Geosyntec consultants

engineers | scientists | innovators

streamlineAM

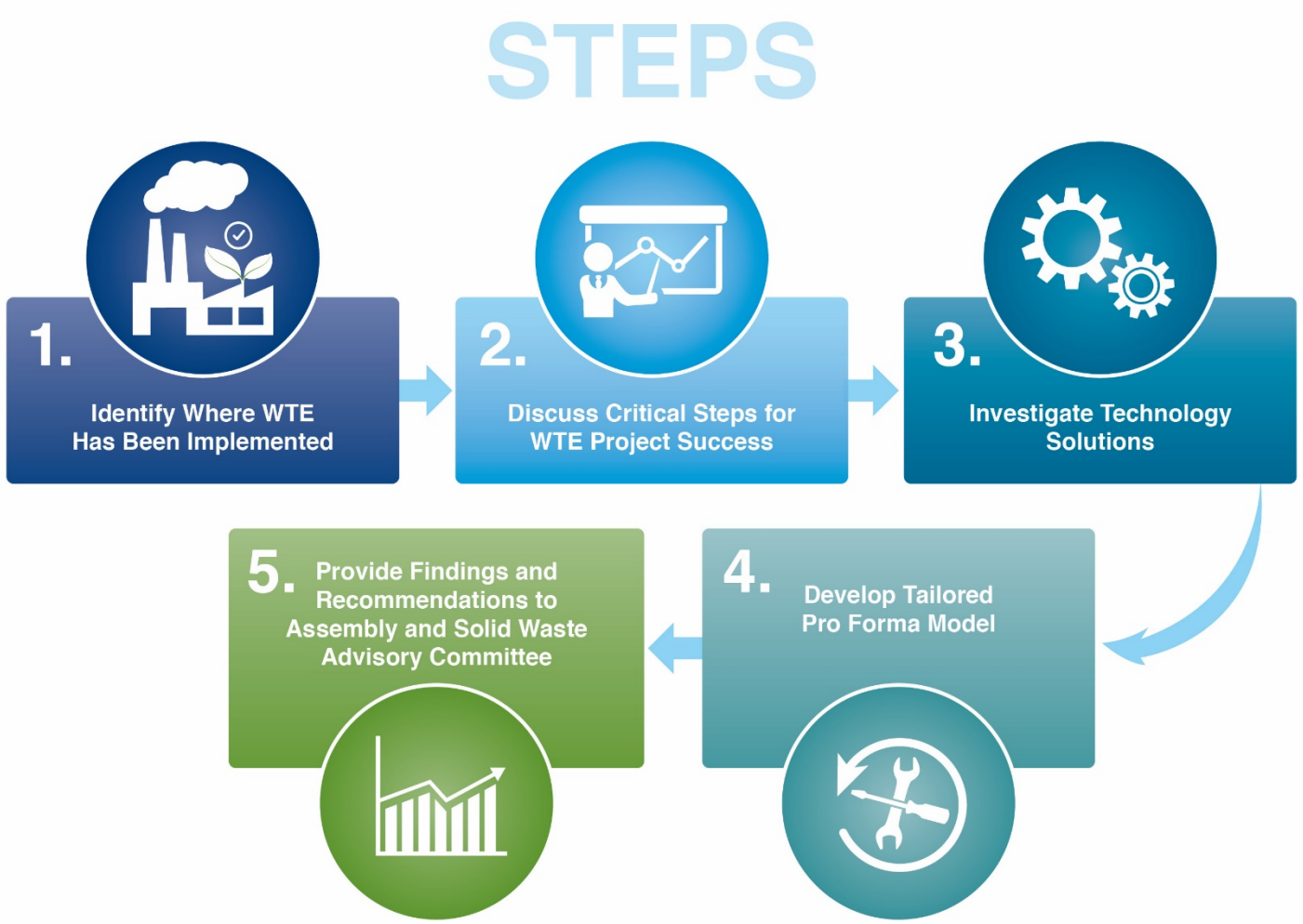
Municipality of Anchorage
Waste-to-Energy Feasibility: A Status Report

Marc Rogoff

Jan 13-2020

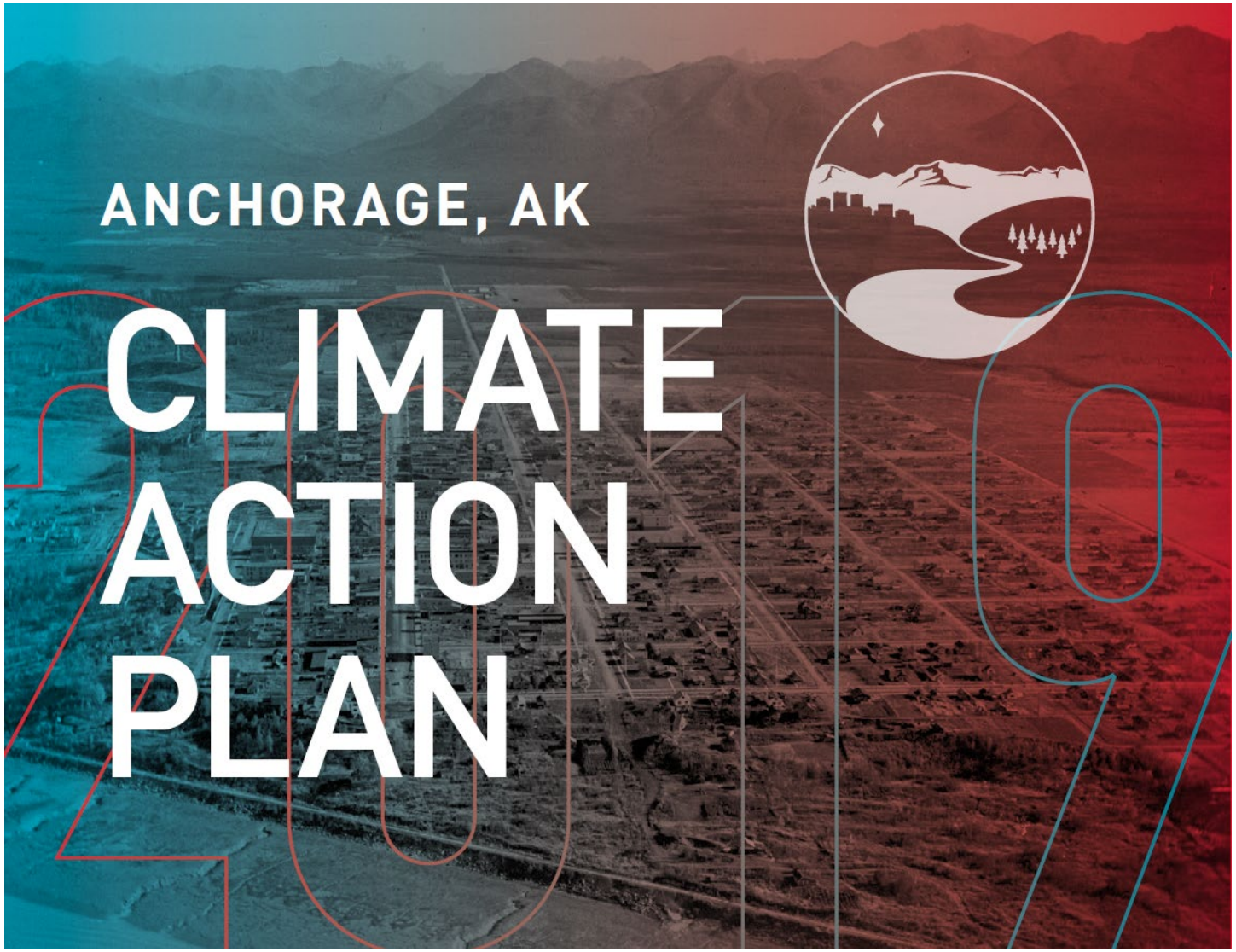
Pre Feasibility Study

Geosyntec consultants

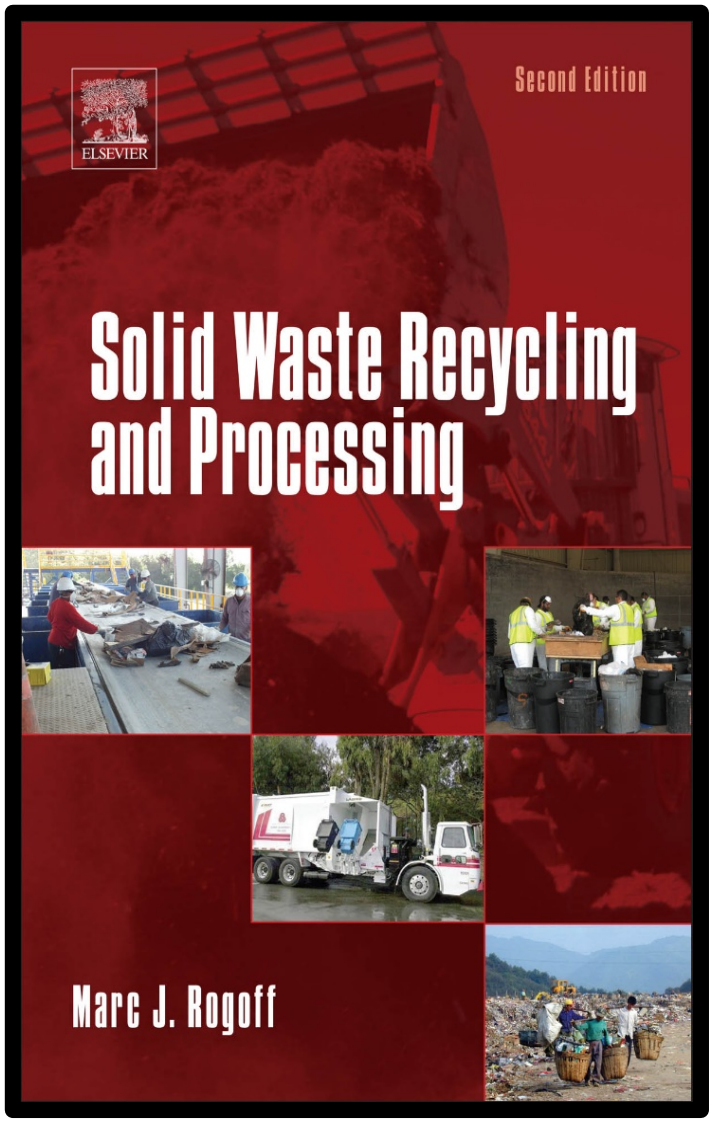


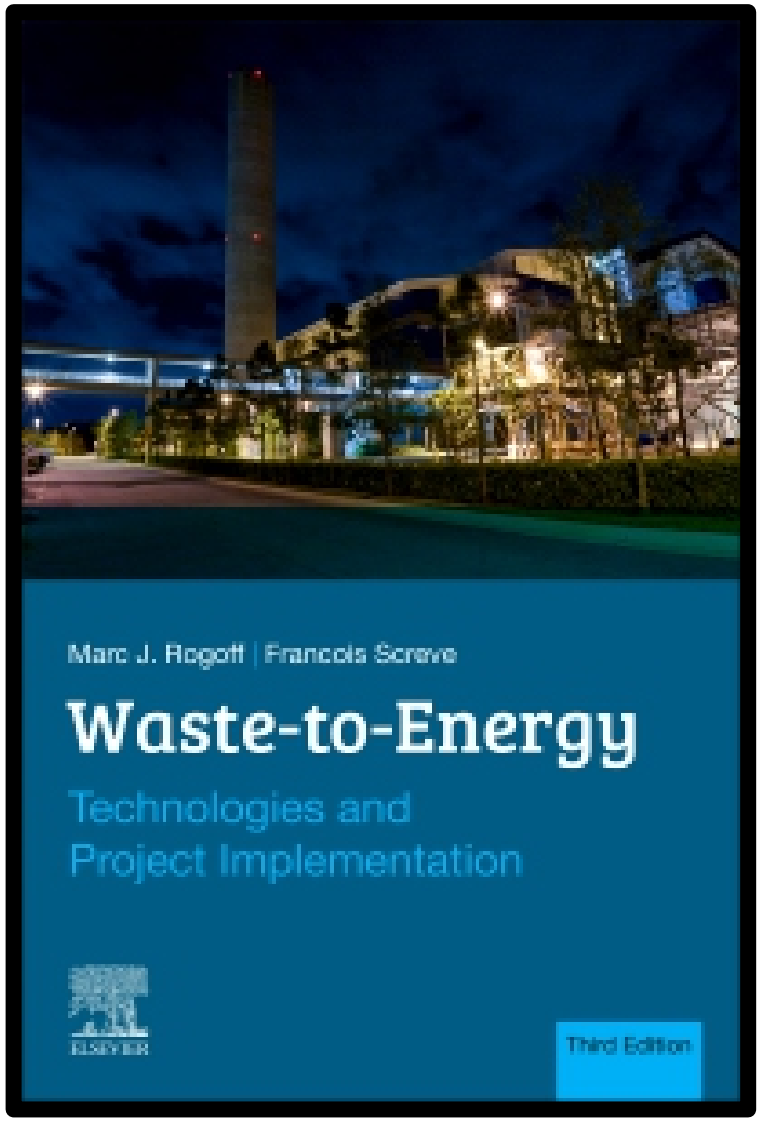
New transfer station, administration, maintenance and warm storage building, and public drop-off facilities to replace 30+ year old assets. This improves safety, customer service, efficiency, and materials management which increases the life of the ARL through improved community diversion opportunities. Moving to a new property would prevent a 2- to 3-year shutdown of the existing facility for improvements and allows for future uses by other MOA departments (i.e. grit management facility at existing transfer station, additional warm storage and administrative space). It also controls adjacent uses that may impact future CTS operations.

Diversion Programs	Alternative Technologies
	
Increase diversion through food waste reduction, organics collection/drop-off programs, expanded compost facility capacity and end market development, public sector recycling, community outreach and education programs and, C&D reuse . Increase SWS diversion rate from 16% to 27% and reduce per capita disposal from 6.1 to 5.4 lbs./day (for those within the SWS Service Area).	Conduct feasibility study of technology alternatives to landfill disposal (including biological or thermal treatment) for addressing SWS and potentially AWWU (Anchorage Water & Wastewater Utility) needs. A 20% to 90% reduction in landfill disposal (by volume) may be achieved with biological or thermal treatment, respectively.

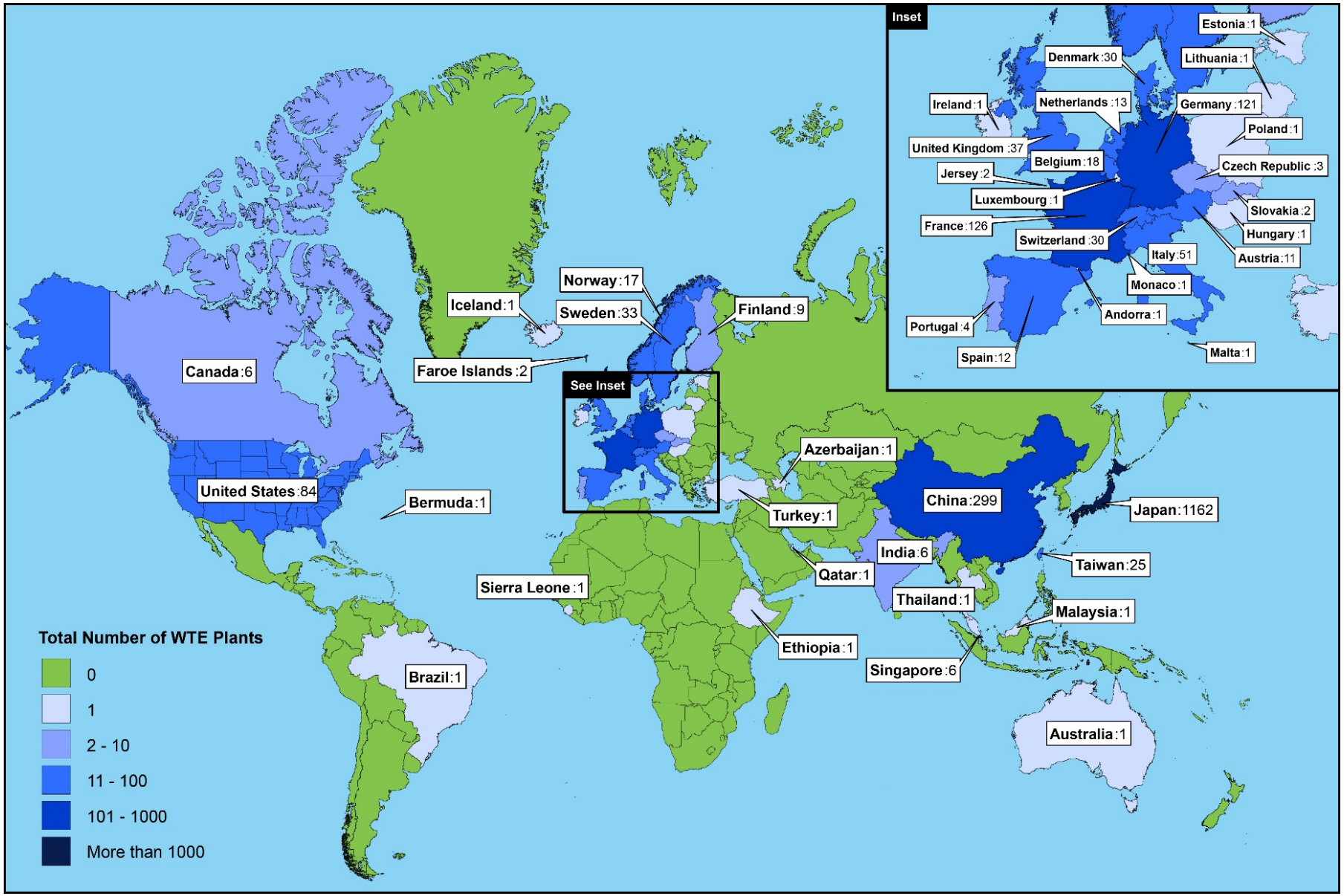

ANCHORAGE, AK
CLIMATE
ACTION
PLAN
2021
2071

Books


Second Edition
ELSEVIER
Solid Waste Recycling and Processing
Marc J. Rogoff


Marc J. Rogoff | Francois Screve
Waste-to-Energy
Technologies and Project Implementation
ELSEVIER
Third Edition

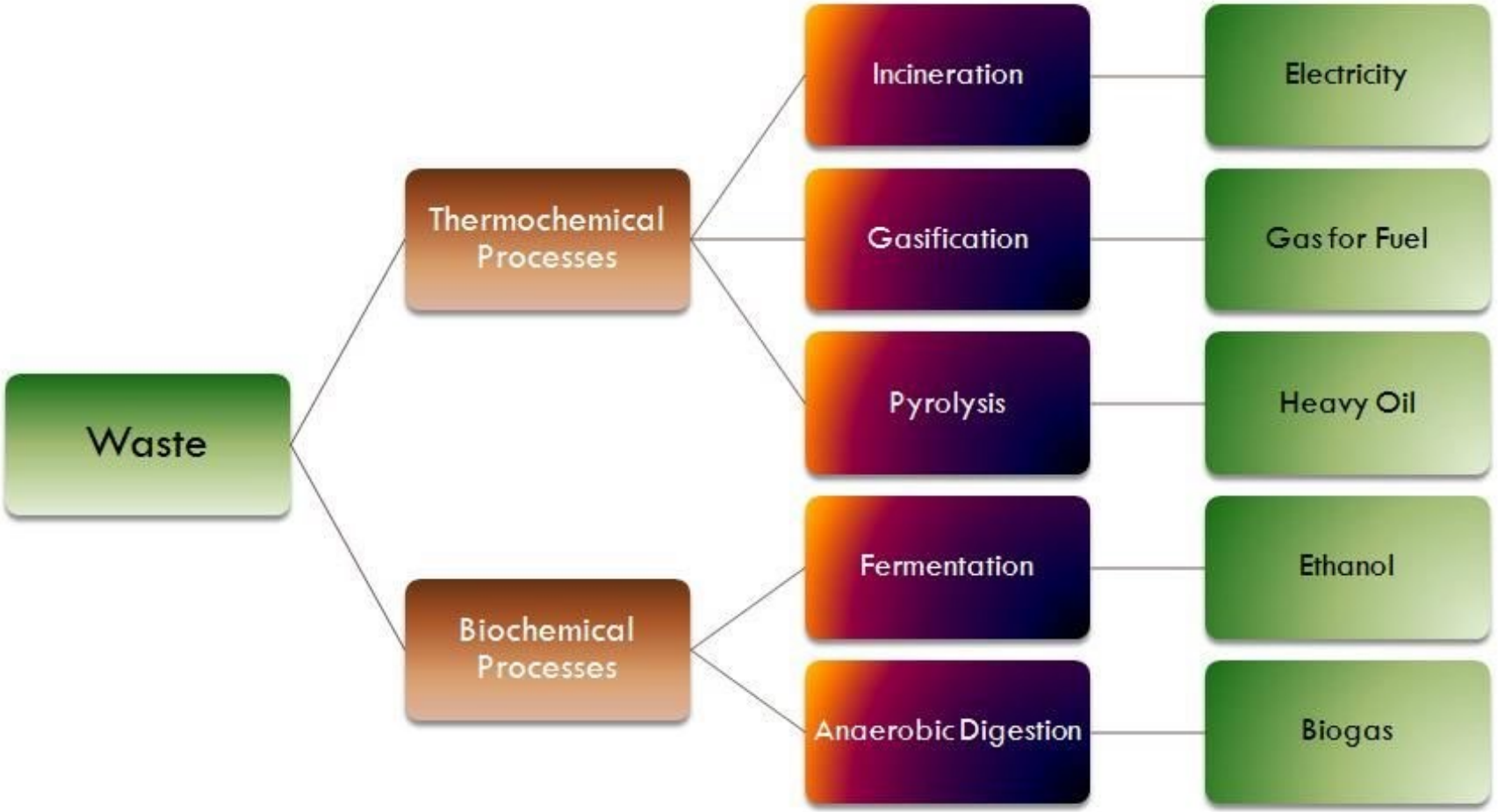
Waste-to-Energy Worldwide



Waste-to-Energy in the U.S.

- 77 WTE plants in 25 states
- 14%
- 4 facilities in West:
  - Spokane
  - Vancouver
  - Portland
  - Modesto
- Honolulu

Waste-to-Energy Technologies



Evaluation Criteria

STATE OF TECHNOLOGY

Degree to which technology has been proven on a commercial scale

Operating History

Freedom from high failure modes

Demonstrated reliability of entire system

TECHNICAL PERFORMANCE

Compatibility with full spectrum of MOA waste system

Ability to produce marketable byproducts

Need for pre processing

TECHNICAL RESOURCES

Proven contractor experience with technology

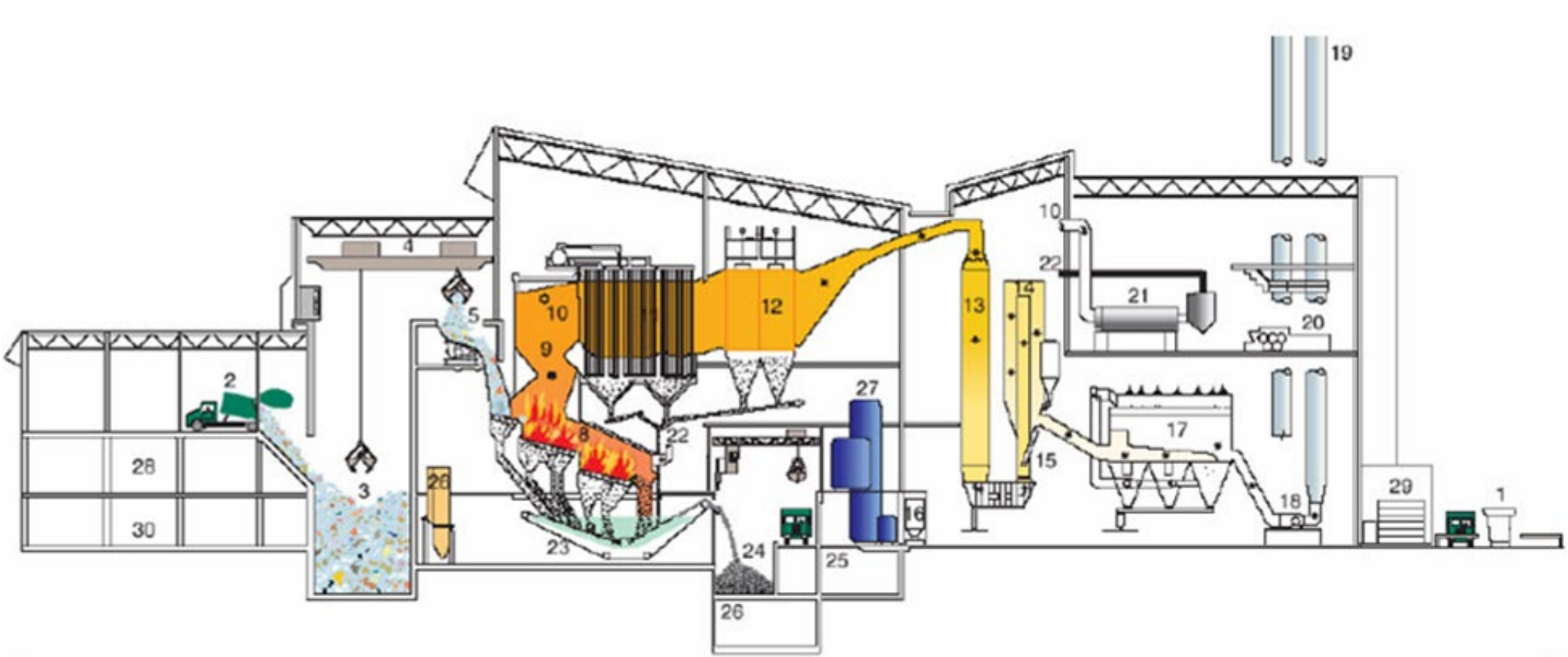
Proximity of technical support

Availability to provide support on continuing basis

Advantages of Mass Burn Plants

- Commercially proven
- Mature technology addressing high risks with design and operational procedures
- High gross energy output
- U.S. based vendors
- Pool of experienced professionals

Closer Look at Mass Burn Technology



Benefits of WTE

- WTE is Renewable Energy
- Reduces Greenhouse Emissions
- Significantly Extends Life of Landfill
- Complements Recycling


LIVE
NEW AT 6
.com
INSIDE THE NEW MULTI MILLION DOLLAR WASTE PLANT
WEST PALM BEACH
6:01
84°

Economics of Mass Burn Technology

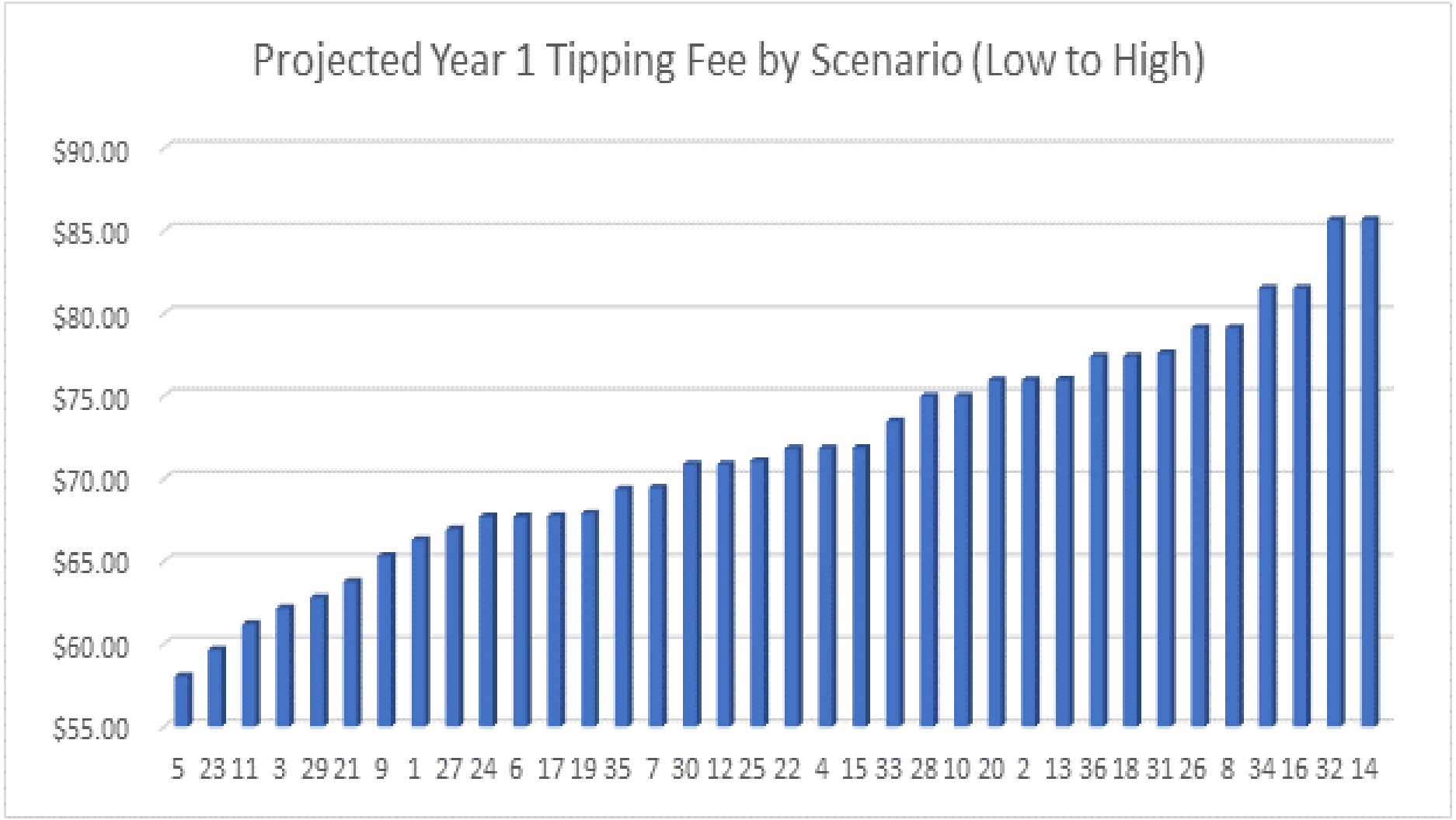
REVENUES

- Electric Sales
- Biosolids Tipping Fees
- Supplemental Waste Fees
- Recovered Metals

EXPENSES

- Debt Service
- Operating Fees
- Potable and Non Potable Water
- Propane
- Lime Pebble
- Lime Dolomite
- Urea
- Carbon

Pro Forma Rate Model



Pre Feasibility Conclusions

01. Mass incineration is the most well established and reliable WTE technology

02. The MOA generates 1,000 tpd; 1,200 tpd with neighboring Boroughs

03. WTE can incinerate MOA biosolids effectively

04. WTE is a practical goal of the ISWMP

05. Various economic scenarios suggest required tipping fees range from $58.04 to $85.67

Waste to Energy Facility Roadmap

Thank you.
Questions

Marc J. Rogoff, Ph.D.
Senior Consultant
mrogoff@geosyntec.com | (813) 810-5547