```python
  1: import lib
  2:
  3:
  4: def iterate(self):
  5:     self._x_value = self._start
  6:     self._old_x_value = None
  7:     self._iteration = 0
  8:     self._converged_val = False
  9:     self._grad_value = self._gradient(self._x_value)
 10:     self._z = 0
 11:     yield self.state_dict()  # yield initial values
 12:
 13:     while not self._converged_val:
 14:         self._iteration += 1
 15:         if self._max_iter > 0 and self._iteration > self._max_iter:
 16:             break
 17:         self._grad_value = self._gradient(self._x_value)
 18:         self._old_x_value = self._x_value
 19:         self._z = self._beta * self._z + self._step_size * self._grad_value
 20:         self._x_value = self._x_value - self._z
 21:         self._converged_val = self._converged(self._x_value, self._old_x_value)
 22:         yield self.state_dict()
```