

# Intermodal Shipping

## A Glance at Clean Freight Strategies

*Intermodal freight transport combines the best attributes of both truck and rail shipping. For long distances, intermodal freight moves can cut fuel use and greenhouse gas emissions, compared to truck-only moves.*

### What is the challenge?

Moving freight long distances by rail rather than by truck can save fuel and reduce greenhouse gas emissions. This is because a freight train with 20 to 50 railroad cars can carry much more cargo per gallon of diesel fuel than can a combination truck. However, trucks can usually offer more service and scheduling options than trains. Because of these distinctions, trucks move over four times as much freight as rail.

Increased business competition and international trade is fueling the growth of intermodal freight transport. The total number of trailers and containers shipped by intermodal rail grew by nearly 33 percent between 1998 and 2008.

### What is the solution?

Railroad freight cars carry cargo over long distance, high volume corridors. Trucks or barges move the loads between the rail terminals and the cargo's ultimate origin or destination.

#### Types of Intermodal Shipping

- Trailer on flat car, commonly called TOFC, or "piggyback." In a TOFC move, reinforced truck trailers mount on railroad flat cars or spine cars (frame-like cars with a middle bar or spine) for the rail leg of the trip, and hook to combination trucks for the rest of the trip.
- Container on flat car or COFC uses metal shipping containers on a railroad flat car or spine car for the rail part of the trip. Containers are typically loaded onto a container chassis (a frame-like truck trailer) for the trucked leg of the trip.
- Double stacking is the most efficient way to move containers long distances over land. Two stacked containers on a railroad well car (a rail car with a "well" into which the bottom container partly sits) is known as double stack service. Double stack railroad well cars may be permanently coupled together to decrease stress and cargo damage during train braking and acceleration.



#### Next Steps

**1** Shippers, logistics providers, and trucking companies can consider intermodal transport as a cost-saving and environmentally friendly option when arranging for long distance transport.

**2** Companies can determine if intermodal transport is appropriate for parts of their company. Intermodal transport may not be suitable for all goods. Time-sensitive products may require speedier or more flexible delivery than some railroads offer.

**2 Continued...**  
Damage-sensitive commodities may call for a smoother ride than freight trains can provide. However, rail car manufacturers are introducing advanced suspension systems and car designs that better stabilize, cushion and protect railed cargo.

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## Technological Advances of Intermodal Shipping

- Truck trailers can be configured to travel on railroad tracks. The trailer is backed onto the end of a railroad track, positioned over two sets of railroad axles and wheels (called bogeys), then lowered and attached, so it functions as a railroad car.
- Rail car platforms can be configured into one longer articulated platform, onto which trucks can drive to load and unload trailers. Because the long, articulated platform has no slack action, it can handle standard, non-reinforced trailers that normally cannot be used in TOFC operation

## Savings and Benefits

Intermodal transport is an attractive option for shipments over 500 miles. A freight train emits two-thirds less greenhouse gas emissions for every ton mile than a typical truck. More than 1 billion gallons of fuel would be saved each year if 10 percent of the highway freight was moved by rail.