Changing Risk Allocation in Waste to Energy

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Agenda

1. WTE background
2. Traditional Contractual Arrangements
3. Changing Risk Allocation
4. Anticipating and Managing Changes in Risk Allocation

WTE Background

WTE Development in the 1980s and 1990s

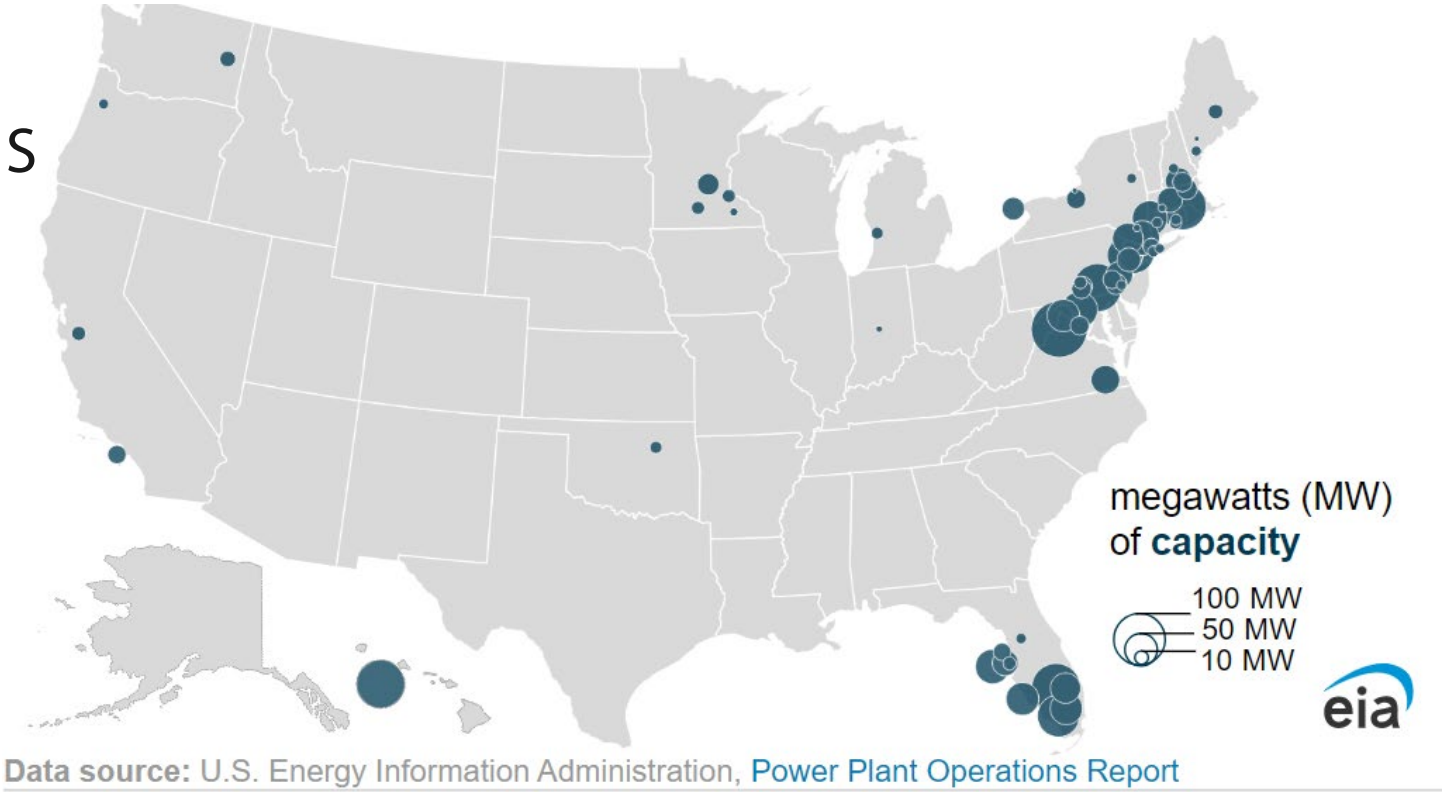
- Landfills were called "dumps" and did not require liners
- States were beginning to ban out-of-state waste imports
- Waste-to-Energy was a relatively new technology

Facilities Aging

- First WTE was in Saugus, MA in 1975
- Most operating facilities were built in the 1980 s and early 1990 s
- Initial expected life was around *20* years
- Current facilities are well beyond their initial expected life
- Most have undergone significant retrofits

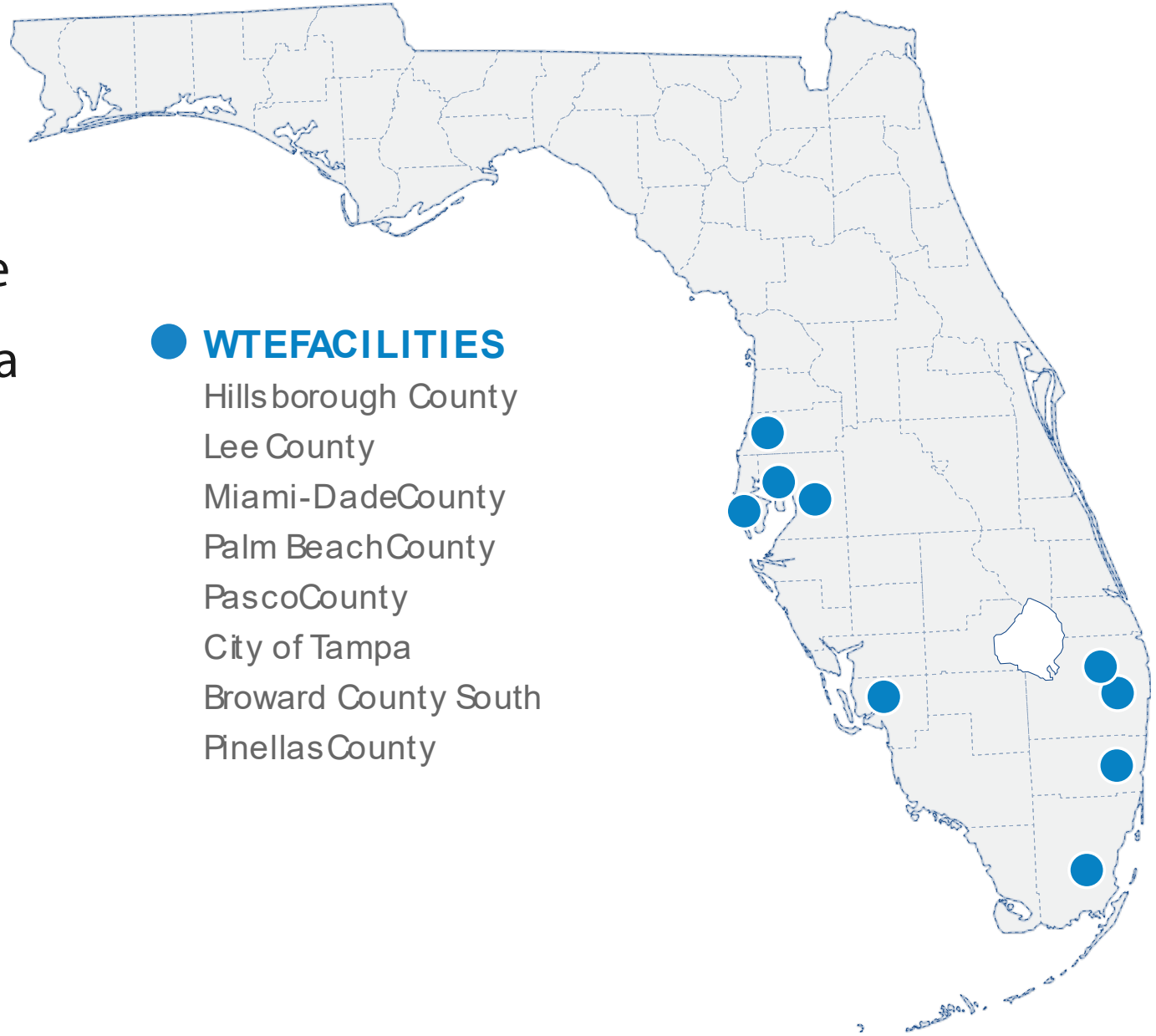
The Number of Operating Plants Dwindled

- At its peak there were 87 modern WTE facilities in the US
- Today there are 60*
- The majority were in the northeastern US and Florida



Florida Leads in WTE

- Florida continues to have more WTE than any other single state
- 13 WTE facilities were in Florida alone
- There are currently 9 operating WTE plants in Florida
- 8 of these are publicly owned, and 8 are privately operated
- Generate about 510 MW of renewable energy



Public Utility Regulatory Policies Act

1. Public Utility Regulatory Policies Act (PURPA) of 1978 was passed in response to energy crisis created by OPEC
2. PURPA provided incentives to develop independent power plants, or Qualifying Facilities
3. Required utilities to purchase power from independent power producers at a cost equivalent to their avoided cost
4. Revenue included a “capacity payment” plus an energy payment

Market Drivers Affecting the WTE Industry

- Many new “Mega” Landfills were developed and charged tipping fees far below typical WTE fees
- Challenges to waste flow control made it difficult to meet waste delivery commitments
- With the expiration of PURPA, utilities no longer required to pay capacity payments
- This reduced energy revenue to plants by almost two thirds in many cases
- Created financial pressure on WTE owners and operators

Traditional Contract Provisions

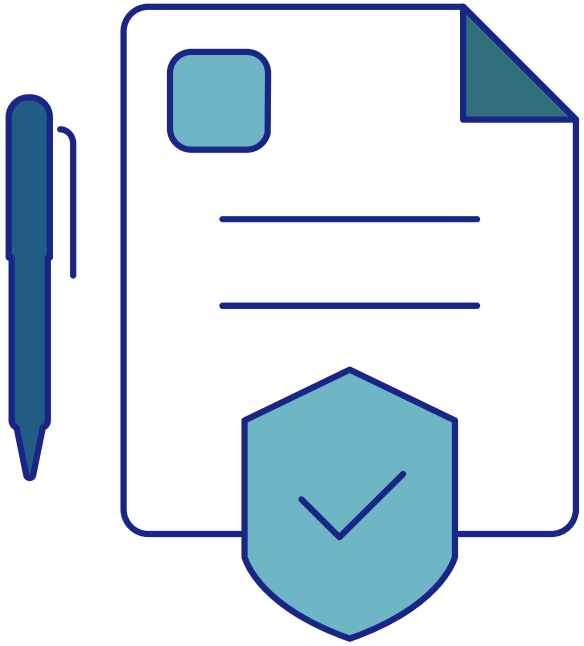
Full-Service Contracts

- Contracts were called ***Full-Service***
- Often a joint venture of sorts between engineers, constructors and operators
- Essentially design, build, operate agreements
- This approach later spread to the water and wastewater industries and is called Design Build Operate, or DBO
- Had a revolutionary effect on privatization of utility services

Single Point of Responsibility

- A corporate *Project Guarantor* provided overall project guaranties
- Single corporate entity responsible for the design, construction, and operation
- Limited “finger pointing” between design engineers and constructors that is common in traditional design-bid-build
- Assured the public owner that financial and contractual recourse exists to correct performance issues

Typical Service Agreement Terms



A. Client pays, vendor receives a service fee

B. Vendor is responsible for all operations, maintenance, repair, and replacement regardless of cost

C. Capital improvements or capital modification was owner's responsibility

D. Capital improvements and modifications involve changes to the facility.

Full-Service Contracts *(Cont'd)*

- Design and construction provisions governed until a commissioning test to satisfy all performance guarantees
- Following commissioning, or acceptance, the commercial operating period begins
- Typically, ***20 years***

Risk Allocation

What Do We Mean by Risk Allocation

- Public sector is risk averse
- Public sector favors approaches that are well proven and show a demonstrated record of success
- In order to win projects, WTE **vendors** were required to **assume most risk**
- Vendors were expected to take complete responsibility for design, construction, and operation and maintenance
- This included repair and replacement regardless of cost

The Project Sponsor and the Vendor

- The Project Sponsor:
  - Typically, a municipality, a County or a group of these parties,
  - Usually the owner,
  - Bound by an interlocal agreement, or
  - Membership in an Authority.
- The Vendor:
  - Typically, a private company,
  - Has a track record operating and maintaining similar facilities, and
  - Normally includes a project guarantor

What Do We Mean By Risks

- Each party agrees to certain parameters upfront during contract negotiations
- Actual conditions may differ, but responsibilities remain as agreed in the contract
- This is the risk factor

Examples include:

- maintenance, repair, and replacement
- waste quantity and quality
- Inflationary adjustment indices

Risk Factors

- Actual maintenance, repair, and replacement expense may exceed the budget vendors used to determine fee
- Labor costs can exceed budgeted costs
- Inflationary adjustment indices are estimates only, but they dictate the actual contract adjustments
- In each case, the opposite is true as well - costs can increase less than contractually dictated

The Owner Responsibilities

1. Deliver minimum quantity of waste, or pay as if they did (put or pay)
2. Recover enough revenue to meet bond debt service coverage requirements
3. Waste quality => Higher Heating Value (HHV). Changes to HHV can change facility processing guarantees and/or the amount of energy recovery
4. Pass through costs for chemicals for pollution control
5. Provide for residue disposal

Vendor Responsibilities

1. Waste processing guarantees (tons per year)
2. Energy production efficiency (kwh/ton)
3. Combustion efficiency (ash residue quality)
4. Environmental compliance
5. Energy revenue is often shared between the vendor and owner
6. Typically, 90% owner, 10% operator for publicly owned plants

Changing Landscape of Risks

- Many of the plants in operation have been in service for around 30 to 40 years
- This exceeds the typical initial expected useful life, or bond term
- However, many owners have invested significantly to keep the plants operational
- Client investments have ranged from $200M to $250M

Several Sample Facilities Were Considered

- The facilities reviewed range in age from 29 to almost 40 years old
- All but one plant have been expanded, and expansion being planned at the remaining one
- Expanded capacities range from 1,050 to 3,000 tpd
- Most have had, or are planning, significant reinvestment for life extension

Accounting for Extended Life Spans

- In one case, increased energy revenue was allocated to the vendor to offset vendor costs to complete CAPEX projects
- In two cases, the owner paid for projects intended to extend the plant's useful life and improve reliability in exchange for reduction in O&M fee
- In one case, no appreciable investment was made.
- However, the condition of this facility has deteriorated noticeably, and performance has declined

Anticipating and Managing Changes in Risk Allocation

The Main Issue Being Addressed

Shifting responsibility for capital projects to the owner

Change to the fundamental contract arrangement

Effectively increases the operating fee to the owner

Anticipate Capital Project Needs

Operator should forecast and estimate the cost for projects within the contract term

Forecasted projects should be identified at least five years out

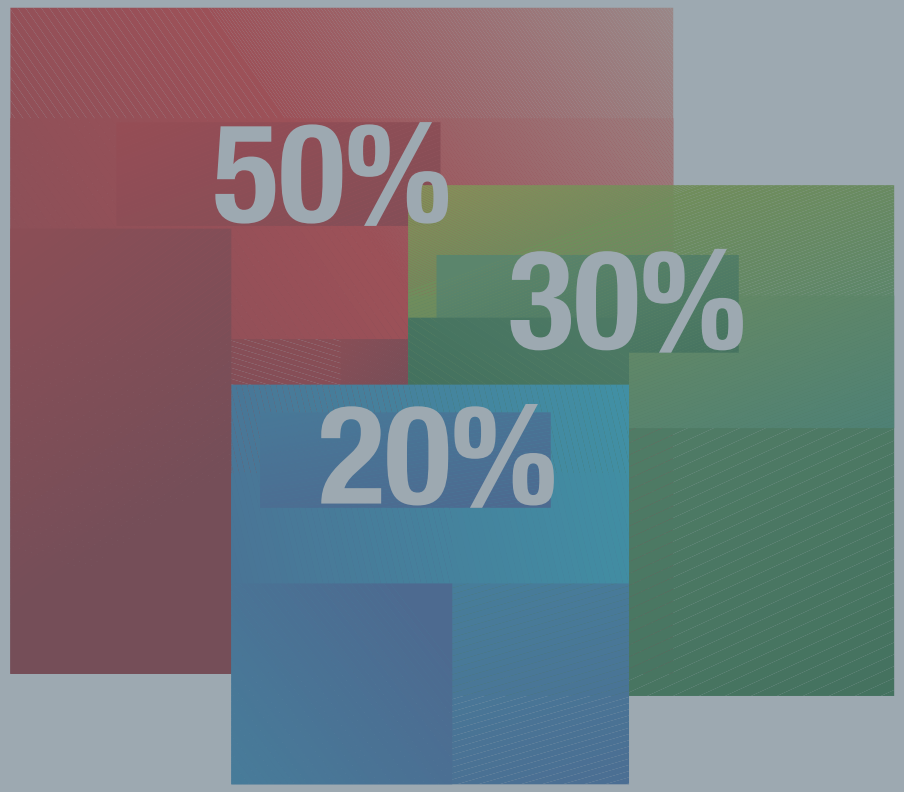
Forecasts should be updated about every two years

Considerations for each requested project

- Have affected systems exceeded their expected useful life?
- What is the general history of project replacement with respect to projected useful life?
- With the fee guaranteed, reduced maintenance and replacement means increased profit
- The vendor can be incentivized to defer maintenance

Allocating Responsibility Fairly

- Many projects can reduce operating and maintenance costs. It would be fair to reflect this in a lower processing fee
- Vendors should not necessarily be required to pay in full for improvements that extend beyond their contract
- Provisions are needed to ensure operator is incentivized for proper operation and maintenance



Possible Alternative Approaches to Consider

- Direct owner responsibility
- An insurance deductible type of approach
- An appropriate adjustment to the processing fee if justified to accommodate CAPEX replacement projects and maintain current delineation of responsibilities

Direct Owner Responsibility - Business Case Justification

- Description of proposed project and cost.
- Identify last replacement date or age of the equipment or components being replaced.
- Statement to whether the equipment has served its expected useful life. If not, explain why.
- Why the equipment is at the end of life (eg obsolete, or no longer supported).
- What reduction in processing cost an be expected due to less required maintenance?

Insurance Deductible Approach

- Business case should be presented with appropriate justification
- This assures the owner of the need for the project and that the project is not due to insufficient maintenance
- The Operator is responsible for the first $400,000, for example, of every proposed project. The Owner pays the remainder
- Alternately, the owner pays the first $400,000 of every project
- This gives the operator some “skin in the game”
- Important since new equipment and systems can reduce O&M costs, creating an incentive to let equipment run to failure

Changing Responsibilities

- Operating agreement extensions may not be the same original 20-year term.
- Vendors are, therefore, not always willing to take the same repair and replacement responsibility.
- Determining responsible party for major repair and replacement is complex.
- As plants approach, or exceed double the original planning period, more significant investments required to maintain reliable operation.
- The party making the investment should consider the term of the extension and the revenue potential.
- Important to distinguish between “normal” maintenance, repair and replacement, and life extension.

Time is Not Your Friend

- Negotiating leverage is important to securing the best outcome.
- The issues can take time to work through
- Threat of competitive procurement can be strong leverage
- Procurement of a new operator can be a lengthy process

Anticipate Well in Advance

- When a plant is publicly owned the vendor's main revenue is the guaranteed service fee and reduced operating expenses
- Give yourself leverage so the incumbent vendor is not a sole source option
- Developing other options takes a lot of time
- Even if changing vendors is not your ultimate goal, alternatives provide leverage
- Time is not your friend