Disclaimer
This document has been developed by the Methane Guiding Principles partnership. The Synopsis provides a summary of current known mitigations, costs, and available technologies as at the date of publication, but these may change or improve over time. The information included is accurate to the best of the authors’ knowledge, but does not necessarily reflect the views or positions of all Signatories to or Supporting Organisations of the Methane Guiding Principles partnership, and readers will need to make their own evaluation of the information provided. No warranty is given to readers concerning the completeness or accuracy of the information included in this Synopsis by SLR International Corporation and its contractors, the Methane Guiding Principles partnership or its Signatories or Supporting Organisations.

This Synopsis describes actions that an organisation can take to help manage methane emissions. Any actions or recommendations are not mandatory; they are simply one effective way to help manage methane emissions. Other approaches might be as effective, or more effective in a particular situation. What readers choose to do will often depend on the circumstances, the specific risks under management and the applicable legal regime.
### Checklist

**Methods of reducing methane emissions from flaring**

- Keep an accurate inventory of flaring activity.
- Prevent flaring by designing systems that do not produce waste gases.
- Recover waste gases as products to be sold.
- Inject waste gases into oil or gas reservoirs.
- Find alternative uses for flared gases, such as generating electricity.
- Improve the efficiency of combustion when gases have to be flared.
- Track progress in reducing flaring and venting.

## Methods for Reducing Methane Emissions from Flaring

Flaring can be reduced in three ways. Ideally, waste gas production is prevented. If this is not feasible then waste gas recovery for sale can generate revenue. Otherwise, storing (re-injecting) gases in oil and gas reservoirs is also an alternative. If the waste gas cannot be recovered to be sold as a natural gas or natural-gas liquid product, or cannot be stored, it may be able to be used for generating electricity. If flaring cannot feasibly be prevented, improving the efficiency of flares can reduce emissions of methane.

Methane emissions from flaring can be reduced in the following ways.

- Preventing flaring by designing systems that do not produce waste gases (for example, by introducing high- and low-pressure separators at well sites)
- Recovering waste gases from tanks and from well-testing and completion, and returning the gases to on-site product streams
- Recovering waste gases that are currently flared and transporting them to nearby gas-processing facilities, where they are recovered as natural gas and natural-gas liquid products
- Storing gases that might otherwise be flared by injecting them into oil and gas reservoirs (which may also increase oil and gas production)
- Finding alternative uses for the gas, often to generate electricity
- Improving the efficiency of flaring

Methods for reducing emissions from flaring have many elements in common with best practice for reducing emissions from venting of gases, and best practice for engineering design, which are summarized in other best-practice guides.
flaring should be coordinated with the tracking of your progress in reducing venting, as some reductions in venting lead to increased flaring.

**Methods of reducing methane emissions**

**Prevent flaring through the design of systems**
Wells that produce condensate or crude oil send hydrocarbon liquid from a pressurized separator to a non-pressurized condensate tank. Methane will ‘flash’ from the liquid in the tank and may be flared. Flaring of this ‘flash gas’ can be significantly reduced by installing both high- and low-pressure separators on well sites.

**Recover waste gases using vapor-recovery units**
Vapor-recovery units can capture flash gas from tanks and compress it into the gas line so it can be sold rather than being released into the atmosphere or flared.

**Recover waste gases from well-testing and completion**
After a new well is drilled, it is brought into production through in a completion process that can result in venting or flaring of the completion flowback gas. Separators have been used during completion to capture the gas, and while some of the gas may be flared, some of the gas may be recoverable for sale.

**Recover waste gases at well sites and transport by truck to gas processing facilities**
Waste gas, which might otherwise be flared, can be treated to remove water, sulfur and carbon dioxide, then compressed on-site to produce compressed natural gas (CNG) and a natural gas liquids (NGL) product. To meet pipeline and other product requirements, the CNG and LNG must typically be further treated. This can be done by transporting the products by truck to a gas processing facility.

**Inject waste gases in oil and gas reservoirs**
Gas that might otherwise be flared can, in some cases, be injected back into the reservoirs it was produced from, or other reservoirs. As well as storing the gas for future use, this also may help increase oil production.

**Convert waste gas to electrical power**
Gas turbines and ‘reciprocating engines’ can convert gases that would otherwise be flared into electricity. The electricity can be used on-site to power equipment (including controllers, pumps and compressors) or sold to the grid.

**Improve the efficiency of flaring**
If flaring cannot feasibly be avoided, methane emissions can be reduced by improving the efficiency of the combustion in the flare. Since the design of a flare depends on the volume of and variations in gas flow, methods for improving combustion differ between low-volume and high-volume flares. Some measures involve making changes to flaring equipment, while other measures involve changing practices.
Further information

MGP Website:
www.methaneguidingprinciples.org

OGCI:
https://oilandgasclimateinitiative.com

CCAC OGMP:

IEA Methane Tracker:
https://www.iea.org/weo/methane

Natural Gas STAR Program:
https://www.epa.gov/natural-gas-star-program