



# **ATC Generator Modeling Decision Methodology**

**Version 1.0**

## 1. INTRODUCTION

This document describes ATC Planning's methodology for modeling generators in power flow model development process. The methodology applies to all existing generators as well as future generators in the ATC footprint.

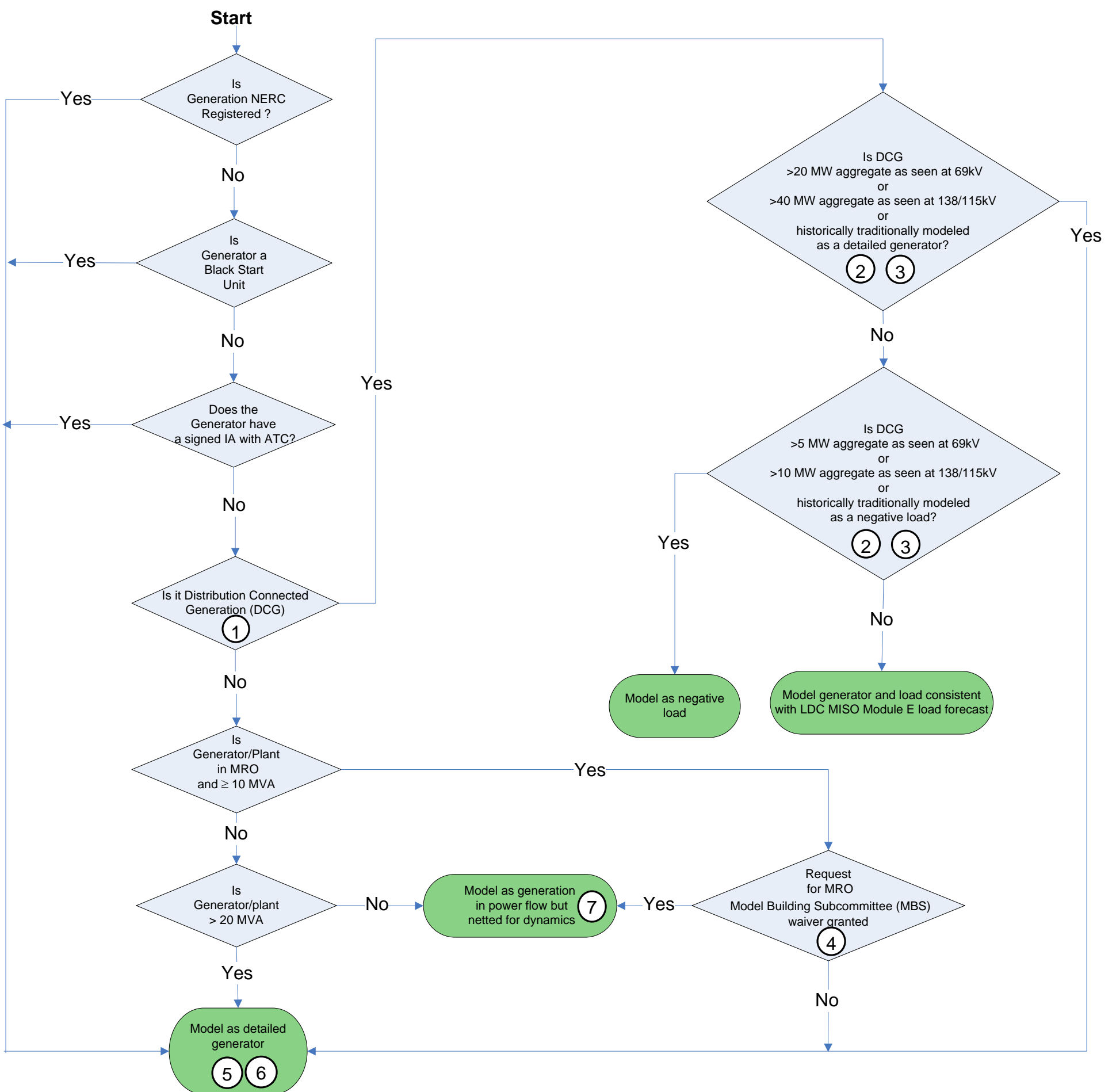
The decision tree covers both generators connected to the Bulk Electric System (BES) as well as distribution connected generators (DCG). Generators in the ATC system should be modeled in one of the following four categories:

- 1) model as detailed generator for dynamics
- 2) model as generation in power flow but netted for dynamics
- 3) model as negative load separate from other load
- 4) model generator and load consistent with Local Distribution Company (LDC)  
Midwest Independent System Operator (MISO) Module E load forecast

## 2. Generator Modeling Decision Trees

The following decision tree should be used to determine how each generator should be modeled by answering proper questions listed in the tree. Notes are added to provide explanations for questions asked and certain terminologies.

## ATC Power Flow and Dynamics Modeling Selection Decision Tree For Generation Operating Parallel to ATC Transmission Grid



### Notes:

- ① DCG: Generator(s) connected to the local distribution load serving system (either directly or behind retail customer facilities) operated parallel to the grid from a transmission system perspective (e.g. not back-up generation).
- ② The different MW thresholds are based upon the sum of the rated real power capacity of the total number of generators regardless of ownership as seen from transmission system (not netted with load).
- ③ The different MW thresholds are only minimum requirements. ATC may request more detailed generator information for certain reliability studies on a case by case basis..
- ④ Generator Owner will need to make this request to the Model Building Subcommittee (MBS). Otherwise, move directly to "No" path.
- ⑤ Use of non-detailed modeling shall be permitted for units with nameplates  $\leq 20$  MVA under following circumstances:
  - Detailed data not available because manufacturer no longer in business.
  - Detailed data is not available and unit has not been rebuilt since 1970.
- ⑥ Submit detailed generator dynamics data and steady-state data according to ATC Generation Interconnection Guide ( Appendix B-Generator Data Requirements. The link is <http://www.atcllc.com/documents/GICGuide-3.0-7.10.pdf>) and submit expected summer peak dispatch.
- ⑦ Submit generator steady-state data (Pmax, Pmin, Qmax, Qmin, base MVA, resistance, impedance, regulated voltage/bus, and expected summer peak dispatch) as well as interconnection facilities data (e.g. GSU, distribution feeder, etc).

### Note:

1. ATC may request detailed modeling data for generating facilities that do not fit criteria within this document, but otherwise are reasonably anticipated to have a material impact on the reliability of the ATC transmission system.

2. ATC is respectful of customer requests for confidential treatment of their generation modeling data and will not share the confidential modeling data with entities outside of ATC without coordination with impacted entities.