



Generation Deactivation Reinstatement Notification Beaver Valley 1 & 2

Transmission Expansion Advisory
Committee

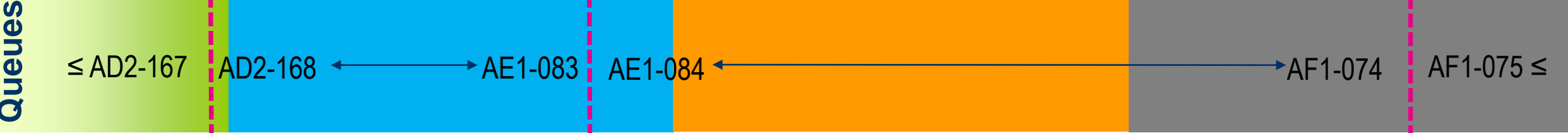
May 12, 2020



Previous FirstEnergy Reinstatement Impact

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

2018 AD2-Queue AE1-Queue AE2-Queue AF1-Queue 2019



Identified as progressing too far after September 2019 TEAC

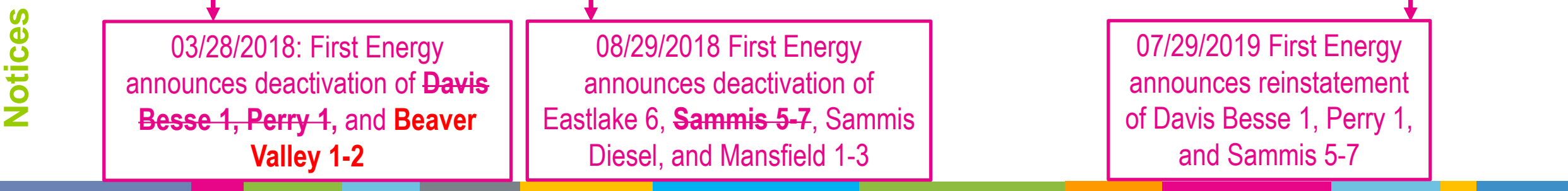
RTEP

b2965
b2967


b3005	b3011.1	b3012.2	b3015.5
b3006	b3011.2	b3013	b3015.7
b3007.1	b3011.3	b3014	b3015.8
b3007.2	b3011.4	b3015.1	b3016
b3008	b3011.5	b3015.2	b3017
b3009	b3011.6	b3015.3	b3024
b3010	b3012.1	b3015.4	

b3012.3	b3063	b3065	b3069	b3073	b3077	b3081	b3085
b3012.4	b3064.1	b3066	b3070	b3074	b3078	b3082	
b3061	b3064.2	b3067	b3071	b3075	b3079	b3083	
b3062	b3064.3	b3068	b3072	b3076	b3080	b3084	

- Required for remaining deactivations
- New required for remaining deactivations
- Complete due to progress
- Pending resolution







FirstEnergy Deactivation RTEP Upgrades Remaining after 7/29/19 Reinstatement

b2965	b3011.3	b3015.7
	b3011.4	b3015.8
b3006	b3011.5	b3016
b3007.1	b3012.1	b3024
b3007.2	b3015.1	b3064.1
b3008	b3015.2	b3064.2
b3009	b3015.3	b3064.3
b3011.1	b3015.4	b3084
b3011.2	b3015.5	b3085



All colored cells from the previous slide.

Key: applicable to all slides

-  Required for remaining deactivations
-  New required for remaining deactivations
-  Complete due to progress
-  Pending resolution

Beaver Valley 1&2 Reinstatement Required Upgrades

b2965	b3011.3	b3015.7
 	b3011.4	b3015.8
b3006	b3011.5	b3016
b3007.1	b3012.1	b3024
b3007.2	b3015.1	b3064.1
b3008	b3015.2	b3064.2
b3009	b3015.3	b3064.3
b3011.1	b3015.4	b3084
b3011.2	b3015.5	b3085

Beaver Valley 1&2
reinstatement analyses
and updated status

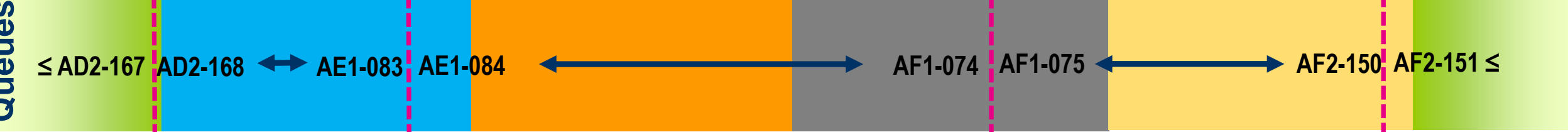
b2965	b3011.3 → b3215	b3015.7
b3214	b3011.4 → b3216	b3015.8
b3006	b3011.5	b3016
b3007.1	b3012.1	b3024
b3007.2	b3015.1	b3064.1
b3008	b3015.2	b3064.2
b3009	b3015.3	b3064.3
b3011.1	b3015.4	b3084
b3011.2	B3015.5 → b3217	b3085



Beaver Valley 1 & 2 Reinstatement Queue Impact

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun

2018 AD2-Queue AE1-Queue AE2-Queue AF1-Queue AF2-Queue AG1-Queue



RTEP	b2965	b3005	b3215	B3015.2	b3012.3	b3066	b3075	b3084	b2965	b3215	b3015.7
	b2967	B3006	b3216	b3015.3	b3012.4	b3067	b3076	b3085	b3214	b3216	b3015.8
		b3007.1	b3011.5	b3015.4	b3061	b3068	b3077		b3006	b3011.5	b3016
		b3007.2	b3011.6	b3217	b3062	b3069	b3078		b3007.1	b3012.1	b3024
		b3008	b3012.1	b3015.7	b3063	b3070	b3079		b3007.2	b3015.1	b3064.1
		b3009	b3012.2	b3015.8	b3064.1	b3071	b3080		b3008	B3015.2	b3064.2
		b3010	b3013	b3016	b3064.2	b3072	b3081		b3009	b3015.3	b3064.3
		b3011.1	b3014	b3017	b3064.3	b3073	b3082		b3011.1	b3015.4	b3084
		b3011.2	b3015.1	b3024	b3065	b3074	b3083		b3011.2	b3217	b3085

Notices

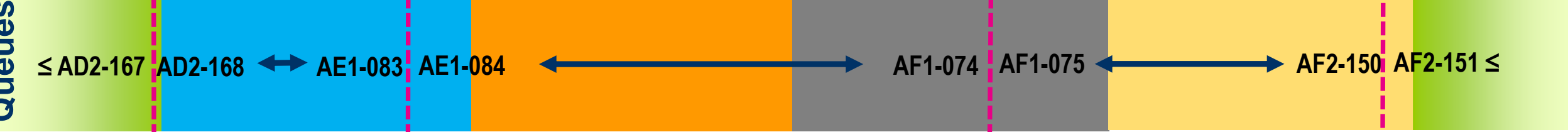
- 03/28/2018: First Energy announces deactivation of **Davis Besse 1, Perry 1, and Beaver Valley 1-2**
- 08/29/2018: First Energy announces deactivation of Eastlake 6, **Samimis 5-7**, Samimis Diesel, and Mansfield 1-3
- 07/29/2019: First Energy announces reinstatement of Davis Besse 1, Perry 1, and Samimis 5-7
- 03/13/2020: First Energy announces reinstatement of Beaver Valley 1-2



Beaver Valley 1 & 2 Reinstatement Queue Impact

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun

2018 AD2-Queue AE1-Queue AE2-Queue AF1-Queue AF2-Queue AG1-Queue



RTEP	<div style="border: 1px solid black; padding: 2px; display: inline-block;">b2965</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">b2967</div>	b3005	b3215	B3015.2	b3012.3	b3066	b3075	b3084	b2965	b3215	b3015.7
		B3006	b3216	b3015.3	b3012.4	b3067	b3076	b3085	b3214	b3216	b3015.8
		b3007.1	b3011.5	b3015.4	b3061	b3068	b3077		b3006	b3011.5	b3016
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		b3008	b3012.1	b3015.7	b3063	b3070	b3079		b3007.2	b3015.1	b3064.1
		b3009	b3012.2	b3015.8	b3064.1	b3071	b3080		b3008	B3015.2	b3064.2
		b3010	b3013	b3016	b3064.2	b3072	b3081		b3009	b3015.3	b3064.3
		b3011.1	b3014	b3017	b3064.3	b3073	b3082		b3011.1	b3015.4	b3084
		b3011.2	b3015.1	b3024	b3065	b3074	b3083		b3011.2	b3217	b3085

- “Pending resolution” baseline upgrades are not needed by deactivations, may not be needed as originally proposed, but may be required upon completion of baseline re-tools or may be relied on by applicable queue projects :
 - AD2-168 → AE1-083 can gain benefits from listed baselines upgrades identified prior to 8/29/2018.
 - AE1-084 → AF1-074 can gain benefits from listed baseline upgrades identified prior to 7/29/19.
 - AF1-075 → AF2-150 can gain benefits from listed baseline upgrades identified above between 7/29/2019 to 3/13/20.
- ISA must be signed to lock “pending resolution” baseline upgrades into base case.



FirstEnergy Deactivation and Reinstatement Baseline Upgrade Cost Estimates

The estimated cost of required upgrades due to the **03/28/2018 and 08/29/2018 deactivations** of the following units:

FE nuclear deactivation

- 05/31/2020: Davis Besse 1 (896 MW)
- 05/31/2021: Perry 1 (1247 MW) and Beaver Valley 1(909 MW)
- 10/31/2021: Beaver Valley 2 (902 MW)

FE Coal deactivation

- 06/01/2021: Bruce Mansfield (2490 MW), Sammis Diesel (13 MW), Eastlake 6 (24MW)
- 06/01/2022: Sammis 5, 6, and 7 (1491 MW)

\$414M

The estimated cost of required upgrades due to the **07/29/19 reinstatement** of the following units:

FE nuclear reinstatement

- Davis Besse 1 (896 MW)
- Perry 1 (1247 MW)

FE Coal deactivation

- Sammis 5, 6, 7 (1491 MW)

\$215.6M

The estimated cost of required upgrades due to the **03/13/20 reinstatement** of the following units:

FE nuclear reinstatement

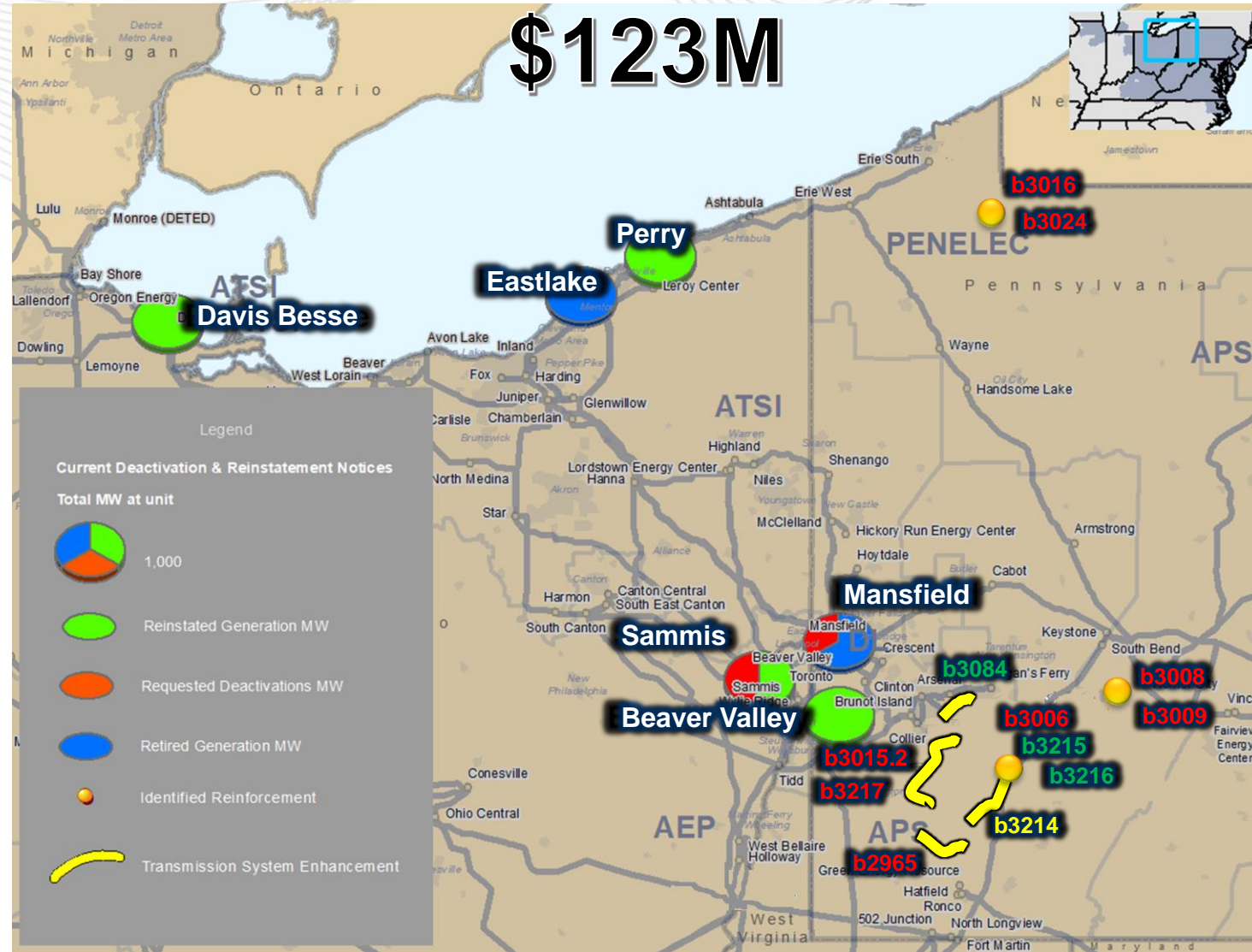
- Beaver Valley 1(909 MW)
- Beaver Valley 2 (902 MW)

\$123M

The impacts and required upgrades were re-evaluated due to the reinstatement for the following units:

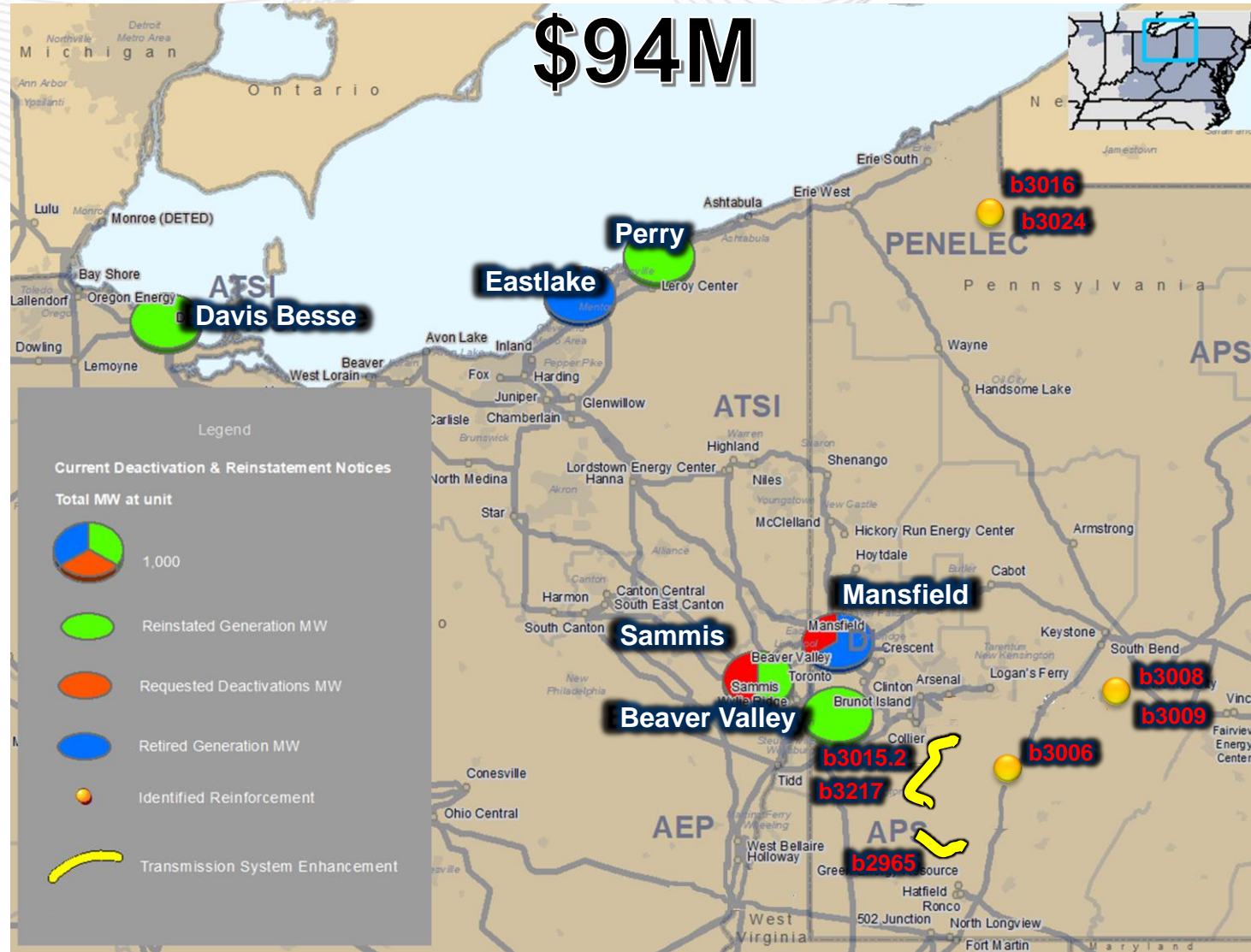
FE nuclear reinstatement

- Beaver Valley 1(909 MW)
- Beaver Valley 2 (902 MW)



The following 8 baseline projects remain due to work progression.

- B2965 – Reconductor the Charleroi - Allenport 138 kV line
- B3006 (APS) - Replace four Yukon 500/138 kV transformers with three transformers with higher rating and reconfigure 500 kV bus
- B3008 (PENELEC)- Upgrade Blairsville East 138/115 kV transformer terminals
- B3009 (PENELEC)- Upgrade Blairsville East 115 kV terminal equipment
- B3015.2 (DLCO) – Reconductor Elrama to Wilson 138 kV line
- B3217 (DLCO) formerly B3015.5
 - Assigned as a new baseline project (B3217) with a updated description for reconductoring Wilson to Mitchell 138 kV line
- B3016 (PENELEC) – Corry East 115 kV terminal equipment to Four Mile 115 kV line
- B3024 (PENELEC) – Corry East 115 kV terminal equipment to Warren 115 kV line

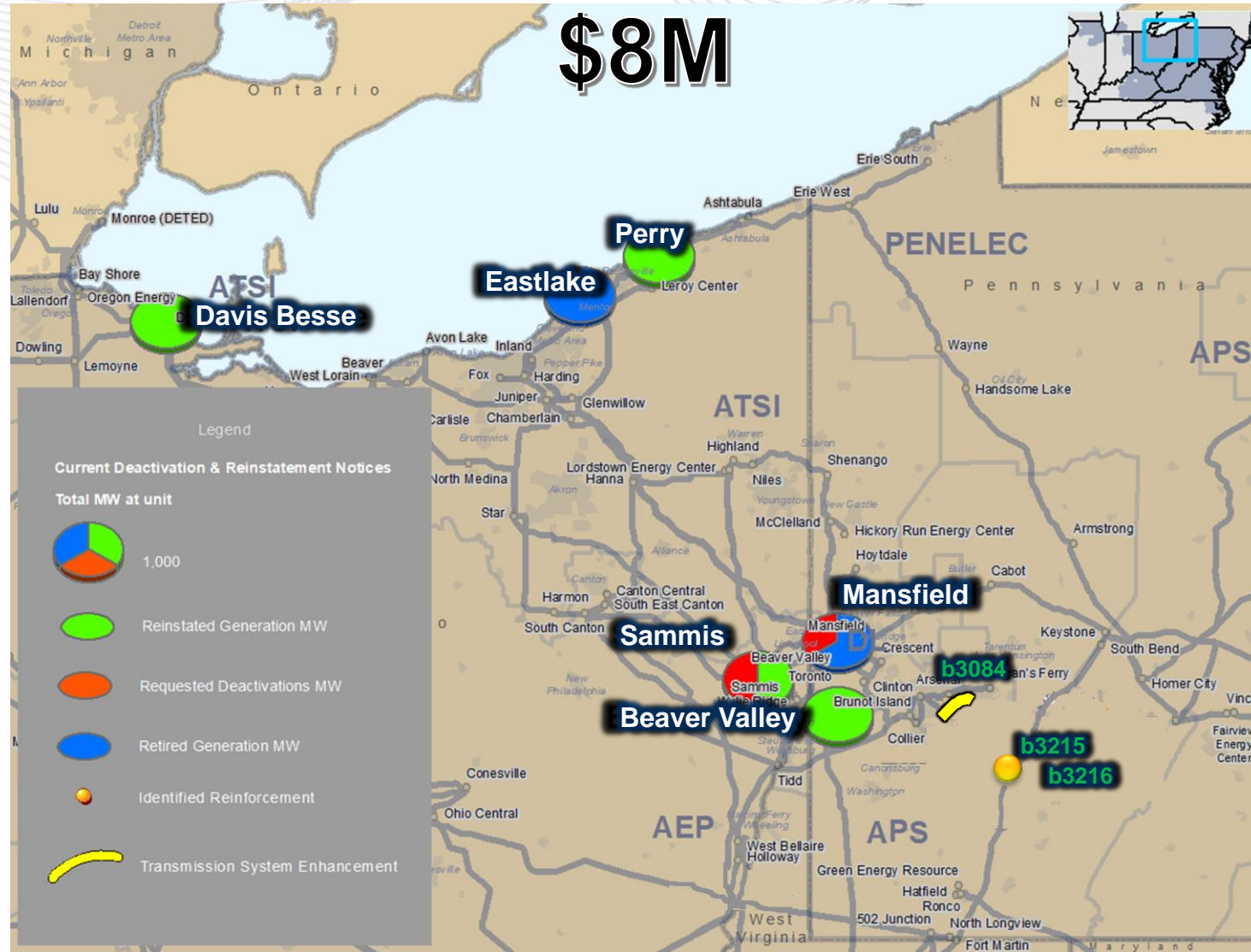


The remaining baseline projects remain required for the identified violations

- B3215 (APS) formerly B3011.3
 - Assigned as a new baseline project (B3215) with updated description: Upgrade terminal equipment at Yukon to increase rating on Yukon – AA2-161 (Robbins) 138 kV line
 - Newly estimated cost: \$0.4M

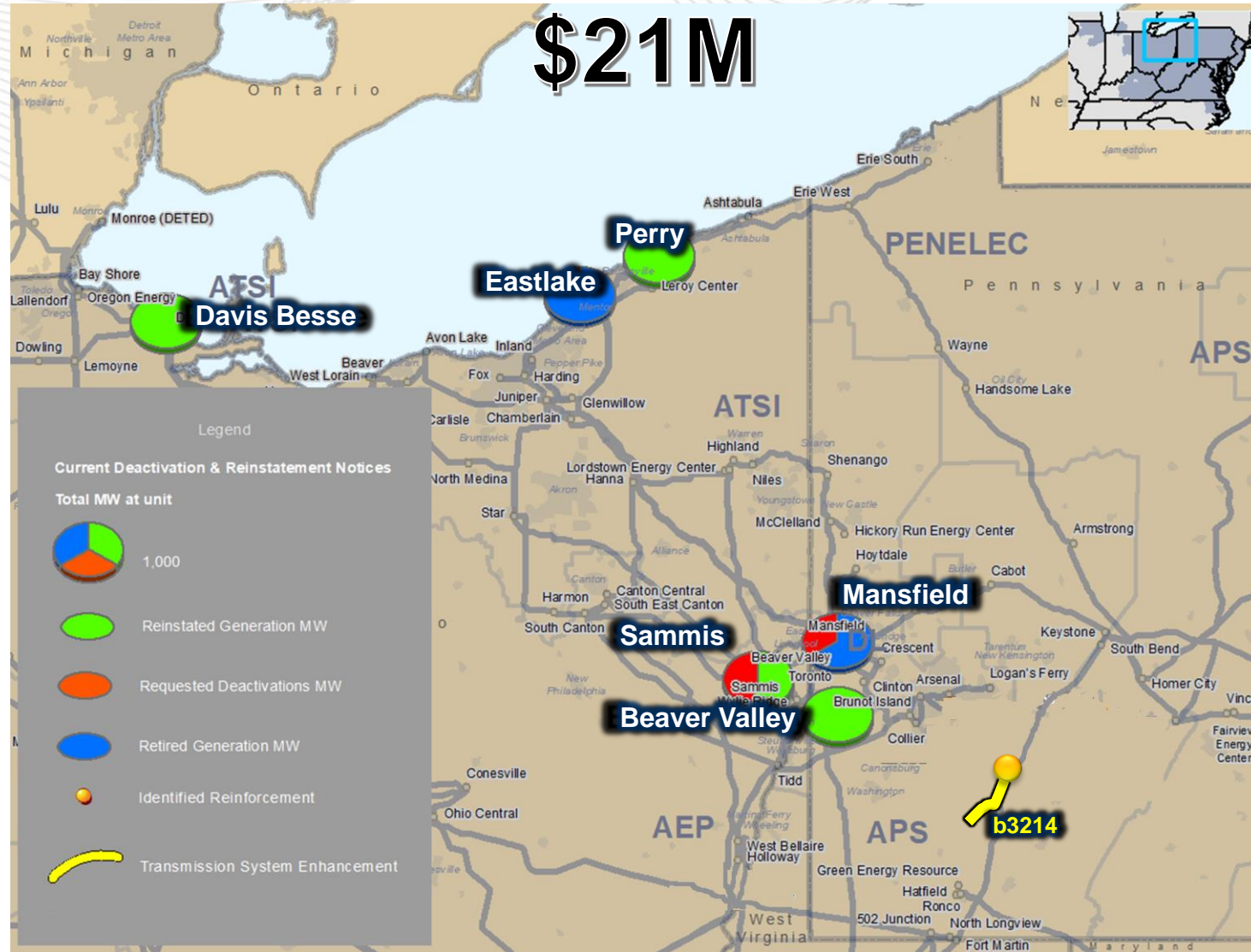
- B3216 (APS) formerly B3011.4
 - Assigned as a new baseline project (B3216) with updated description: Upgrade terminal equipment at Yukon to increase rating on Yukon – AA2-161 (Wycoff jct) 138 kV line
 - Newly Estimated cost: \$0.5M

- B3084 (DLCO) - Reconductor the Oakland - Panther Hollow 138 kV line.



New upgrade required:

- B3214 (APS) formerly B2966 - Reconductor the Yukon – Smithton – Shepler Hill Jct 138 kV Line. Upgrade terminal equipment at Yukon and replace line relaying at Mitchell and Charleroi.
- B2966 was cancelled by deactivation upgrades
- Estimated Cost: \$21.4M
- Projected IS date: 06/01/2023



- Baseline projects highlighted in green or red on slide 5-6 remain required.
- Newly identified project is highlighted in yellow on slide 5-6.
- Baseline projects highlighted in white on slide 5-6 are pending.
- All pending baseline projects are on hold.
- Final decision on canceling baseline projects will occur after completion of all required RTEP analysis and execution of ISAs for affected generation queue projects.
- Key Schedule
 - Beaver Valley reinstatement was included in the 2025 RTEP model build.
 - AF1 System Impact Study results anticipated August 2020.
 - AF2 Feasibility Study results anticipated July 2020.

- V1-5/5/2020 – Original slides posted