"), Niagara River Control, NYPA, and OPG. After extensive study and analysis, the team released an enhanced model and NYPA began using it in July of this year.

Some of the improvements in this new model include:

- A recalibration of model parameters for 121 watersheds on the Great Lakes using more recent data;
- Improved operation modeling;
- Expansion to include Lake Ontario to preserve the correlations between Niagara River and the St. Lawrence River flows;
- The model was expanded to increase projections from 3 to 5 years;
- The research lab used hind-casting to prove that the new model is more accurate than the old model; and
- The Army Corp of Engineers has agreed to be responsible for ongoing flow forecast verification for NYPA and OPG.

The Great Lakes Research Lab continues to make improvements and the Army Corp of Engineers has operationalized the improvements. There are two notable improvements in the pipeline:

1) To improve precipitation estimations over the Great Lakes; and
2) To incorporate the national Weather Research and Forecasting water model.

The Authority believes these enhancements will help reduce the average forecast error, going forward.

6. Next Meeting

Chairperson McKibben said that the next regular meeting of the Finance Committee is to be determined.

Closing

Upon motion made by member Anthony Picente and seconded by member John Koelmel, the meeting was adjourned by Chairperson McKibben at approximately 10:25 a.m.

Karen Delince

Karen Delince
Corporate Secretary

September 26, 2018

NYPA FINANCE COMMITTEE

EXHIBITS

For

September 26, 2018

Meeting Minutes

Exhibit 5a-A

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority | Canal Corporation

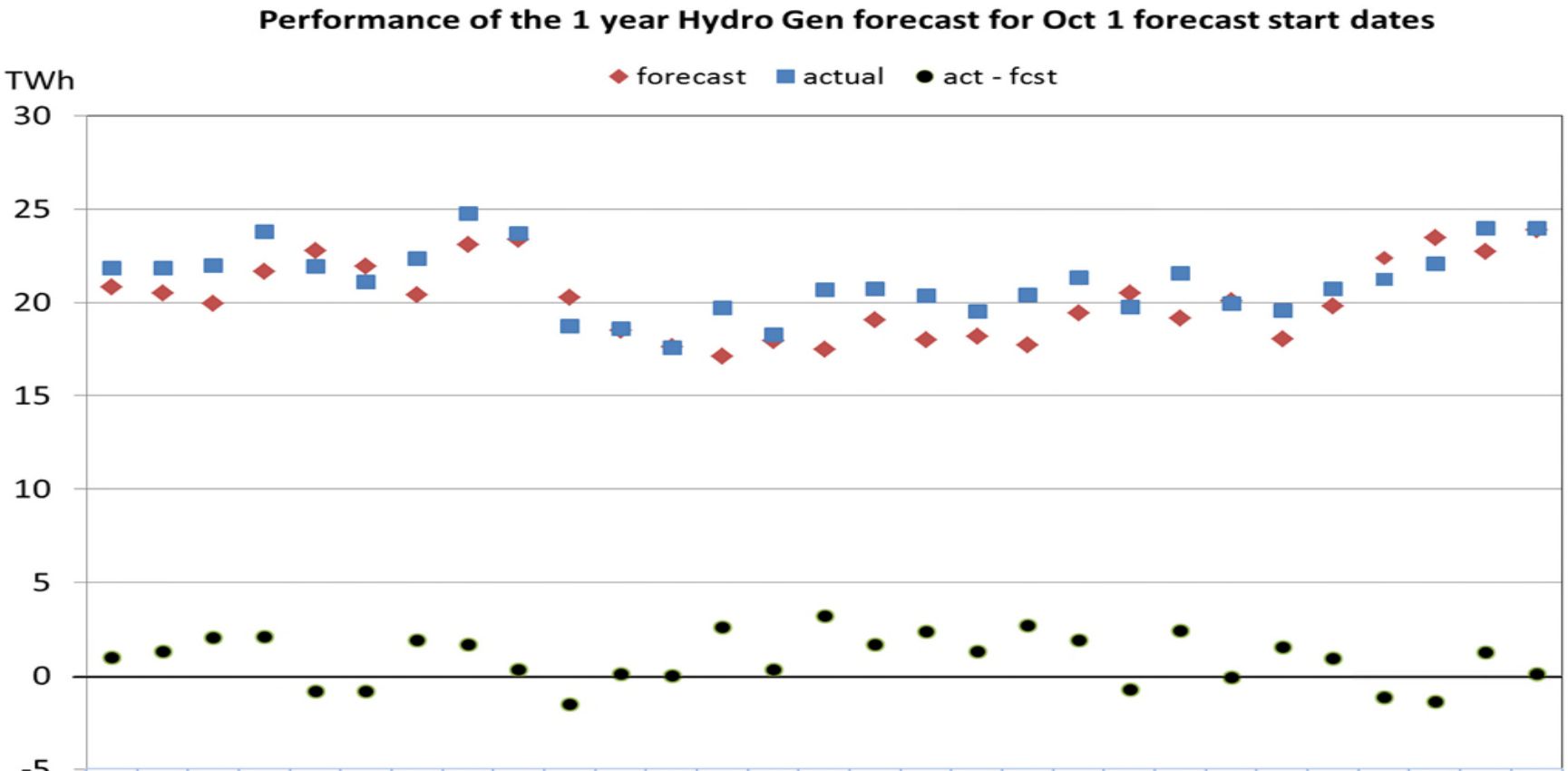
Hydro Generation Forecasting Finance Committee Meeting

Jenny Liu, VP Energy Resource Management

Sept 26, 2018

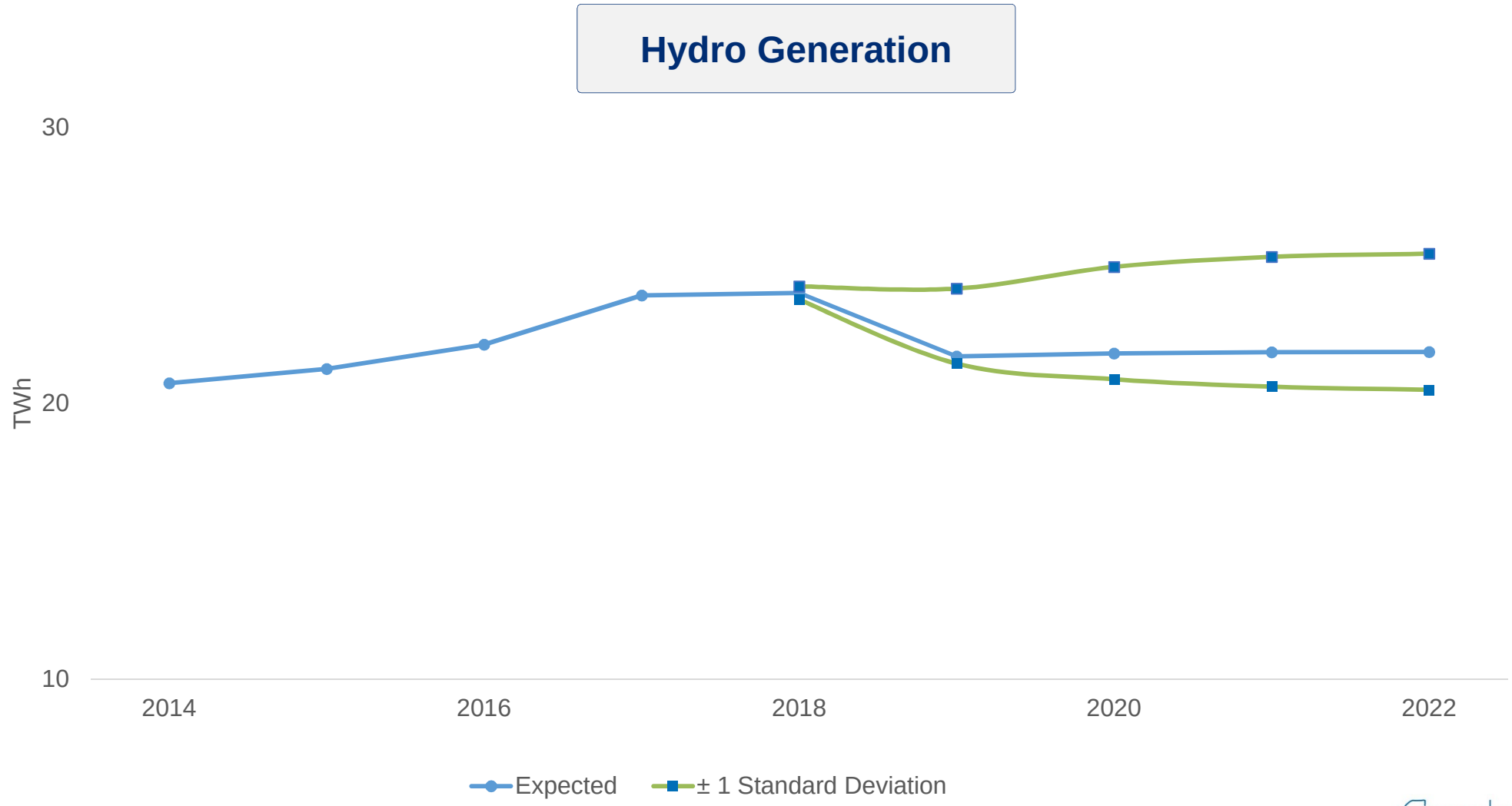
Hydro Generation Forecasting

- Review of NYPA's hydro generation forecast
  - Since 1990, average forecast error is 0.9 TWh with a standard deviation of 1.3 TWh



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
forecast	20.84	20.51	19.92	21.67	22.75	21.94	20.41	23.08	23.39	20.28	18.48	17.61	17.10	17.97	17.46	19.07	18.01	18.20	17.70	19.44	20.48	19.14	20.05	18.01	19.80	22.38	23.45	22.72	23.88
actual	21.83	21.83	21.97	23.78	21.94	21.12	22.33	24.77	23.70	18.75	18.59	17.59	19.70	18.28	20.68	20.74	20.37	19.51	20.38	21.33	19.73	21.55	19.96	19.55	20.73	21.25	22.06	23.99	23.98
act - fcst	0.99	1.31	2.04	2.11	-0.81	-0.82	1.92	1.68	0.32	-1.54	0.10	-0.02	2.60	0.31	3.22	1.67	2.36	1.31	2.69	1.89	-0.75	2.41	-0.10	1.53	0.93	-1.14	-1.39	1.27	0.10

- NYPA's financial performance correlates to hydro margins – specifically, flows, energy prices, and capacity prices – it is generation and its associated volatility that contributes the most to variances



Updating & Improving NYPA's hydro generation forecast

- NYPA re-benchmarked and updated its fundamental hydrology model in July 2018
- Collaboratively developed with the Great Lakes Environmental Research Lab & Army Corps of Engineers
- Model is used by NYPA and Ontario Power Generation to forecast hydro flows at Niagara and St. Lawrence

Exhibit 5a-A

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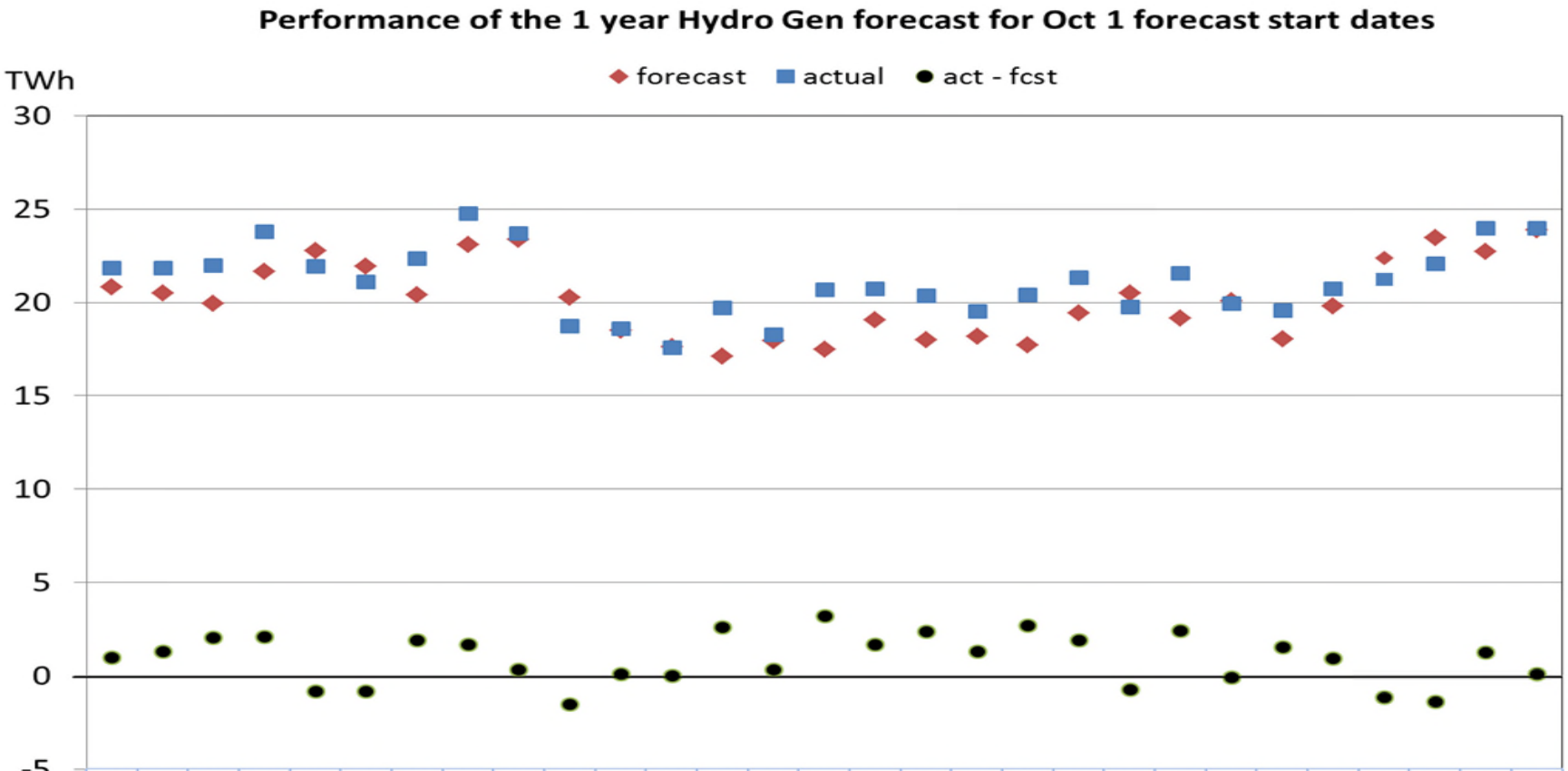

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actual	21.83	21.83	21.97	23.78	21.94	21.12	22.33	24.77	23.70	18.75	18.59	17.59	19.70	18.28	20.68	20.74	20.37	19.51	20.38	21.33	19.73	21.55	19.96	19.55	20.73	21.25	22.06	23.99	23.98
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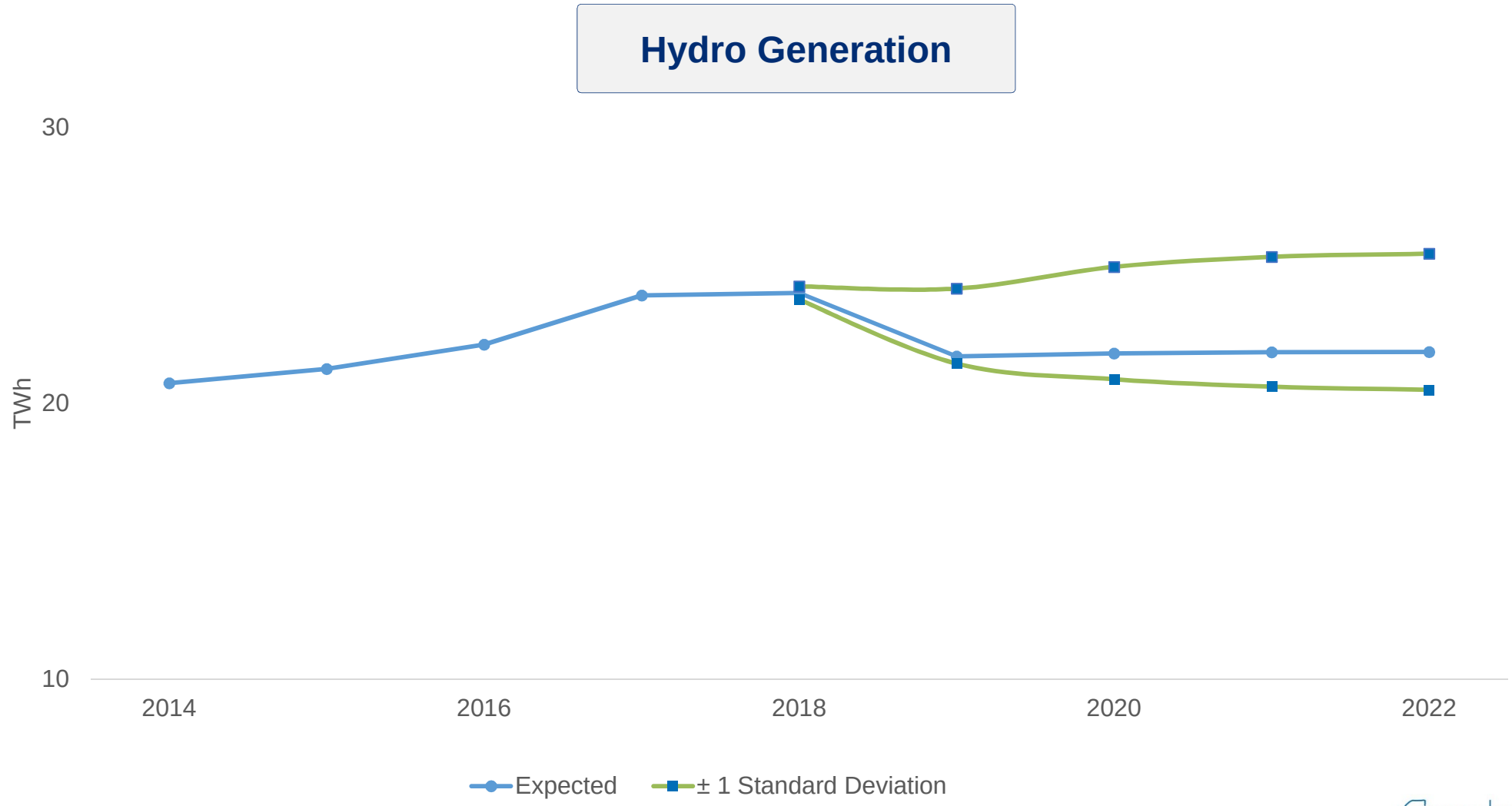

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